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

April 30, 2012

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

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

Dear Mr. Czuhanich:

This Semiannual Report covers the period from October 1, 2011 through March 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). A copy of this report is also included as a PDF file on the attached CD. On April 1, 2013 Olin will submit an annual report covering the period of April 1, 2012 through December 31, 2012 as approved by New York State Department of Environmental Conservation (NYSDEC) in a letter dated March 13, 2012 (***Attachment 1***). In subsequent years, Olin will submit annual reports on or before April 1 for the previous calendar year.

Operation & Maintenance:

In a letter dated March 14, 2012 NYSDEC approved an updated Operations and Maintenance Plan, Rev 4 (Attachment 1). Details of the routine maintenance tasks and troubleshooting are included for this reporting period in the six 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 two quarters. That attachment also includes tables and

hydrographs documenting empirical monthly hydraulic capture comparisons, plus piezometric data and system flow data.

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 375 million gallons. The volume of pumped groundwater for the two quarters during the reporting period was approximately 15.1 million gallons. To date, the system has extracted over 80,000 pounds of organics, 365 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 95 percent of organics mass removed by the Olin treatment system originates off-site from the DuPont facility. Since this migration from DuPont is largely uncontrolled, 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 April 1, 2012 through December 31, 2012 on or before April 1, 2013. 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
Gina Senia: Olin, Niagara Falls, NY
Kelly McIntosh: AMEC E&I, Amherst, NY

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

March 13, 2012

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

RE: Semiannual Report
Olin Chemicals, Buffalo Ave. 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 the Semiannual Report for Olin's Buffalo Avenue facility. The referenced report is dated October 21, 2011 and documents Olin's monitoring, remediation, and O&M activities at the Niagara Falls plant for the period April 1 through September 30, 2011. (Note: The introductory paragraph in the report's cover letter states that the reporting period goes through October 31, 2011. This appears to be a typographical error.)

Data in the report indicate that the remedial goals for the site are generally being met. Several recovery wells in Olin's remedial system failed to achieve target drawdown levels on a consistent basis early in the reporting period. However, Olin's replacement of the facility's air stripper has improved the remedial system's ability to maintain target drawdown levels in the affected wells. Data also indicate that site-related contaminant mass continues to be removed via the groundwater extraction and treatment system. The Department recognizes that approximately ninety percent of the organic mass removed by the Olin treatment system originates from off-site, non-Olin sources.

Olin proposes maintaining its current monitoring program, but reducing its reporting requirements to a single annual report. The Department agrees with Olin's assessment that annual reporting is appropriate given the maturity of the remedial program and the consistent results reported in recent years. As agreed to during subsequent discussions with Olin, the following reporting schedule is approved for Olin's Buffalo Avenue facility:

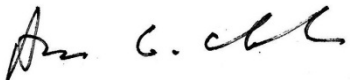
- On or before April 30, 2012, Olin will submit one final semiannual report covering the period from October 1, 2011 through March 31, 2012. Upon submission of this report, the semiannual reporting requirement for this facility will be discontinued, to be replaced by an annual reporting requirement.

- On or before April 1, 2013, Olin will submit an "annual" report covering the remainder of the 2012 calendar year (i.e., April 1, 2012 through December 31, 2012). The shortened reporting period eliminates duplication of reporting for the first quarter of 2012, which is covered by the final semiannual report referenced above.

- On or before April 1 of each subsequent year, Olin will submit an annual report covering the previous calendar year.

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: A. Everett, USEPA, Region 2
B. Sadowski, NYSDEC, Region 9
M. Doster, NYSDEC, Region 9
G. Sutton, NYSDEC, Region 9
M. Cruden
D. Radtke
A. Czuhanich

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

March 14, 2012

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

RE: Response to Groundwater Collection and Treatment System
Operations and Maintenance Plan, Revision 04
Olin Niagara Falls Plant, EPA ID No. NYD002123461
AOC Index No. R9-4171-94-08, NYSDEC Site No. 932051B

Dear Mr. McClure:

The New York State Department of Environmental Conservation has reviewed the above-referenced document dated July 15, 2011 (O&M Plan-Rev04). O&M Plan-Rev04 is an update of the operations and maintenance plan for the groundwater collection and treatment system at Olin's Niagara Falls plant. The July 15 revision of the O&M Plan-Rev04 incorporates comments provided by the Department in a letter dated May 6, 2011 on a previous draft of the O&M Plan-Rev04 dated March 25, 2011. The O&M Plan-Rev04 dated July 15, 2011 is herein 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: A. Everett, USEPA, Region 2
B. Sadowski, NYSDEC, Region 9
M. Doster, NYSDEC, Region 9
G. Sutton, NYSDEC, Region 9
M. Cruden
D. Radtke
A. Czuhanich

Attachment 2

Monthly Operation and Maintenance Reports

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston and Gina Senia @ Olin-Niagara.

From: Tony Englund/Rick Marotte

Date: November 12, 2011

Subject: **Monthly O&M Status Update for Ground-Water Collection and Treatment System for October 2011**
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6107110002

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

SYSTEM STATUS

The following table presents general treatment system data for October 2011:

Ground-Water Collection and Treatment System Status
October 2011

Recovery Well	Average Flowrate (gpm)	Average GW Elevation* (ft MSL)	Target Drawdown Level (ft MSL)	Days Meeting Target Drawdown
RW-1	0.6	558.2	557.5	5
RW-2	22.4	557.4	557.7	31
RW-3	4.5	557.0	557.5	28
RW-4	2.0	557.3	557.5	30
PR-4	9.5	554.9	556.7	29
RW-5	15.6	557.1	557.5	30
PR-12	0.2	558.3	558.5	12
OBA-9AR	0.772	557.4	557.7	29

Prepared By: AWM 11/7/2011
Checked By: AWE 11/7/2011

Downtimes and target level exceedances at RW-1 were due to a pump failure. Exceedances at PR-12 were due to a decreased flowrate from fouling. The well will be acid cleaned in November 2011.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
System	10/3/2011 23:50	10/4/11 1:00	1.2	Air Stripper blower motor flooded due to high differential pressure in GAC units resulting in low flow.
System	10/4/2011 1:30	10/4/11 3:50	2.3	Air Stripper blower motor flooded due to high differential pressure in GAC units resulting in low flow.
System	10/19/2011 23:20	10/20/11 2:55	3.6	Air Stripper blower motor flooded due to high differential pressure in GAC units resulting in low flow.
System	10/20/2011 3:30	10/20/11 4:45	1.2	Air Stripper blower motor flooded due to high differential pressure in GAC units resulting in low flow.
System	10/20/2011 5:00	10/20/11 6:50	1.8	Air Stripper blower motor flooded due to high differential pressure in GAC units resulting in low flow.
System	10/20/2011 7:25	10/20/11 9:05	1.7	Air Stripper blower motor flooded due to high differential pressure in GAC units resulting in low flow.
System	10/22/2011 6:30	10/22/11 7:25	0.9	System shut-down for blower motor replacement.
System	10/22/2011 7:55	10/22/11 9:40	1.8	System shut-down for blower motor replacement.
System	10/23/2011 2:15	10/25/11 15:15	61.0	System shut-down for blower motor replacement.
System	10/26/11 8:15	10/26/11 9:20	1.1	Air stripper high level.
System	10/26/11 17:30	10/26/11 19:30	2.0	Air stripper high level.
RW-1	10/1/11 0:00	10/6/11 12:50	132.8	RW-1 pump down.
RW-1	10/12/2011 7:00	10/26/11 9:20	338.3	RW-1 pump down.
RW-1	10/26/11 10:15	10/26/11 20:15	10.0	RW-1 pump down.
RW-1	10/26/11 20:30	10/27/11 2:55	6.4	RW-1 pump down.
RW-1	10/27/11 3:05	10/27/11 9:25	6.3	RW-1 pump down.
RW-1	10/27/11 9:35	10/27/11 15:45	6.2	RW-1 pump down.
RW-1	10/27/11 15:55	10/27/11 22:05	6.2	RW-1 pump down.
RW-1	10/27/11 22:20	10/28/11 4:35	6.2	RW-1 pump down.
RW-1	10/28/11 4:45	10/28/11 11:00	6.3	RW-1 pump down.
RW-1	10/28/11 11:10	10/28/11 17:30	6.3	RW-1 pump down.
RW-1	10/28/11 17:40	10/29/11 0:05	6.4	RW-1 pump down.

SYSTEM DOWNTIMES

Well/System	Date/Time From	Date/Time To	Duration (Hrs)	Reason
RW-1	10/29/11 0:15	10/29/11 6:30	6.3	RW-1 pump down.
RW-1	10/29/11 6:40	10/31/11 23:55	65.3	RW-1 pump down.

Prepared By: AWM 11/8/2011
Checked By: AWE 11/8/2011

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	10/4/2011	NM	NM	Pump down
	10/11/2011	0.12	-0.02	
	10/18/2011	NM	NM	Pump down
	10/27/2011	NM	NM	Pump down
RW-2	10/4/2011	0.11	0.04	
	10/11/2011	0.10	-0.08	
	10/18/2011	0.08	0.06	
	10/27/2011	0.02	-0.03	
RW-3	9/6/2011	0.06	-0.08	
	9/13/2011	-0.03	-0.04	
	9/20/2011	-0.01	0.01	
	9/27/2011	0.06	-0.03	
RW-4	9/6/2011	0.04	0.06	
	9/13/2011	0.09	0.04	
	9/20/2011	0.04	0.00	
	9/27/2011	0.12	0.04	
PR-4	9/6/2011	0.76	-0.85	
	9/13/2011	0.74	0.03	
	9/20/2011	0.11	0.21	
	9/27/2011	0.11	0.04	
RW-5	9/6/2011	0.15	0.02	
	9/13/2011	0.24	-0.02	
	9/20/2011	0.22	0.03	
	9/27/2011	0.14	-0.02	
PR-12	9/6/2011	-0.14	NA	
	9/13/2011	0.10	NA	
	9/20/2011	-1.57	NA	
	9/27/2011	0.40	NA	

	Date	Piez/APACS Difference (ft)	Piez/Well Difference (ft)	Comment
OBA-9AR	9/6/2011	0.38	0.02	
	9/13/2011	0.00	-0.38	
	9/20/2011	0.43	0.01	
	9/27/2011	0.35	-0.36	

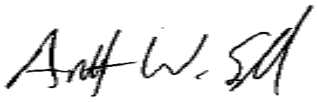
Prepared By: AWM 11/8/2011
Checked By: AWE 11/9/2011

DNAPL INSPECTION

On October 6, 2011, 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	750	

Prepared By: AWM 11/8/2011
Checked By: AWE 11/9/2011



Alycia W. McWilliams
Project Engineer

Anthony W. Englund
Senior Engineer

Frederick K. Marotte
Project Principal

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston, David Share @ Olin-Charleston and Gina Senia @ Olin-Niagara.

From: Tony Englund/Rick Marotte

Date: December 22, 2011

Subject: **Monthly O&M Status Update for Ground-Water Collection and Treatment System for November 2011**
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6107110002

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

SYSTEM STATUS

The following table presents general treatment system data for November 2011:

Ground-Water Collection and Treatment System Status November 2011				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation* (ft MSL)**	**Target Drawdown Level (ft MSL)**	**Days Meeting Target Drawdown**
RW-1	**2.7**	**557.5**	**557.5**	**11**
RW-2	**0.0**	**551.1**	**557.7**	**30**
RW-3	**4.4**	**556.7**	**557.5**	**24**
RW-4	**1.2**	**557.4**	**557.5**	**29**
PR-4	**9.7**	**556.1**	**556.7**	**24**
RW-5	**6.2**	**557.1**	**557.5**	**28**
PR-12	**2.4**	**558.06**	**558.5**	**17**
OBA-9AR	**0.2**	**560.1**	**557.7**	**12**

Prepared By: AWM 12/8/2011
Checked By: AWE 12/8/2011

Downtimes and target level exceedances at RW-1 were due to the pump failing. The pump motor continues to trip on overloads in the system. This electrical issue is currently being addressed by Olin personnel. Downtimes at RW-2 were due to the pump failing. During pump replacement, it was noted that the leads were corroded and needed replacement. The leads were replaced on 12/1/2011. Downtimes and target level exceedances at PR-12 were due to the pump failing. The pump has been replaced. It was noted that there was no flow out of OBA-9AR on 11/8/2011. The pump was checked and is working. However, the pipes leading from both OBA-9AR and PR-12 were clogged. Approximately 240 feet of pipe was cleaned, and OBA-9AR is now operational.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
RW-1	11/1/2011 0:00	11/1/11 4:55	4.9	Pump motor tripping.
RW-2	11/1/2011 0:00	11/30/11 23:55	719.9	Pump was bad. During install of replacement pump, noticed leads were corroded. Waiting on replacement leads.
RW-1	11/1/2011 5:05	11/1/11 11:40	6.6	Pump motor tripping.
RW-1	11/1/2011 11:50	11/1/11 18:35	6.8	Pump motor tripping.
RW-1	11/1/2011 18:45	11/2/11 1:30	6.8	Pump motor tripping.
RW-1	11/2/11 1:40	11/2/11 8:25	6.8	Pump motor tripping.
RW-1	11/2/2011 8:35	11/2/11 15:20	6.8	Pump motor tripping.
RW-1	11/2/11 15:30	11/2/11 22:40	7.2	Pump motor tripping.
RW-1	11/2/11 22:50	11/3/11 6:00	7.2	Pump motor tripping.
RW-1	11/3/11 6:10	11/3/11 13:05	6.9	Pump motor tripping.
RW-1	11/3/11 13:20	11/3/11 20:10	6.8	Pump motor tripping.
RW-1	11/3/11 20:20	11/4/2011 2:55	6.6	Pump motor tripping.
RW-1	11/4/11 3:10	11/4/11 9:25	6.2	Pump motor tripping.
RW-1	11/4/2011 9:35	11/4/11 15:55	6.3	Pump motor tripping.
RW-1	11/4/11 16:05	11/4/11 22:30	6.4	Pump motor tripping.
RW-1	11/4/2011 22:45	11/5/11 5:05	6.3	Pump motor tripping.
RW-1	11/5/11 5:15	11/5/11 11:25	6.2	Pump motor tripping.
RW-1	11/5/11 11:35	11/5/11 17:55	6.3	Pump motor tripping.
RW-1	11/5/11 18:05	11/6/11 0:40	6.6	Pump motor tripping.
RW-1	11/6/11 0:50	11/6/11 7:15	6.4	Pump motor tripping.
RW-1	11/6/11 7:25	11/6/11 13:55	6.5	Pump motor tripping.
RW-1	11/6/11 14:05	11/6/11 21:00	6.9	Pump motor tripping.
RW-1	11/6/11 21:10	11/7/11 4:00	6.8	Pump motor tripping.
RW-1	11/7/11 4:10	11/7/11 11:00	6.8	Pump motor tripping.
RW-1	11/7/11 11:10	11/7/11 16:05	4.9	Pump motor tripping.
SYSTEM	11/14/11 17:35	11/14/11 22:20	4.7	No reason given.
PR-12	11/4/11 4:20	11/17/11 13:30	321.2	Pump motor failed. Pump was coated with solids.
SYSTEM (not including RW-1)	11/15/11 0:40	11/15/11 5:40	5.0	No reason given.
RW-1	11/15/11 0:55	11/15/11 5:45	4.8	Pump motor tripping.

SYSTEM DOWNTIMES(cont.)

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
SYSTEM	11/18/11 15:30	11/18/11 21:35	6.1	No reason given.
SYSTEM	11/18/11 23:00	11/19/11 0:05	1.1	No reason given.
SYSTEM	11/19/11 13:55	11/19/11 18:30	4.6	No reason given.
RW-1	11/20/11 3:50	11/23/11 1:00	69.2	Pump motor tripping.
RW-1	11/23/11 1:20	11/23/11 9:25	8.1	Pump motor tripping.
SYSTEM (not including RW-1 and PR-12)	11/23/11 1:05	11/23/11 7:45	6.7	No reason given.
PR-12	11/23/11 1:05	11/23/11 3:15	2.2	Pump motor failed. Pump was replaced.
PR-12	11/23/11 3:25	11/23/11 7:45	4.3	Pump motor failed. Pump was replaced.
SYSTEM (not including RW-1)	11/23/11 9:35	11/23/11 21:35	12.0	No reason given.
RW-1	11/24/11 16:20	11/24/11 19:30	3.2	Pump motor tripping.
RW-1	11/24/11 19:45	11/26/11 11:35	39.8	Pump motor tripping.
RW-1	11/26/11 11:45	11/29/11 1:05	61.3	Pump motor tripping.
RW-1	11/29/11 13:35	11/29/11 14:30	0.9	Pump motor tripping.
RW-1	11/29/11 14:40	11/30/11 23:55	33.3	Pump motor tripping.
SYSTEM (not including RW-1)	11/24/11 19:30	11/25/11 21:15	25.7	No reason given.
SYSTEM (not including RW-1)	11/26/11 11:35	11/26/11 14:30	2.9	No reason given.
SYSTEM (not including RW-1)	11/29/11 1:05	11/30/11 0:35	23.5	No reason given.

Prepared By: AWM 12/12/2011
Checked By: AWE 12/8/2011

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	11/01/2011	NM	-0.96	Well pump being repaired
	11/08/2011	0.14	-0.04	
	11/15/2011	0.08	-0.01	
	11/22/2011	0.14	-0.11	
	11/29/2011	NM	-0.96	Well pump being repaired
RW-2	11/01/2011	0.02	-0.03	
	11/08/2011	0.05	0.05	
	11/15/2011	0.06	0.06	
	11/22/2011	NM	-0.13	Well pump being repaired
	11/29/2011	NM	-0.27	Well pump being repaired
RW-3	11/01/2011	-0.24	-0.03	
	11/08/2011	-0.11	-0.06	
	11/15/2011	0.06	-0.16	
	11/22/2011	-0.32	0.02	
	11/29/2011	-0.41	-0.85	
RW-4	11/01/2011	0.09	0.04	
	11/08/2011	0.09	0.04	
	11/15/2011	0.06	0.09	
	11/22/2011	0.07	0.07	
	11/29/2011	0.05	0.04	
PR-4	11/01/2011	0.16	0.17	
	11/08/2011	0.13	0.13	
	11/15/2011	0.16	0.07	
	11/22/2011	0.09	0.01	
	11/29/2011	0.14	-0.32	
RW-5	11/01/2011	0.19	0.04	
	11/08/2011	0.20	0.10	
	11/15/2011	0.17	0.05	
	11/22/2011	0.22	0.05	
	11/29/2011	0.16	0.04	
PR-12	11/01/2011	0.39	NA	
	11/08/2011	0.44	NA	
	11/15/2011	0.00	NA	
	11/22/2011	0.02	NA	
	11/29/2011	0.09	NA	
OBA-9AR	11/01/2011	0.35	0.07	
	11/08/2011	0.50	0.01	
	11/15/2011	0.44	0.03	
	11/22/2011	0.39	-0.08	
	11/29/2011	-0.01	-0.39	

Prepared By: AWM 12/9/2011
Checked By: AWE 12/9/2011

DNAPL INSPECTION

On November 3, 2011, 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	250	
PN-12B	1.0	Yes	350	
PN-14B	1.0	Yes	80	
PN-21B	1.0	Yes	150	
PN-22B	1.0	Yes	100	
PN-23B	1.0	Yes	40	
PR-12	1.0	No		

Prepared By: AWM 12/9/2011
Checked By: AWE 12/9/2011

Alycia W. McWilliams

Alycia W. McWilliams
Project Engineer

Anthony W. Englund
Senior Engineer

Frederick K. Marotte
Project Principal

MEMORANDUM

To: David Share and Rick McClure @ Olin-Charleston, Gina Senia @ Olin-Niagara.

Cc: John Scrabis @ AMEC

From: Alycia McWilliams /Tony Englund

Date: January 18, 2012

Subject: **Monthly O&M Status Update for Ground-Water Collection and Treatment System for December 2011**
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6107110002

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

SYSTEM STATUS

The following table presents general treatment system data for December 2011:

Ground-Water Collection and Treatment System Status December 2011				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation* (ft MSL)**	**Target Drawdown Level (ft MSL)**	**Days Meeting Target Drawdown**
RW-1	**1.7**	**557.8**	**557.5**	**10**
RW-2	**25.2**	**557.47**	**557.7**	**31**
RW-3	**4.9**	**554.9**	**557.5**	**31**
RW-4	**1.5**	**557.3**	**557.5**	**30**
PR-4	**4.0**	**556.6**	**556.7**	**7**
RW-5	**15.7**	**557.0**	**557.5**	**31**
PR-12	**5.9**	**556.4**	**558.5**	**31**
OBA-9AR	**1.1**	**557.1**	**557.7**	**31**

Prepared By: AWM 1/9/2012
Checked By: AWE 1/16/2012

Early in December, the pump at RW-1 was pulled and rebuilt resulting in downtimes and target level exceedances. The amount of acid injected at RW-1 has been increased and should result in less solid build-up. The pump at RW-2 was also rebuilt, therefore resulting in downtimes at RW-2. Downtimes and target level exceedances at PR-4 were due to the pump failing. The pump shaft had deteriorated and snapped. The pump has been pulled and a new pump was ordered. The system was down while taking these pumps offline for repairs. This is reflected in the downtimes reported below.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
RW-1	12/1/2011 0:00	12/1/11 21:10	21.2	Pump motor failure.
RW-2	12/1/2011 0:00	12/5/11 11:20	107.3	Pump motor failure.
RW-1	12/1/2011 21:20	12/3/11 6:35	33.2	Pump replacement.
RW-1	12/3/2011 8:25	12/9/11 15:00	150.6	Pump replacement.
RW-2	12/5/2011 11:35	12/6/11 14:20	26.7	Pump replacement.
SYSTEM	12/2/11 8:45	12/2/11 12:30	3.8	System level alarm
PR-4	12/8/2011 8:25	12/22/11 9:15	336.8	Pump motor failure.
SYSTEM	12/22/11 12:55	12/22/11 16:50	3.9	System level alarm

Prepared By: AWM 01/03/2012
Checked By: AWE 1/16/2012

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	12/06/2011	0.08	-0.03	
	12/13/2011	0.16	-0.03	
	12/20/2011	0.08	-0.01	
	12/28/2011	0.14	-0.03	
RW-2	12/06/2011	NM	-0.06	Transducer removed for pump repair
	12/13/2011	-0.13	-0.05	
	12/20/2011	-0.07	-0.05	
	12/28/2011	-0.13	-0.13	
RW-3	12/06/2011	-0.37	-0.02	
	12/13/2011	0.60	0.02	
	12/20/2011	1.01	-0.02	
	12/28/2011	0.81	-0.03	
RW-4	12/06/2011	0.12	0.09	
	12/13/2011	0.03	0.04	
	12/20/2011	0.09	0.04	
	12/28/2011	0.11	0.05	
PR-4	12/06/2011	0.05	0.01	
	12/13/2011	-0.05	-0.04	
	12/20/2011	0.14	-0.05	
	12/28/2011	0.06	0.00	
RW-5	12/06/2011	0.21	0.00	
	12/13/2011	0.19	0.01	
	12/20/2011	0.15	0.04	
	12/28/2011	0.16	-0.01	
PR-12	12/06/2011	-0.26	NA	
	12/13/2011	-0.16	NA	
	12/20/2011	-0.15	NA	
	12/28/2011	0.06	NA	
OBA-9AR	12/06/2011	-0.08	-0.45	
	12/13/2011	0.13	-0.31	
	12/20/2011	0.11	-0.42	
	12/28/2011	0.16	-0.32	

Prepared By: AWM 01/09/2012
Checked By: AWE 01/16/2012

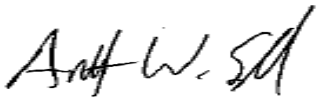
DNAPL INSPECTION

On November 3, 2011, 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	100	

Prepared By: AWM 01/11/2012
Checked By: AWE 01/16/2012

AWM: Alycia W. McWilliams
Project Engineer



AWE:Anthony W. Englund
Senior Engineer

MEMORANDUM

To: David Share and Rick McClure @ Olin-ERG, Gina Senia @ Olin-Niagara.

Cc: John Scrabis @ AMEC

From: Alycia McWilliams /Tony Englund

Date: February 10, 2012

Subject: **Monthly O&M Status Update for Ground-Water Collection and Treatment System for January 2012**
Olin Corporation, Niagara Falls, New York
AMEC Job # 6107120002

This memo summarizes the O&M for the ground-water collection and treatment system at the Olin–Niagara Plant, Niagara Falls, New York.

SYSTEM STATUS

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

Ground-Water Collection and Treatment System Status January 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation (ft MSL)**	**Target Drawdown Level (ft MSL)**	**Days Meeting Target Drawdown**
RW-1	**2.5**	**557.5**	**557.5**	**18**
RW-2	**23.8**	**557.43**	**557.7**	**31**
RW-3	**4.2**	**554.78**	**557.5**	**28**
RW-4	**4.9**	**557.21**	**557.5**	**30**
PR-4	**7.3**	**556.91**	**556.7**	**7**
RW-5	**12.7**	**557.0**	**557.5**	**28**
PR-12	**3.9**	**556.31**	**558.5**	**31**
OBA-9AR	**0.6**	**558.99**	**557.7**	**20**

Prepared By: AWM 2/8/2012
Checked By: AWE 2/10/2012

During the month of January, the air stripper unit went offline frequently, causing intermittent system shutdowns. The air stripper sump level controls were inspected and no problems were identified. The Plant has increased the carbon vessel backwash frequency to maintain higher effluent flow rates and reduce intermittent downtime.

It was also noted at the beginning of the month that the sensor in the flow meter to the carbon units was not detecting flow. This sensor was subsequently cleaned and now functions properly. Additionally, new pressure gauges were installed on the carbon units. During the week ending January 17, OBA-9AR was acid washed and the blower ductwork was extended and raised to prevent groundwater from flowing into the blower housing when the air stripper shuts down.

The amount of days OBA-9AR met its drawdown decreased this month. During the week ending January 25, it was noted that the pump at OBA-9AR was running, but flow was not being registered. The pump at OBA-9AR was pulled for inspection and it was noted that the fitting that connects the hose to the pump was loose. The fitting was tightened and the line between OBA-9AR and PR-12 was cleaned.

RW-1 did not meet target drawdown levels for 13 days during January most likely due to the system downtimes listed below and a decreased flow rate. The decreased flow rate was likely caused by carbonate fouling in the piping. It was noted that theRW-1 acid feed pump had lost prime when the supply tote was replaced. The acid pump was reprimed and the flow rate to the well was set to lower the pH and remove the fouling. The average daily groundwater elevation in RW-1 for January was at the drawdown target level.

PR-4 did not meet target drawdown levels for 24 days during January. These drawdown level s were also likely caused by system downtimes and potential well fouling. The acid supply drum for PR-4 is scheduled for replacement and the well will be acid treated when the drum is replaced. The average daily groundwater elevation in PR-4 for January was 0.2 feet above the drawdown target level.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
SYSTEM	1/4/2012 19:05	1/5/12 5:35	10.5	Air stripper shut down.
SYSTEM	1/5/2012 6:50	1/5/12 8:20	1.5	Air stripper shut down.
SYSTEM	1/5/2012 8:40	1/5/12 11:40	3.0	Air stripper shut down.
SYSTEM	1/9/2012 9:40	1/9/12 10:55	1.2	Air stripper shut down.
SYSTEM	1/10/2012 6:10	1/10/12 7:35	1.4	Air stripper shut down.
SYSTEM	1/10/12 8:05	1/10/12 9:30	1.4	Air stripper shut down.
SYSTEM	1/10/2012 11:55	1/10/12 14:05	2.2	Air stripper shut down.
SYSTEM	1/10/2012 16:10	1/11/12 8:35	16.4	Air stripper shut down.
SYSTEM	1/11/2012 9:10	1/11/12 10:40	1.5	Air stripper shut down.
SYSTEM	1/11/2012 11:20	1/11/12 13:00	1.7	Air stripper shut down.
SYSTEM	1/12/2012 2:20	1/12/12 3:30	1.2	System shut down to replace pressure gauges on GAC unit and clean flow meter on GAC pump.
SYSTEM	1/12/2012 4:00	1/12/12 5:50	1.8	System shut down to replace pressure gauges on GAC unit and clean flow meter on GAC pump.

SYSTEM	1/17/2012 6:15	1/17/12 9:25	3.2	System shut down to extend ductwork to blower.
SYSTEM	1/17/2012 10:45	1/17/12 13:10	2.4	System shut down to extend ductwork to blower.
SYSTEM	1/17/2012 13:45	1/17/12 16:35	2.8	System shut down to extend ductwork to blower.
SYSTEM	1/17/2012 18:15	1/18/12 1:00	6.8	Air stripper unit shut down.
SYSTEM (except RW-3)	1/18/2012 8:25	1/18/12 12:45	4.3	No explanation given.
SYSTEM (except RW-1 and RW-3)	1/18/2012 18:25	1/18/12 21:50	3.4	No explanation given.
SYSTEM (except RW-3)	1/19/2012 5:40	1/19/12 9:15	3.6	No explanation given.
SYSTEM	1/19/2012 11:35	1/19/12 16:40	5.1	No explanation given.
SYSTEM	1/19/2012 18:00	1/19/12 19:05	1.1	No explanation given.
SYSTEM	1/19/2012 22:00	1/19/12 23:25	1.4	No explanation given.
SYSTEM	1/20/2012 4:30	1/20/12 10:10	5.7	No explanation given.
RW-1 and RW-3	1/20/2012 13:05	1/20/12 17:15	4.2	No explanation given.
SYSTEM (except RW-1 and RW-3)	1/20/2012 13:05	1/20/12 21:30	8.4	No explanation given.
RW-1	1/20/2012 17:30	1/20/12 21:30	4.0	No explanation given.
SYSTEM	1/23/2012 15:40	1/23/12 17:40	2.0	System shut down to pull pump from OBA-9AR.
SYSTEM	1/24/2012 16:25	1/24/12 17:50	1.4	System shut down to clean line between OBA-9AR and PR-12.
SYSTEM	1/31/2012 12:10	1/31/12 14:15	2.1	No explanation given.
SYSTEM	1/31/2012 19:45	1/31/12 21:15	1.5	No explanation given.
SYSTEM	1/31/12 22:35	1/31/12 23:55	1.3	No explanation given.

Prepared By: AWM 02/10/2012
Checked By: AWE 2/13/2012

WELL INSPECTIONS

Each week, the recovery wells are inspected by Sevenson 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 control system 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	01/03/2012	0.11	-0.02	
	01/11/2012	0.16	-0.03	
	01/17/2012	0.02	-0.02	
	01/23/2012	0.19	-0.01	
	01/31/2012	0.20	-0.01	
RW-2	01/03/2012	-0.12	-0.11	
	01/11/2012	-0.12	-0.11	
	01/17/2012	-0.07	-0.16	
	01/23/2012	-0.07	-0.13	
	01/31/2012	-0.10	-0.08	
RW-3	01/03/2012	1.72	-1.77	
	01/11/2012	2.57	-0.01	Difference likely caused by anomalous water level measurement.
	01/17/2012	-0.25	-0.03	Measurement taken during system shutdown.
	01/23/2012	0.50	-0.18	
	01/31/2012	0.69	-0.21	
RW-4	01/03/2012	0.11	0.07	
	01/11/2012	0.27	0.04	
	01/17/2012	0.07	0.06	
	01/23/2012	-2.44	0.10	Difference likely caused by anomalous water level measurement.
	01/31/2012	0.09	0.06	
PR-4	01/03/2012	0.12	0.01	
	01/11/2012	0.63	-0.06	
	01/17/2012	0.12	0.09	
	01/23/2012	0.65	-0.05	
	01/31/2012	0.15	-0.13	
RW-5	01/03/2012	0.15	0.13	
	01/11/2012	0.21	-0.03	
	01/17/2012	0.11	0.00	
	01/23/2012	0.17	0.01	
	01/31/2012	0.17	0.00	
PR-12	01/03/2012	0.04	NA	
	01/11/2012	2.17	NA	Difference likely caused by anomalous water level measurement.
	01/17/2012	0.01	NA	
	01/23/2012	0.04	NA	
	01/31/2012	-0.49	NA	
OBA-9AR	01/03/2012	0.10	-0.40	
	01/11/2012	0.20	-0.29	
	01/17/2012	-0.30	-0.38	
	01/23/2012	NM	-0.17	Pump pulled and fitting repaired.
	01/31/2012	0.09	-0.39	

Prepared By: AWM 02/10/2012
Checked By: AWE 2/13/2012

DNAPL INSPECTION

On January 9, 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	300	

Prepared By: AWM 02/10/2012
Checked By: AWE 2/13/2012

Alycia W. McWilliams

Alycia W. McWilliams
Project Engineer

MEMORANDUM

To: David Share and Rick McClure @ Olin-ERG, Gina Senia and Katie Godlove @ Olin-Niagara.

Cc: Kelly McIntosh @ AMEC

From: Alycia McWilliams /Tony Englund

Date: March 27, 2012

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

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

SYSTEM STATUS

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

Ground-Water Collection and Treatment System Status February 2012				
Recovery Well	**Average Flowrate (gpm)**	**Average GW Elevation* (ft MSL)**	**Target Drawdown Level (ft MSL)**	**Days Meeting Target Drawdown**
RW-1	**2.9**	**557.2**	**557.5**	**29**
RW-2	**27.6**	**557.4**	**557.7**	**29**
RW-3	**4.2**	**553.8**	**557.5**	**29**
RW-4	**11.0**	**557.1**	**557.5**	**29**
PR-4	**6.8**	**554.6**	**556.7**	**29**
RW-5	**15.0**	**556.9**	**557.5**	**29**
PR-12	**4.3**	**555.8**	**558.5**	**29**
OBA-9AR	**0.5**	**559.2**	**557.7**	**17**

Prepared By: AWM 3/8/2012
Checked By: AWE 3/21/2012

The system ran with few system downtimes during the month of February. System shutdowns that did occur were due to backwashing the carbon units. During the week of February 7, it was discovered that the pipe between OBA-9AR and PR-12 was frozen. Upon further inspection, it was determined that the heat trace for OBA-9AR had failed. This resulted in not meeting its drawdown for 12 days The weekly report from Sevenson on February 14 indicated that in order to prevent solids build up in PR-12, the well was acid washed during the week of February 6. The weekly report from February 21 indicated that the acid tote for PR-4 was empty, so in order to prevent solids build up, PR -4 was acid washed the week of February 13 and February 20.

SYSTEM DOWNTIMES

	Date/Time		Duration	
Well/System	**From**	**To**	**(Hrs)**	**Reason**
SYSTEM	2/1/2012 0:00	2/1/12 6:25	6.4	Backwashing of Carbon Vessels.
SYSTEM (except RW-1)	2/7/2012 12:00	2/7/12 13:10	1.2	Backwashing of Carbon Vessels.
OBA-9AR	2/7/2012 12:00	2/14/2012 15:00	171.0	Heat trace failed. Pipe frozen. Heat trace replaced.
SYSTEM	2/7/2012 14:40	2/7/12 16:40	2.0	Backwashing of Carbon Vessels.
RW-3	2/7/2012 23:00	2/9/12 19:40	44.7	Taken offline to clean transducer.
PR-12	2/7/2012 23:00	2/9/12 1:35	26.6	Taken offline for OBA-9AR repair.
SYSTEM	2/13/2012 19:40	2/13/2012 21:00	1.3	Backwashing of Carbon Vessels.
SYSTEM	2/14/2012 1:40	2/14/2012 2:40	1.0	Backwashing of Carbon Vessels.
PR-12	2/14/2012 11:50	2/14/2012 15:00	3.2	Taken offline for heat trace replacement at OBA-9AR.
SYSTEM (except RW-1)	2/17/2012 8:00	2/17/2012 9:00	1.0	Backwashing of Carbon Vessels.

Prepared By: AWM 03/08/2012
Checked By: AWE 3/21/2012

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	02/07/2012	0.18	-0.02	
	02/14/2012	0.16	-0.04	
	02/21/2012	0.14	-0.02	
	02/28/2012	0.21	-0.01	
RW-2	02/07/2012	-0.13	-0.08	
	02/14/2012	-0.07	-0.15	
	02/21/2012	-0.09	-0.11	
	02/28/2012	-0.07	-0.15	
RW-3	02/07/2012	3.94	-0.03	
	02/14/2012	3.83	-0.03	
	02/21/2012	0.19	-0.03	Transducer cleaned.
	02/28/2012	1.03	2.93	
RW-4	02/07/2012	0.09	0.07	
	02/14/2012	0.09	0.06	
	02/21/2012	-0.02	0.04	
	02/28/2012	0.09	0.06	
PR-4	02/07/2012	-1.83	-0.16	
	02/14/2012	0.26	-0.31	
	02/21/2012	0.15	-0.36	
	02/28/2012	1.16	0.06	
RW-5	02/07/2012	0.25	0.00	
	02/14/2012	0.18	-0.01	
	02/21/2012	0.09	0.01	
	02/28/2012	0.20	0.02	
PR-12	02/07/2012	4.95	NA	Anomalous water level readings due to in-well scaling. Transducer has been cleaned.
	02/14/2012	5.29	NA	
	02/21/2012	6.31	NA	
	02/28/2012	5.71	NA	
OBA-9AR	02/07/2012	0.12	-0.37	
	02/14/2012	0.43	-0.04	
	02/21/2012	0.30	-0.03	
	02/28/2012	0.20	-0.33	

Prepared By: AWM 03/15/2012
Checked By: AWE 3/21/2012

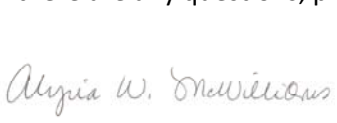
DNAPL INSPECTION

On January 9, 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	300	
PN-12B	1.0	Yes	1,500	
PN-14B	1.0	Yes	40	
PN-21B	1.0	Yes	150	
PN-22B	1.0	Yes	75	
PN-23B	1.0	Yes	150	
PR-12	1.0	No	0	

Prepared By: AWM 03/15/2012
Checked By: AWE 3/21/2012

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: April 10, 2012

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

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

SYSTEM STATUS

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

Ground-Water Collection and Treatment System Status
March 2012

Recovery Well	Average Flowrate (gpm)	Average GW Elevation (ft MSL)	Target Drawdown Level (ft MSL)	Days Meeting Target Drawdown
RW-1	3.3	557.2	557.5	25
RW-2	27.4	557.3	557.7	31
RW-3	4.0	554.4	557.5	31
RW-4	9.1	557.1	557.5	31
PR-4	3.0	554.2	556.7	31
RW-5	14.3	556.8	557.5	31
PR-12	3.2	556.7	558.5	31
OBA-9AR	0.7	557.4	557.7	28

Prepared By: AWM 4/2/2012
Checked By: AWE 4/3/2012

During the month of March, the system ran with few downtimes until the weekend of March 24 and March 25. Over that period of time, the system shut down several times due to a high level in the sump. Sevenson was called out and inspected the discharge pumps. The system downtimes were traced back to an inoperative level switch, which allowed air to be introduced into the discharge pump line causing the pump to lose prime. This led to the sump overfilled and triggering the high alarm shut-down. Sevenson pulled, inspected and cleaned the floats on the level switch. The system has since been running.

Three individual wells experienced downtimes this month. The downtime at RW-1 was due to the hose separating from the pump head which caused internal recirculation, but no flow out of the well. The issue occurred on a Friday evening and was not discovered until the following Monday. Sevenson reconnected the hose and restarted the motor the following Tuesday. The pump has been running without issue. RW-3 shut down due to an interlock problem with its leak detection unit. No leaks were observed in the detection sump. Sevenson pulled the float switch for inspection, cleaned and tested the switch. The pump is now running. OBA-9AR was above target levels 2 days in March due to system downtimes on the 8th and 27th. On the 26th, OBA-9AR did not restart after a system downtime. Sevenson pulled and tested the pump on the 27th. They found no issues with the pump. Sevenson then reconnected the pump, started it, and it has since been running.

SYSTEM DOWNTIMES

Well/System	Date/Time		Duration (Hrs)	Reason
	From	To		
System	3/5/2012 13:00	3/5/12 14:10	1.2	Backwashing Carbon Vessels.
System	3/7/2012 7:55	3/7/12 15:45	7.8	Maintenance on 7S.
System	3/8/2012 7:35	3/8/12 15:40	8.1	
System	3/8/2012 16:35	3/8/12 20:35	4.0	
System	3/8/2012 22:00	3/8/12 23:05	1.1	
System	3/9/12 2:25	3/9/12 4:30	2.1	
RW-5	3/9/2012 10:45	3/10/12 5:00	18.3	Unknown.
System	3/22/2012 7:30	3/22/12 8:20	0.8	High sump levels due to problem with discharge pumps.
System	3/23/2012 4:20	3/23/12 6:20	2.0	
System	3/23/2012 14:30	3/23/12 16:45	2.3	
RW-1	3/23/2012 18:30	3/27/12 13:05	90.6	Hose separated from pump head.
System	3/24/2012 1:25	3/24/12 3:35	2.2	High sump levels due to problem with discharge pumps.
System	3/24/2012 7:40	3/24/12 10:20	2.7	
System	3/24/2012 10:50	3/24/12 12:10	1.3	
System	3/24/2012 20:00	3/24/12 21:15	1.2	
System	3/25/2012 17:00	3/25/12 20:30	3.5	
RW-3	3/26/2012 5:00	3/27/12 12:00	31.0	Interlock issue with leak detection unit at RW-3
System	3/26/2012 6:10	3/26/12 7:30	1.3	High sump levels due to problem with discharge pumps.
System	3/27/2012 22:55	3/28/12 0:45	1.8	System shut down for backwashing of carbon units.
System	3/29/2012 3:45	3/29/12 5:50	2.1	System shut down for calibration of pH probes.

Prepared By: AWM 4/2/2012
Checked By: AWE 4/3/2012

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	03/06/2012	0.23	0.15	
	03/13/2012	0.22	-0.15	
	03/20/2012	0.17	-0.03	
	03/27/2012	0.22	-0.03	
RW-2	03/06/2012	-0.05	0.04	
	03/13/2012	-0.05	-0.08	
	03/20/2012	0.00	-0.11	
	03/27/2012	-0.14	-0.10	
RW-3	03/06/2012	0.15	5.66	Pump and piping interfered with water level tape and affected readings.
	03/13/2012	0.21	5.84	
	03/20/2012	0.12	5.62	
	03/27/2012	-0.19	0.21	
RW-4	03/06/2012	0.09	0.01	
	03/13/2012	0.10	-0.08	
	03/20/2012	0.12	-0.14	
	03/27/2012	0.02	-0.04	
PR-4	03/06/2012	0.62	0.88	
	03/13/2012	0.24	0.64	
	03/20/2012	0.32	0.34	
	03/27/2012	0.14	0.14	
RW-5	03/06/2012	0.21	0.03	
	03/13/2012	0.26	0.04	
	03/20/2012	0.25	0.07	
	03/27/2012	0.15	0.07	
PR-12	03/06/2012	-0.13	NA	
	03/13/2012	0.12	NA	
	03/20/2012	1.06	NA	
	03/27/2012	0.01	NA	
OBA-9AR	03/06/2012	-0.88	-0.31	
	03/13/2012	0.10	-0.31	
	03/20/2012	0.11	-0.34	
	03/27/2012	-0.04	0.13	

Prepared By: AWM 4/2/2012
Checked By: AWE 4/3/2012

DNAPL INSPECTION

On March 2, 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	100	

Prepared By: AWM 4/2/2012
Checked By: AWE 4/3/2012

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

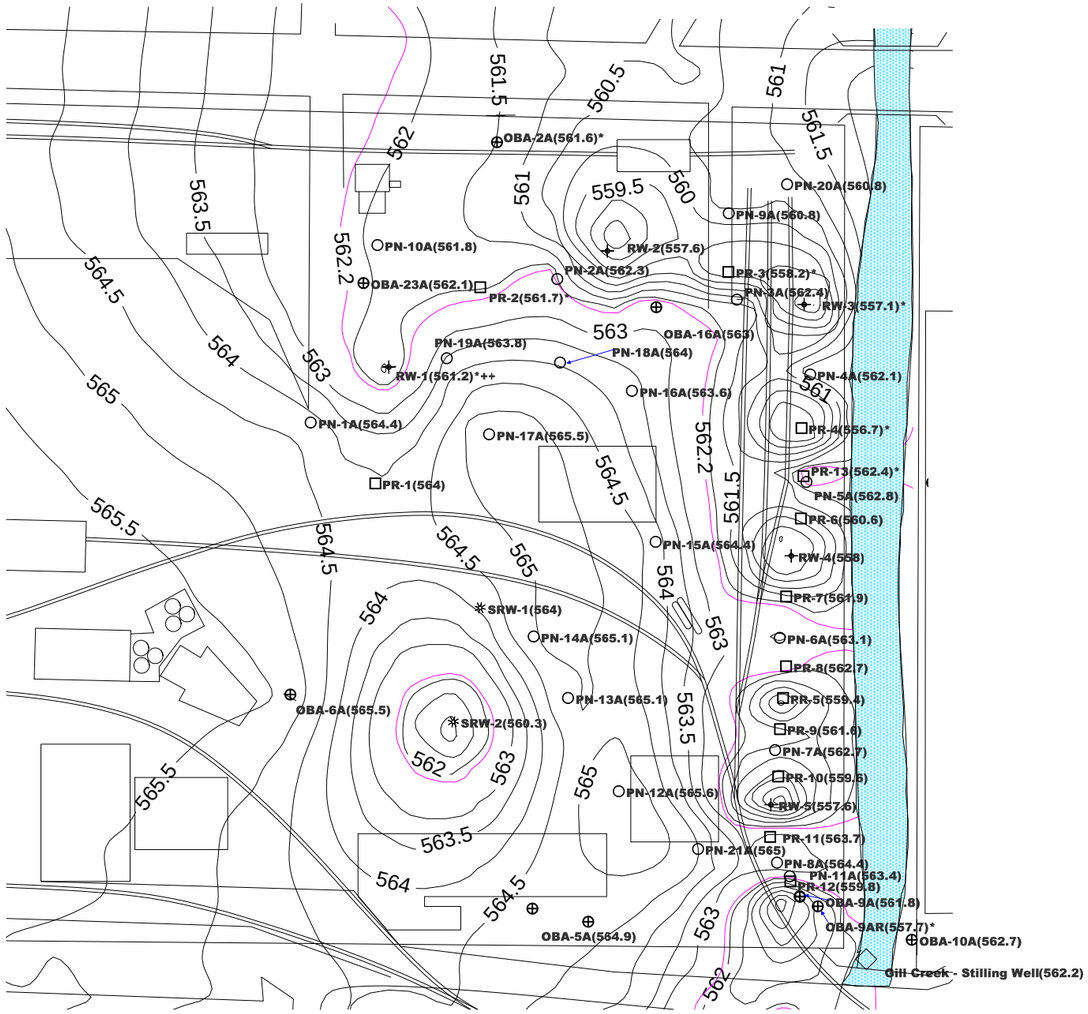
Alycia W. McWilliams, E.I.T.
Project Engineer

Anthony W. Englund, P.E.
Senior Engineer

Attachment 3

Peizometric Maps, Hydrographs, Supporting Data, and System Flows

Fourth Quarter 2011 Piezometric Maps, Hydrographs and System Flows



Extraction Well	Average Flow Rate (gpm)***
RW-1	0.0
RW-2	0.0
RW-3	4.8
RW-4	0.6
RW-5	6.2
PR-4	10.5
PR-12	0.4
OBA-9AR	0.31

*** : Averaged using daily flow rates for November 3, 2011. The water levels in RW-1, RW-3, RW-4, PR-4, 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

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

++ :Well down for repair

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 3, 2011 (562.2 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 12/12/2011
Checked By: MET 12/14/2011

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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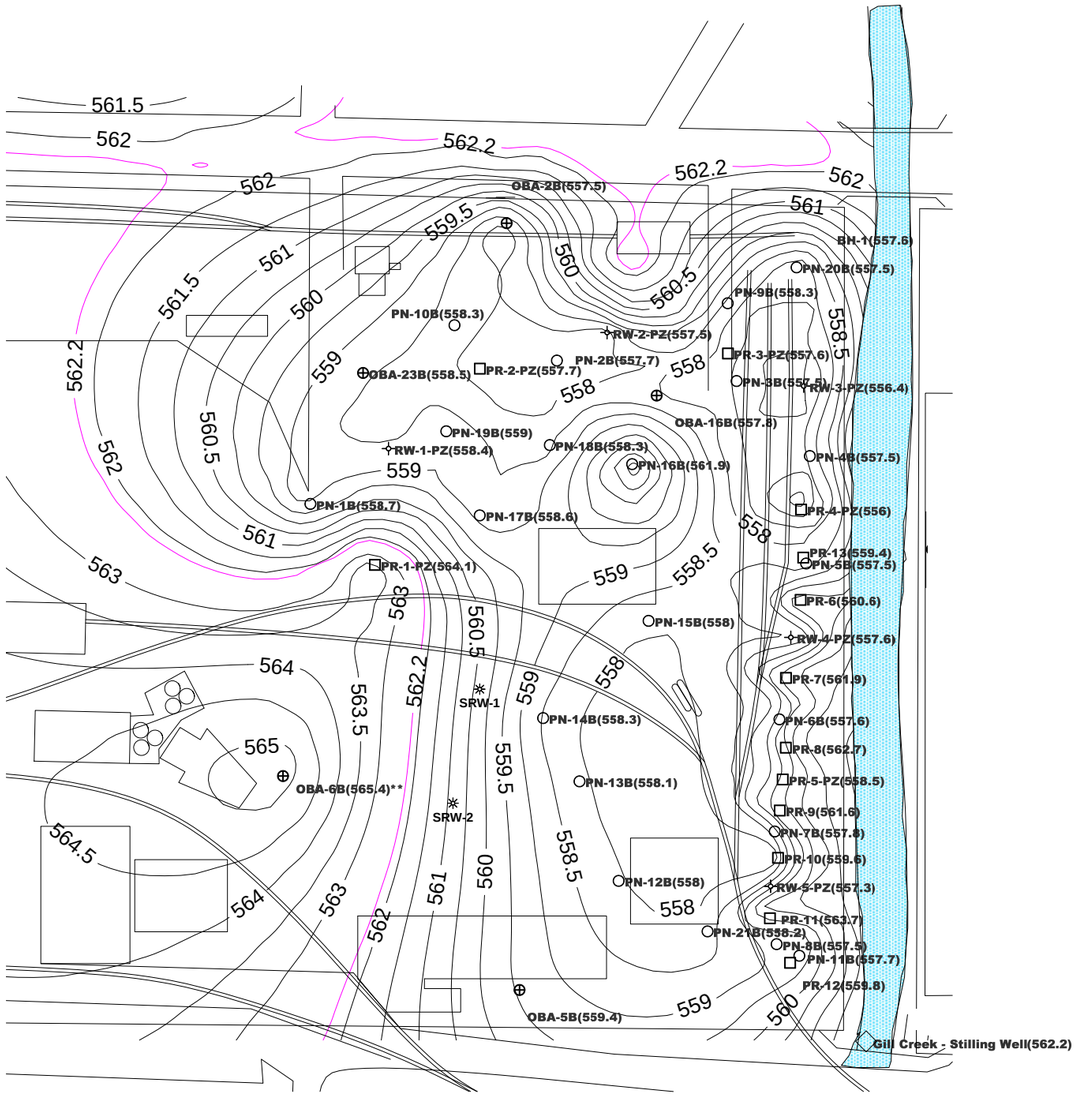
ARGC AREA
POTENTIOMETRIC SURFACE -- A ZONE
(NOVEMBER 03, 2011)

Job No.: 6107-11-0002

Figure 1



Extraction Well	Average Flow Rate (gpm)***
RW-1	0.0
RW-2	0.0
RW-3	4.8
RW-4	0.6
RW-5	6.2
PR-4	10.5
PR-12	0.4
OBA-9AR	0.31

*** : Averaged using daily flow rates for November 3, 2011. The water levels in RW-1, RW-3, RW-4, PR-4, and OBA-9AR were below the bottom of the A-zone.

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

** :Well needs new roadbox

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 12/12/2011
Checked By: MET 12/14/2011

OLIN CORPORATION
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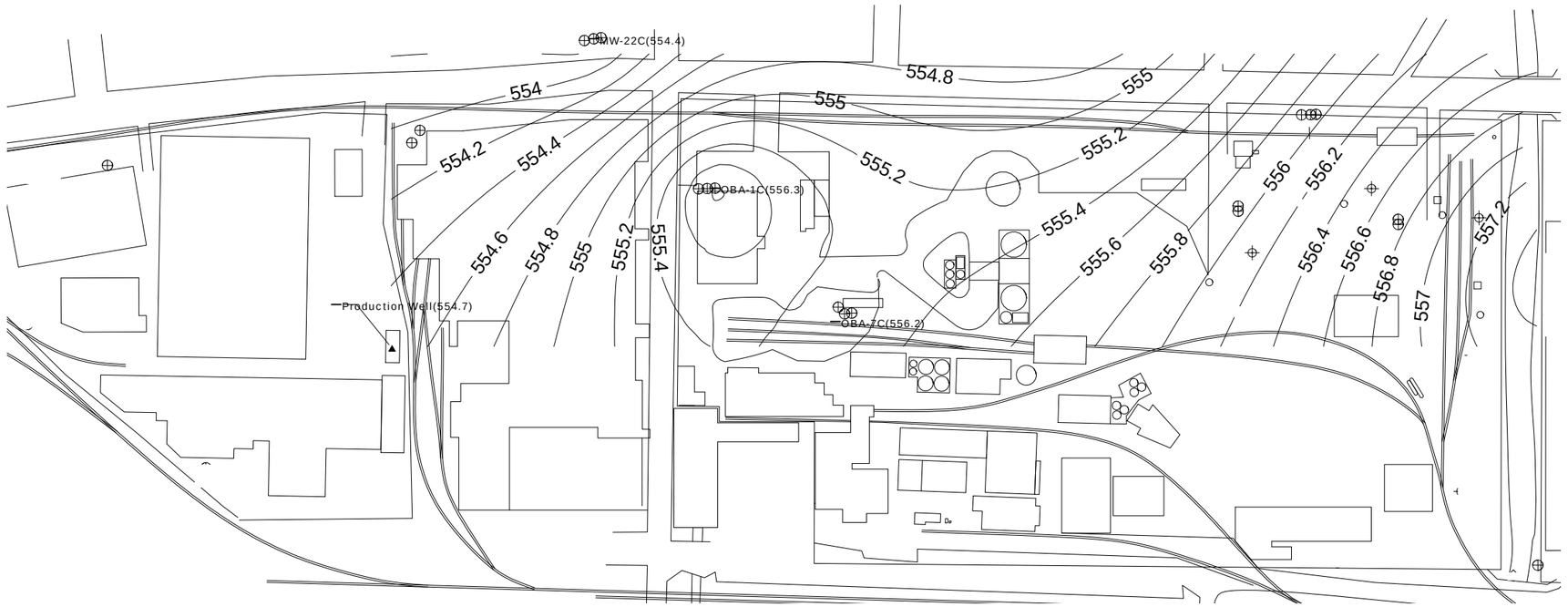
ARGC AREA
POTENTIOMETRIC SURFACE -- B ZONE
(NOVEMBER 03, 2011)

Job No.: 6107-11-0002

Figure 2



N

LEGEND

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

Well	Average Flow Rate (gpm)
Olin Production Well	570

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 12/12/2011
Checked By: MET 12/14/2011

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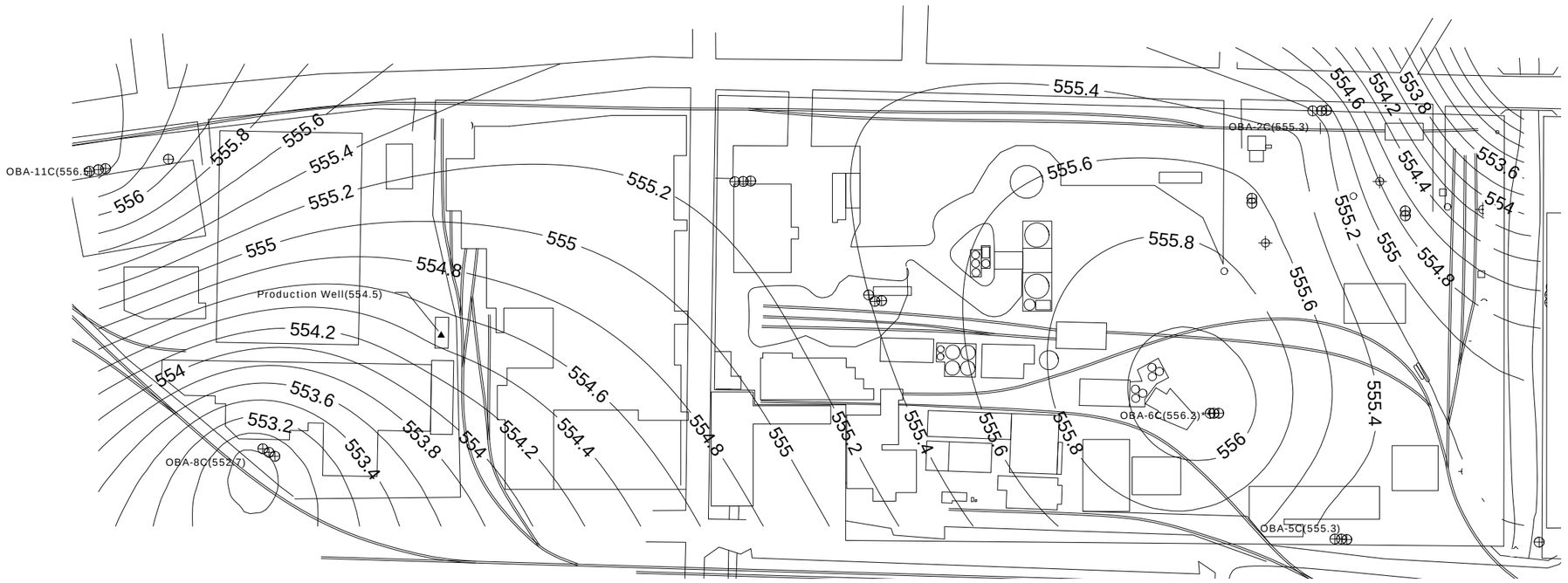
POTENTIOMETRIC SURFACE -- C ZONE
(NOVEMBER 03, 2011)

Job No.: 6107-11-0002

Figure 3



LEGEND

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

Well	Average Flow Rate (gpm)
Olin Production Well	570

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 12/12/2011
Checked By: MET 12/14/2011

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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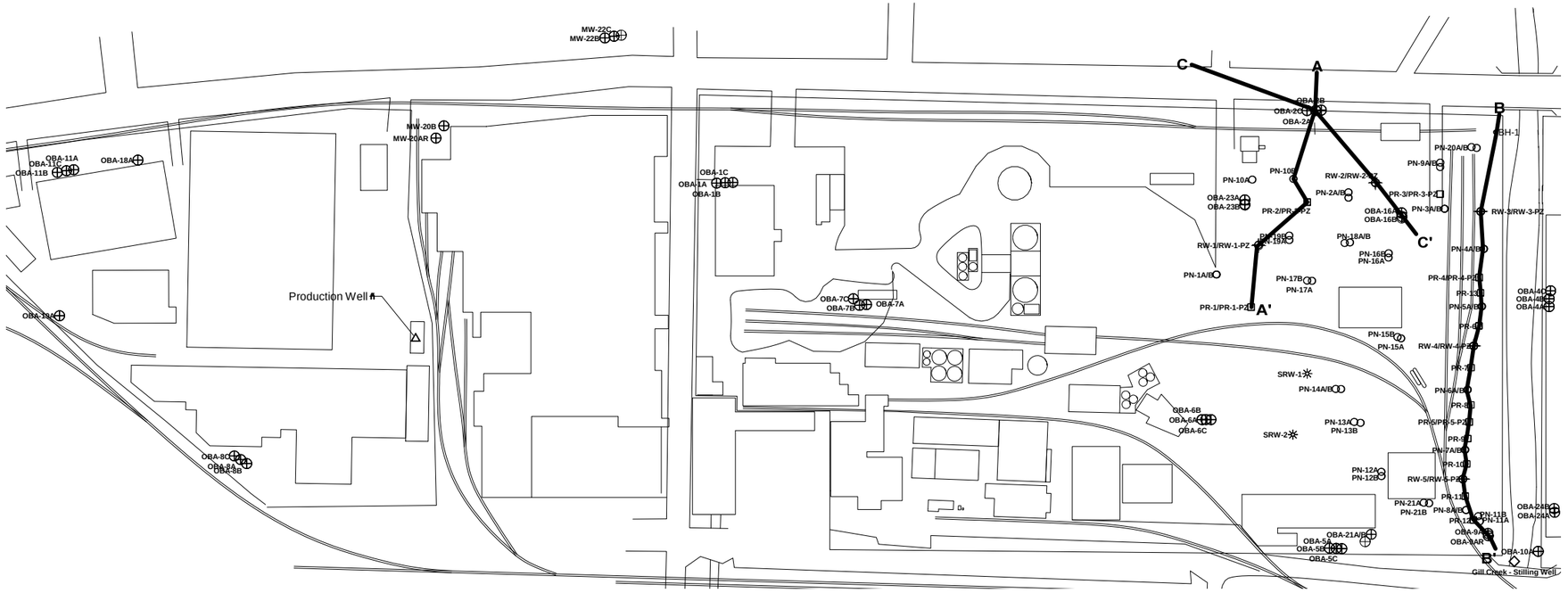
POTENTIOMETRIC SURFACE -- CD ZONE
(NOVEMBER 03, 2011)

Job No.: 6107-11-0002

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

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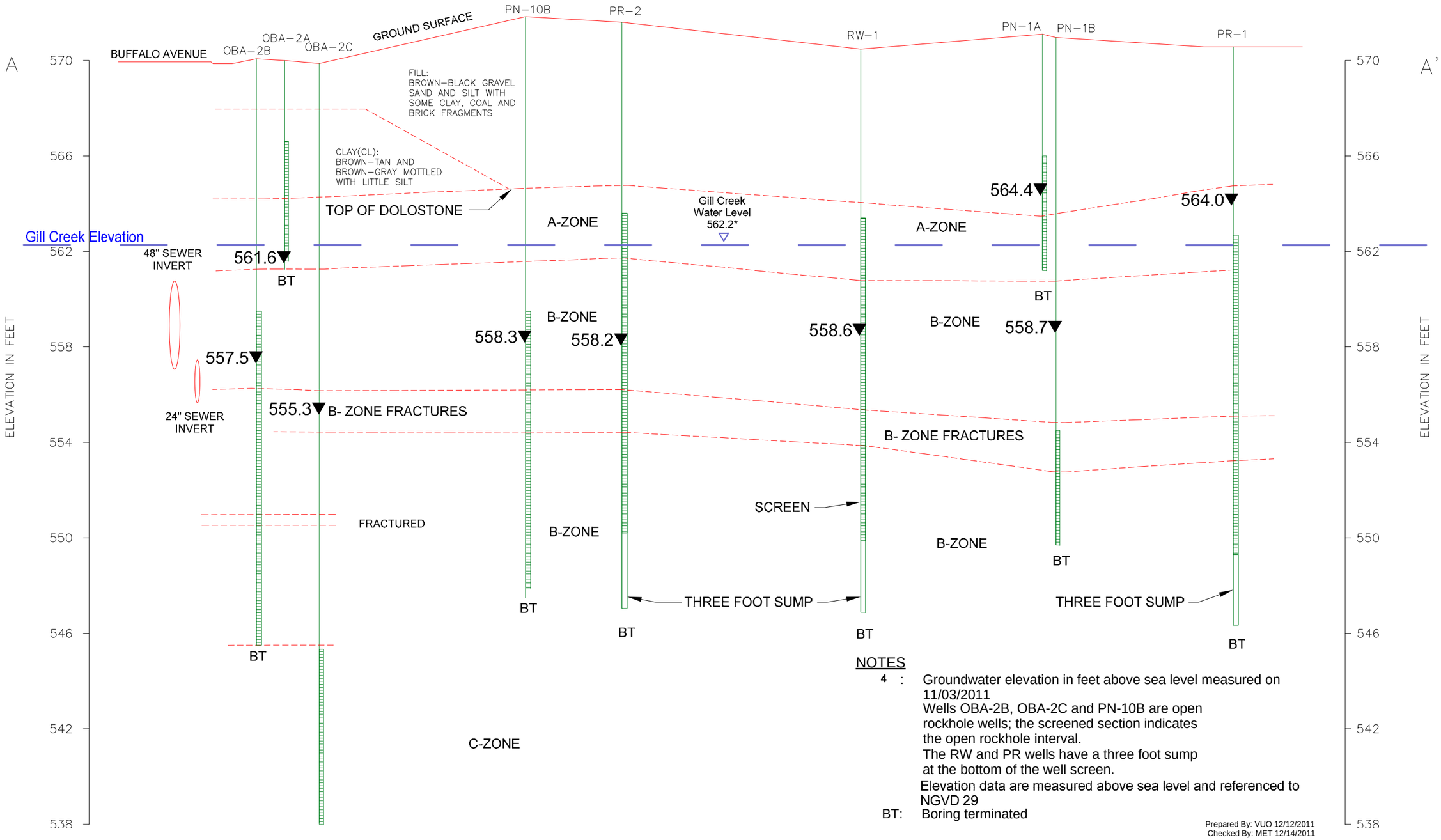
CROSS SECTION LOCATION MAP
(NOVEMBER 03, 2011)

Job No.: 6107-11-0002

Figure 5



NOTES

4 : Groundwater elevation in feet above sea level measured on 11/03/2011
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 12/12/2011
Checked By: MET 12/14/2011

OLIN CORPORATION
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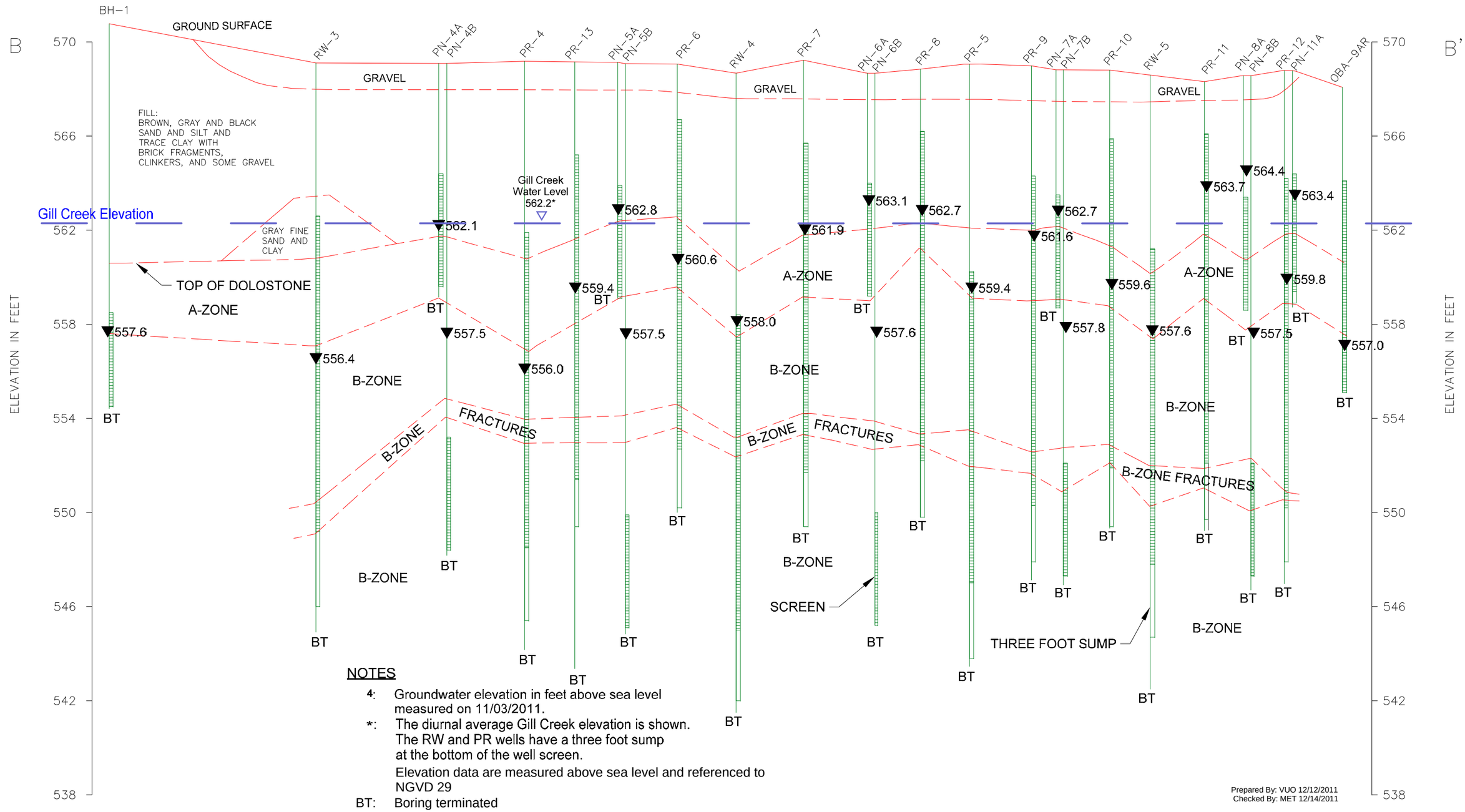
HYDROGEOLOGIC CROSS SECTION AA'
(NOVEMBER 03, 2011)

Job No.: 6107-11-0002

Figure 6



NOTES

4: Groundwater elevation in feet above sea level measured on 11/03/2011.

*: 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

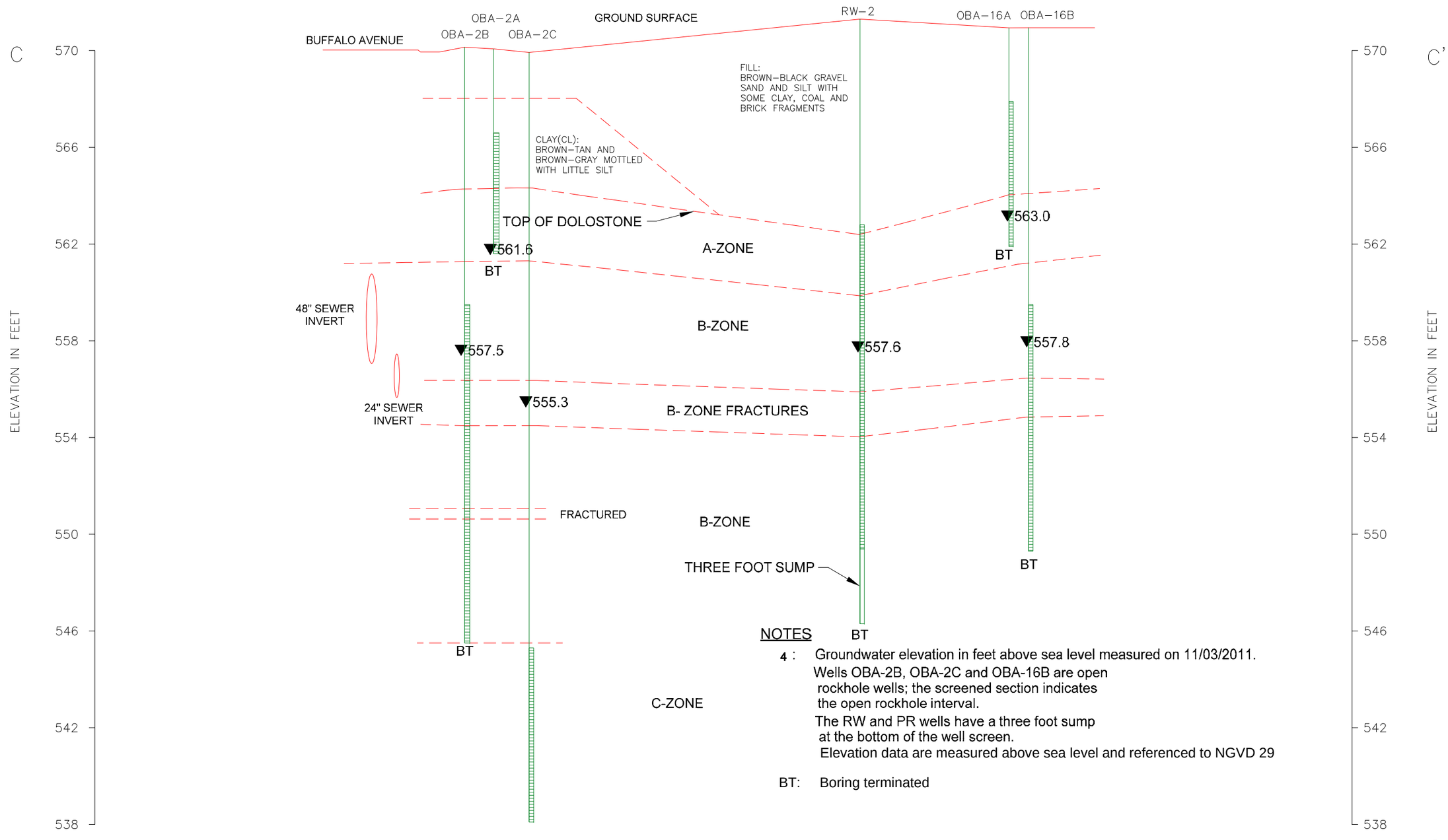
Prepared By: VUO 12/12/2011
Checked By: MET 12/14/2011

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

HYDROGEOLOGIC CROSS SECTION BB'
(NOVEMBER 03, 2011)

Job No.: 6107-11-0002

Figure 7



NOTES

4 : Groundwater elevation in feet above sea level measured on 11/03/2011.
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 12/12/2011
Checked By: MET 12/14/2011

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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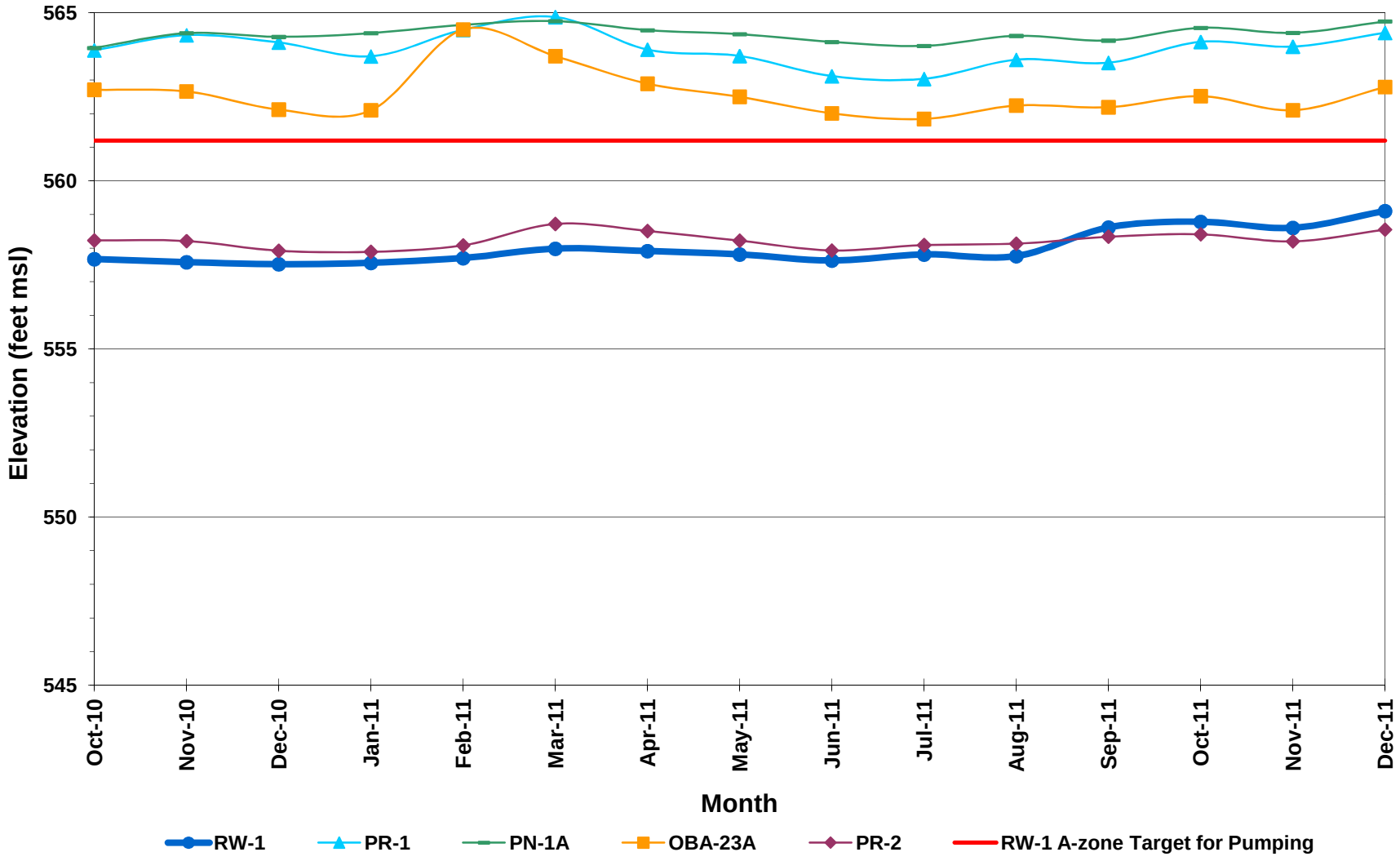
HYDROGEOLOGIC CROSS SECTION CC'
(NOVEMBER 03, 2011)

Job No.: 6107-11-0002

Figure 8

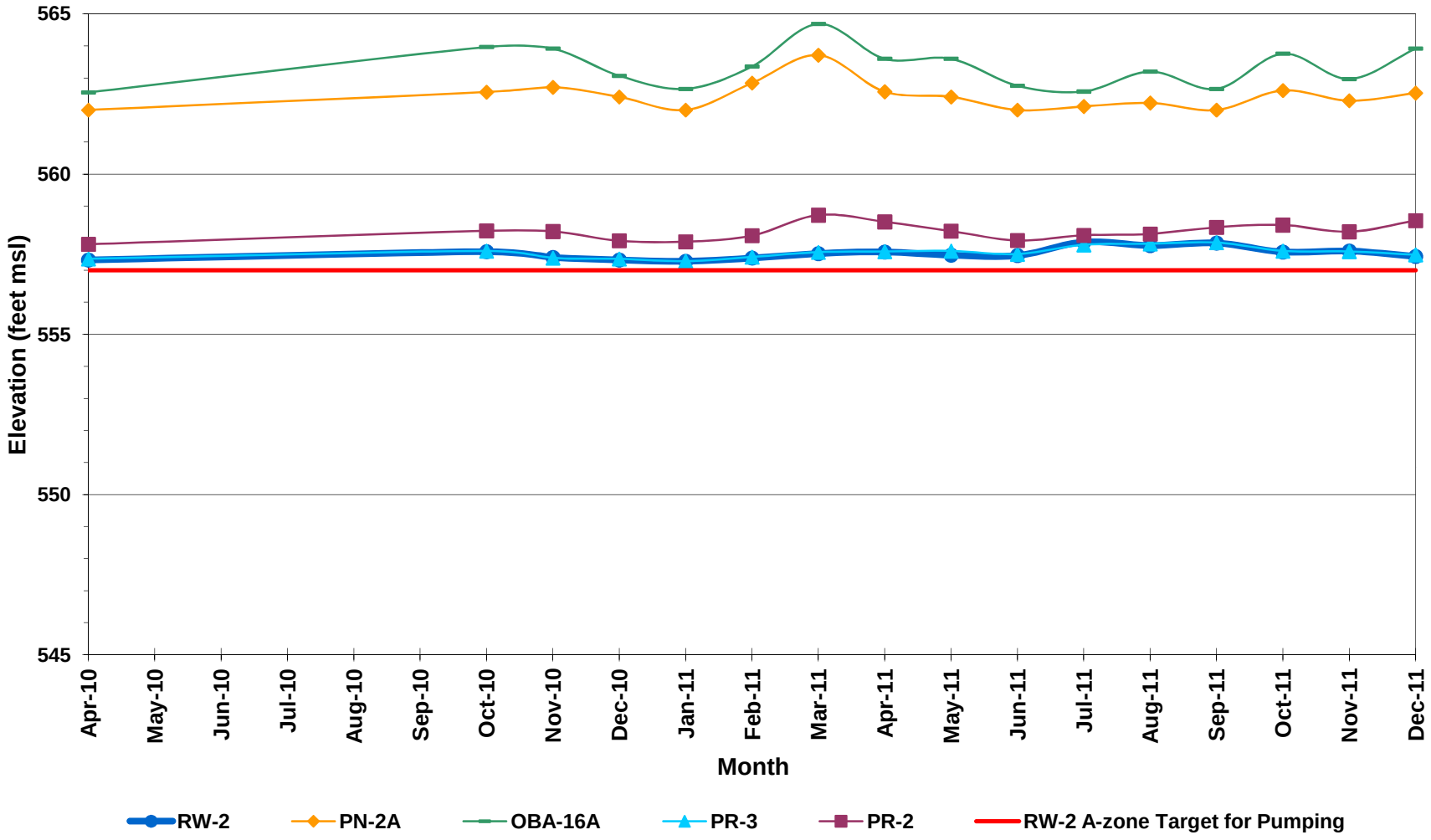
Figure A-1
RW-1 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

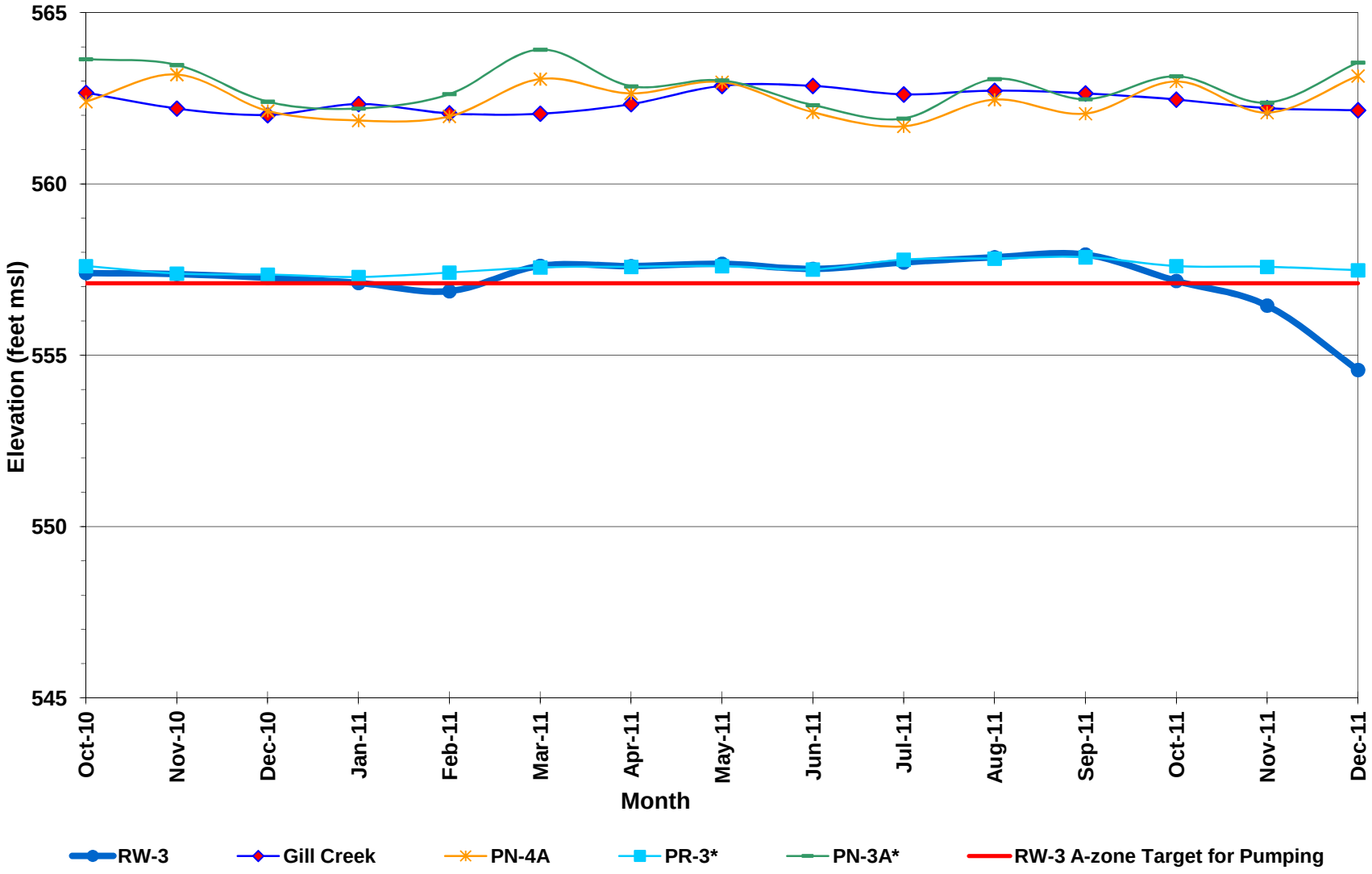
Figure A-2
RW-2 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

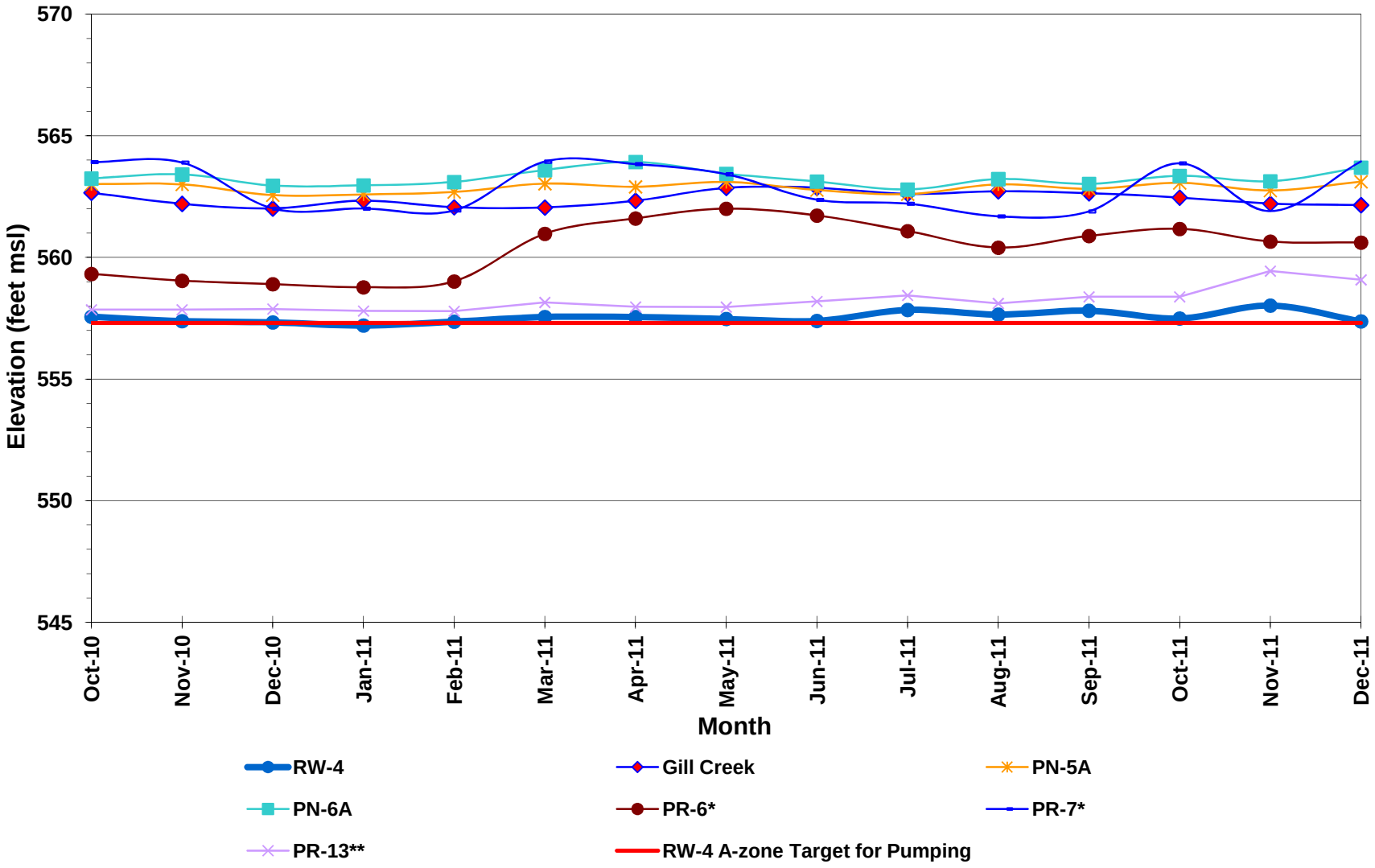
Figure A-3
RW-3 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

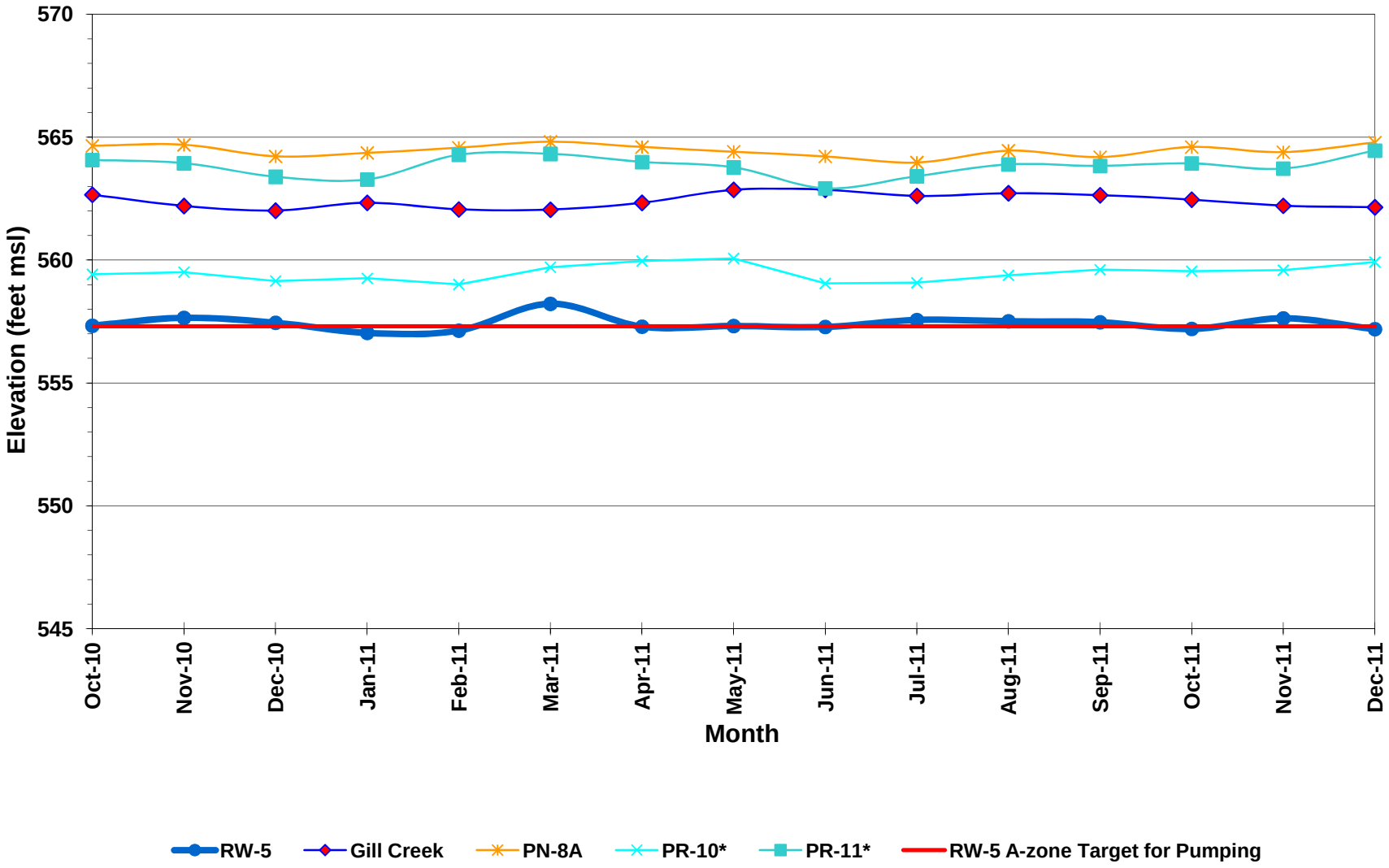
Figure A-4
RW-4 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

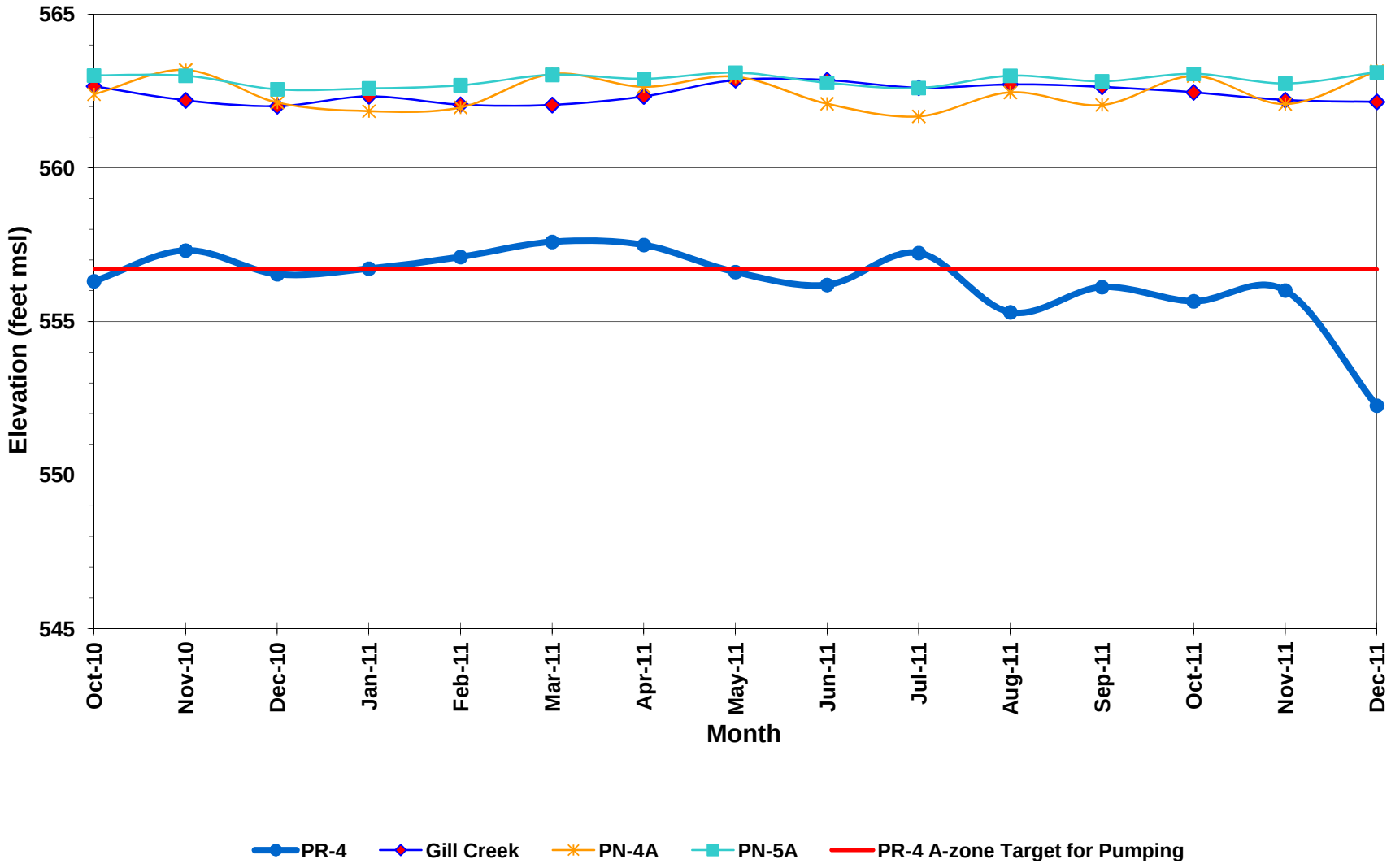
Figure A-5
RW-5 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

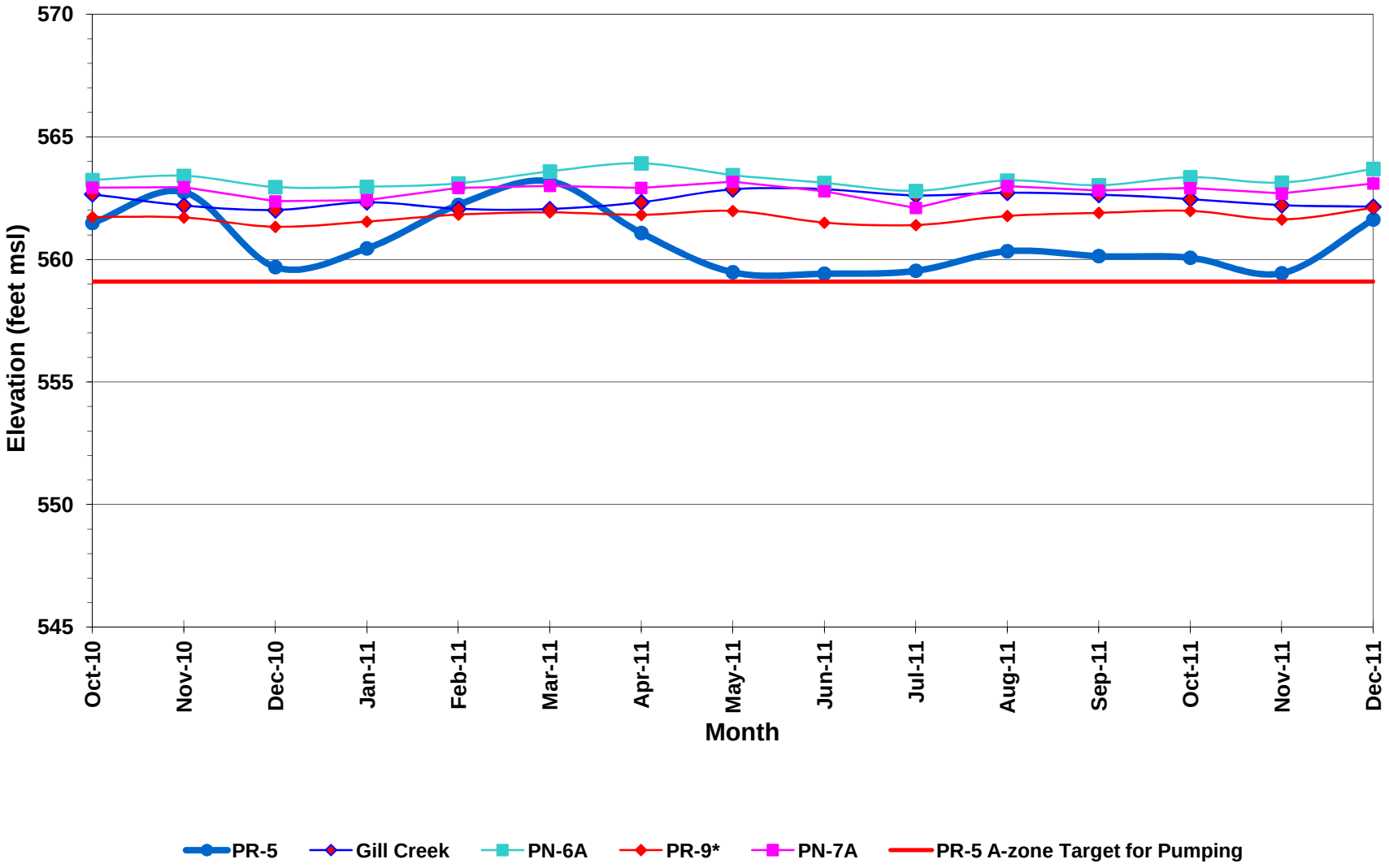
Figure A-6
PR-4 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

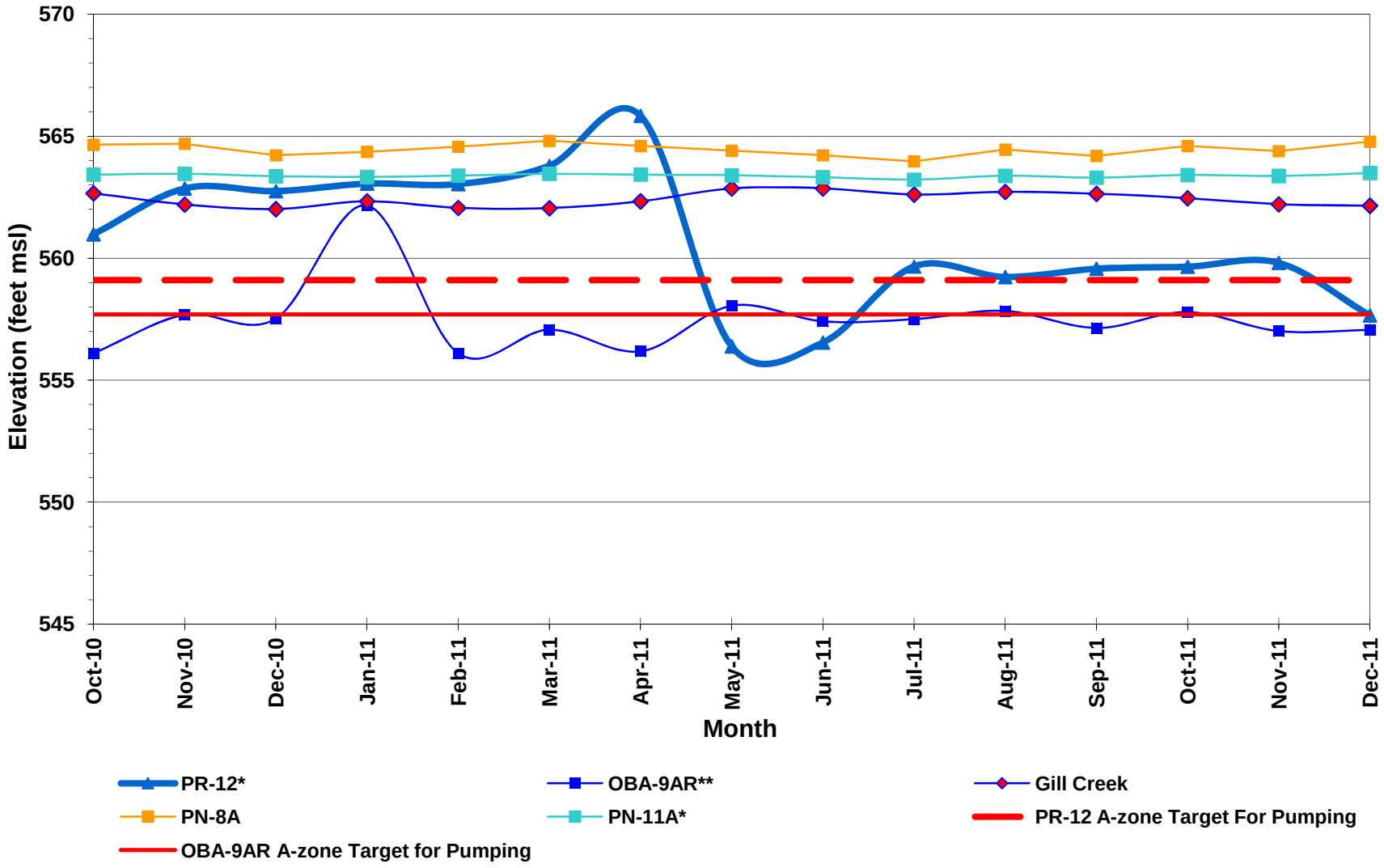
Figure A-7
PR-5 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

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



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

msl - mean sea level

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

Location ID	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
PR-1	563.88	564.33	564.11	563.70	564.49	564.87	563.90	563.71	563.11	563.03	563.60	563.51	564.13	563.99	564.40
PN-1A	563.95	564.39	564.28	564.39	564.64	564.75	564.48	564.36	564.13	564.01	564.31	564.17	564.55	564.40	564.74
RW-1	557.67	557.58	557.52	557.56	557.70	557.98	557.91	557.81	557.63	557.81	557.76	558.61	558.78	558.60	559.10
OBA-23A	562.71	562.66	562.12	562.10	564.50	563.71	562.89	562.50	562.01	561.84	562.24	562.19	562.52	562.10	562.79
PR-2	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	558.20	558.55
RW-1 A-zone Target	561.20	561.20	561.20	561.20	561.20	561.20	561.20	561.20	561.20	561.20	561.20	561.20	561.20	561.20	561.20

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

Prepared by : AWM 01/20/2012
Checked by: AWE 1/23/2012

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

Location ID	Apr-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
PN-2A*	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	562.29	562.53
RW-2	557.32	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
OBA-16A	562.55	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	562.97	563.92
PR-3	557.35	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	557.58	557.48
PR-2	557.81	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	558.20	558.55
RW-2 A-zone Target	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00	557.00

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.

Prepared by : AWM 01/20/2012
Checked by: AWE 1/23/2012

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

Location ID	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
Gill Creek - Stilling Well	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
PN-3A	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	562.37	563.54
RW-3	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
PN-4A	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	562.08	563.15
PR-3	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	557.58	557.48
RW-3 A-zone Target	557.10	557.10	557.10	557.10	557.10	557.10	557.10	557.10	557.10	557.10	557.10	557.10	557.10	557.10	557.10

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

Prepared by : AWM 01/20/2012
Checked by: AWE 1/23/2012

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

Location ID	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
Gill Creek -Stilling Well	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
PN-5A	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	562.75	563.11
PR-13**	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	559.44	559.08
RW-4	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
PN-6A	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	563.13	563.69
PR-6*	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
PR-7*	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
RW-4 A-zone Target	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30

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

Prepared by : AWM 01/20/2012
Checked by: AWE 1/23/2012

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

Location ID	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
Gill Creek - Stilling Well	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
RW-5	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
PN-8A	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	564.39	564.78
PR-10*	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
PR-11*	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
RW-5 A-zone Target	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30	557.30

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

Prepared by : AWM 01/20/2012
Checked by: AWE 1/23/2012

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

Location ID	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
Gill Creek - Stilling Well	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
PR-4	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
PN-4A	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	562.08	563.15
PN-5A	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	562.75	563.11
PR-4 A-zone Target	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70

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

Prepared by : AWM 01/20/2012
Checked by: AWE 1/23/2012

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

Location ID	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
Gill Creek - Stilling Well	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
PR-5	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	559.44	561.63
PN-7A	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	562.69	563.10
PR-9*	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
PN-6A	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	563.13	563.69
PR-5 A-zone Target	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10

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

Prepared by : AWM 01/20/2012
Checked by: AWE 1/23/2012

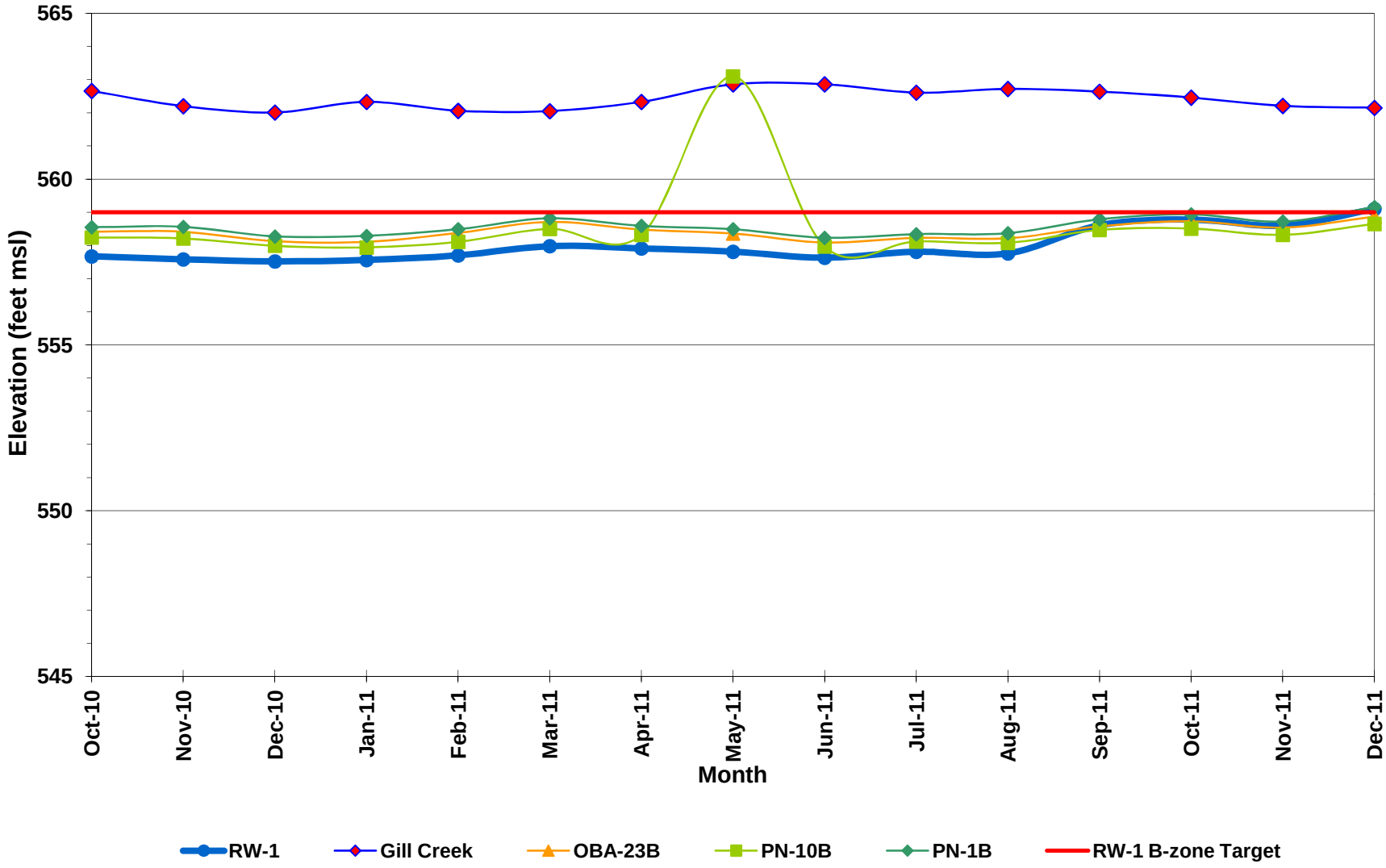
Table A-8
A-Zone
PR-12 and OBA-9AR and Adjacent Monitoring Point Water Elevations

Location ID	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
Gill Creek -Stilling Well	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
PN-8A	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	564.39	564.78
PR-12*	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
PN-11A*	563.43	563.46	563.36	563.33	563.39	563.46	563.43	563.40	563.32	563.22	563.38	563.30	563.41	563.37	563.49
OBA-9AR**	556.10	557.68	557.52	562.16	556.10	557.07	556.18	558.05	557.41	557.50	557.84	557.14	557.79	557.01	557.06
PR-12 A-zone Target	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10
OBA-9AR A-zone Target	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70

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

Prepared by : AWM 01/20/2012
Checked by: AWE 1/23/2012

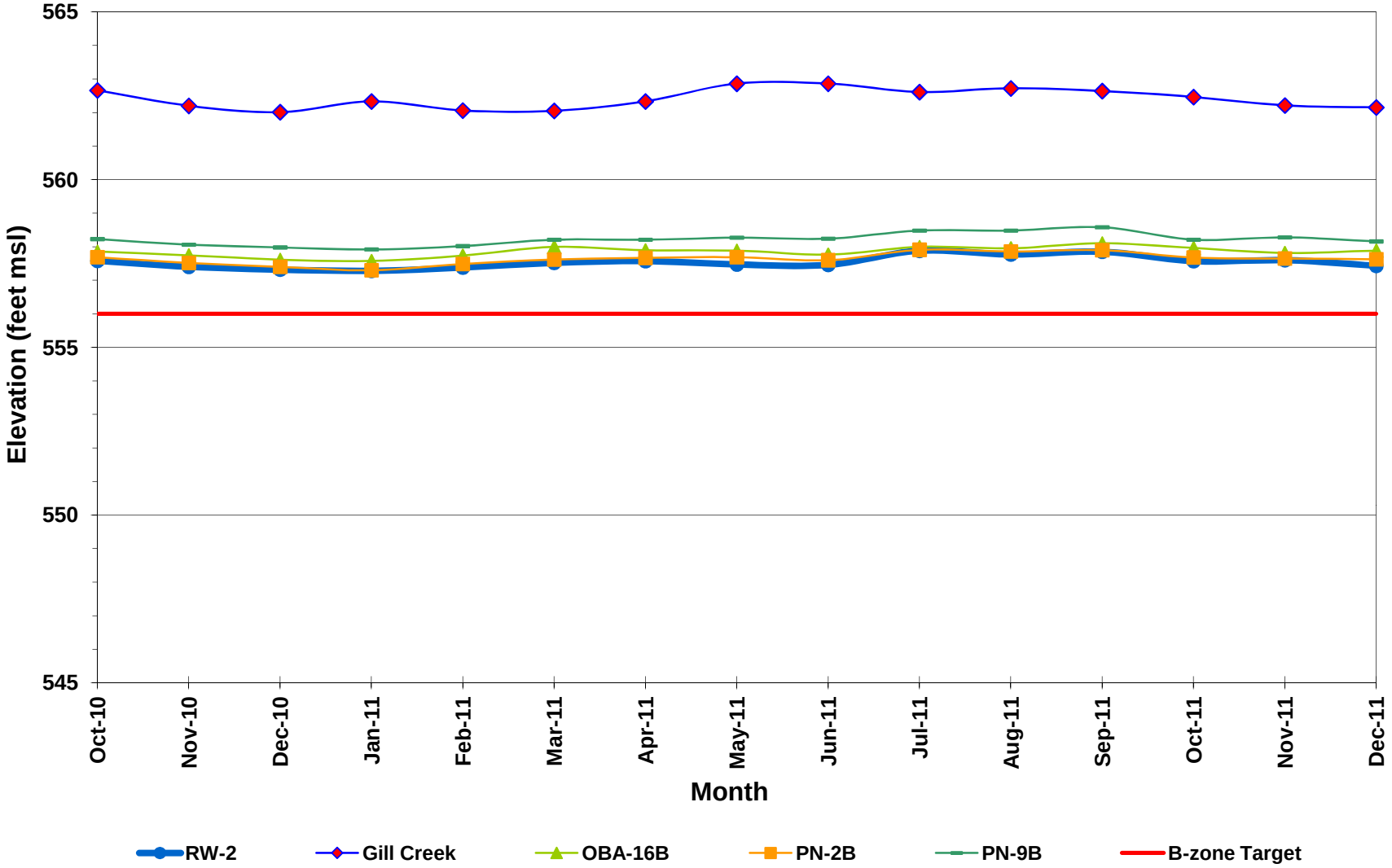
Figure B-1
RW-1 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

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

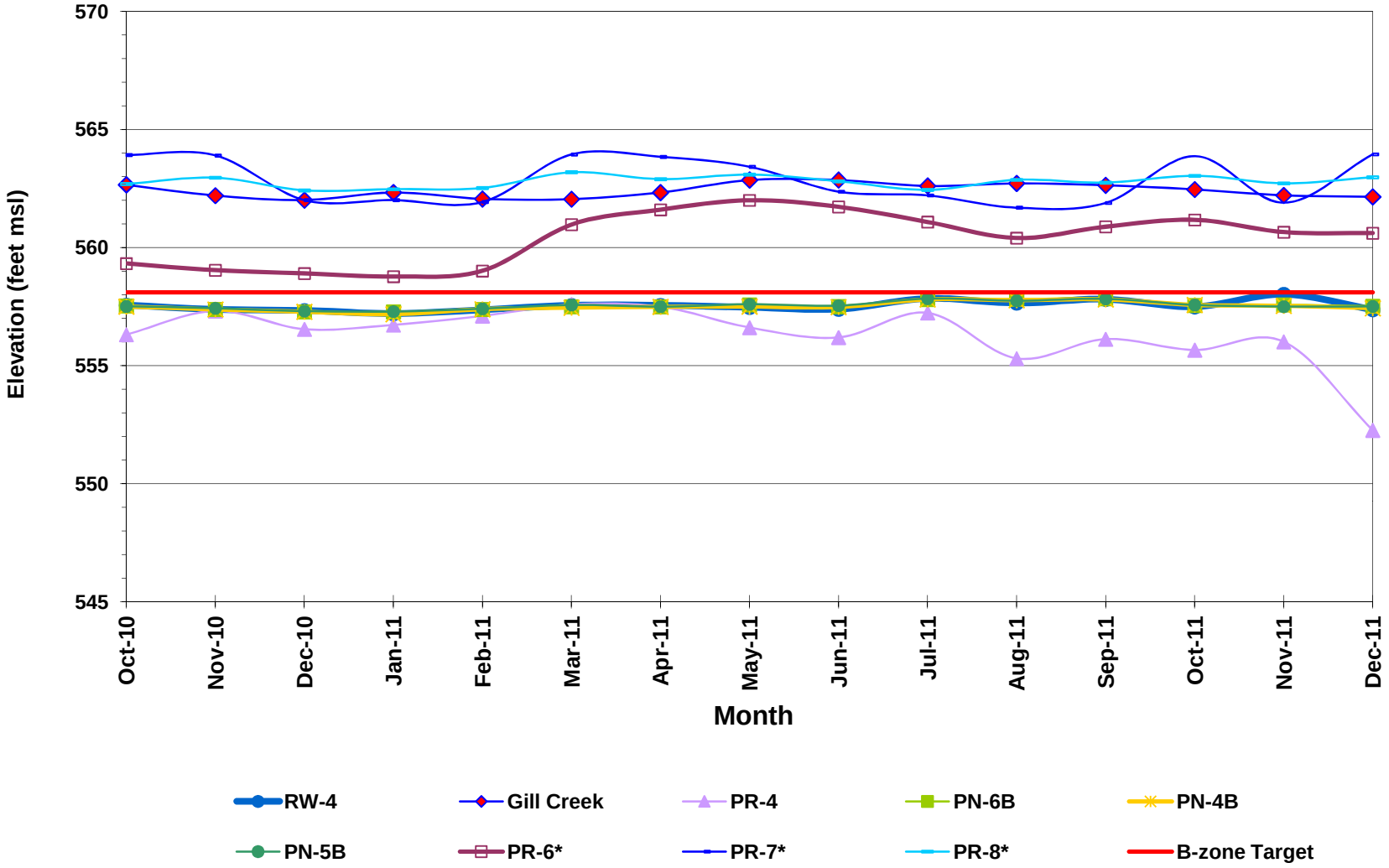
Figure B-2
RW-2 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

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

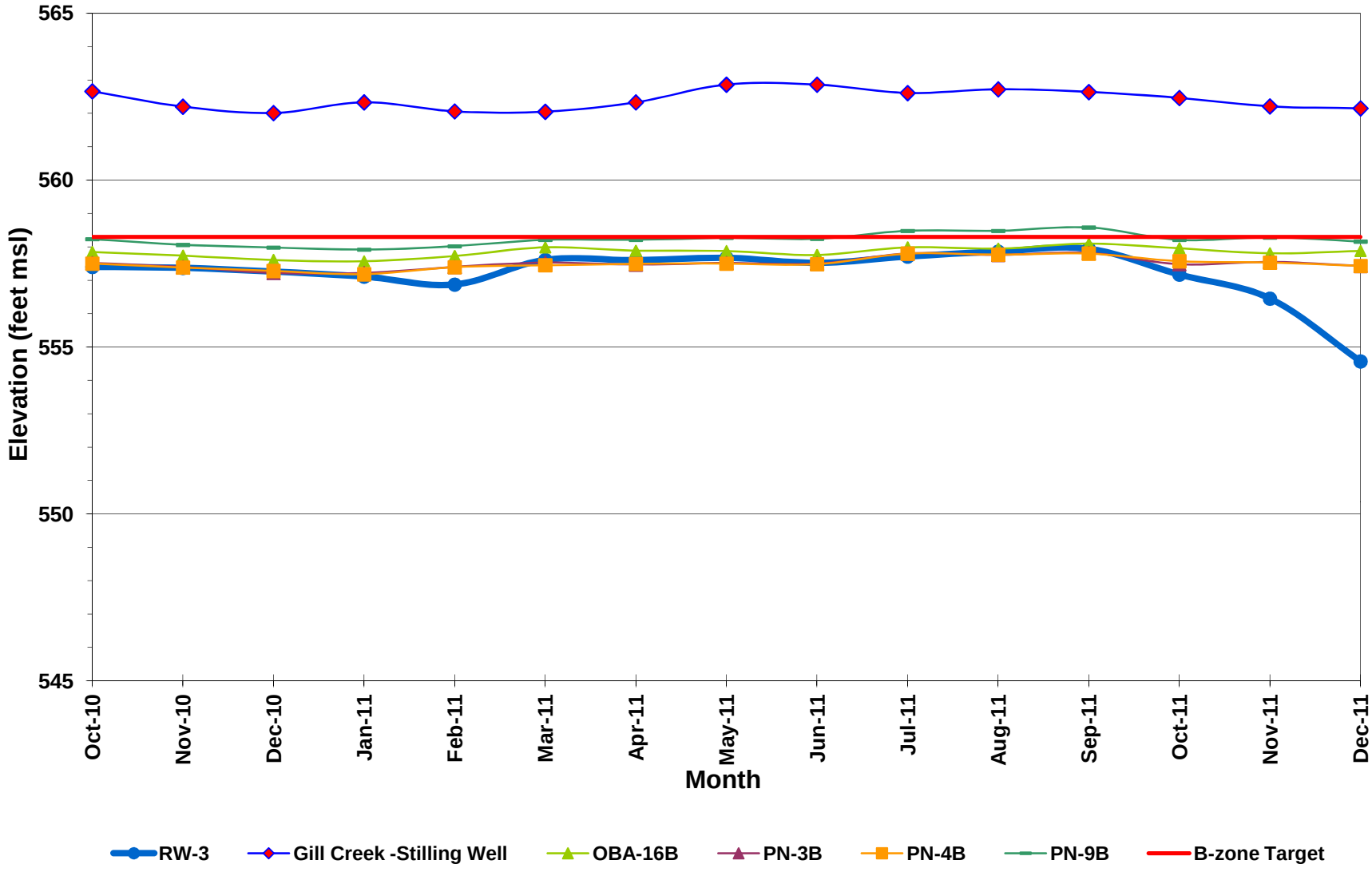
Figure B-4
RW-4 and PR-4 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

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

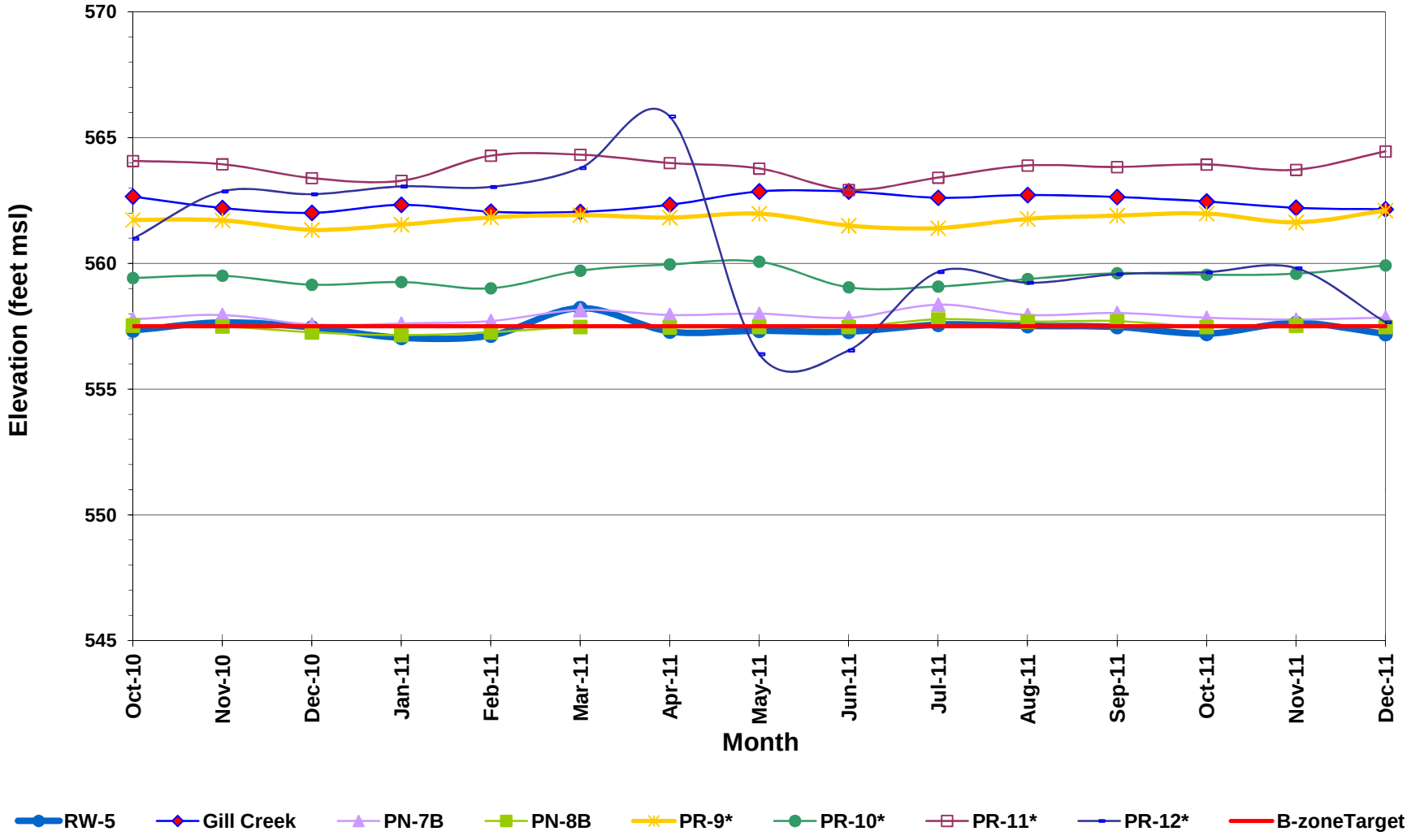
Figure B-3
RW-3 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

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

Figure B-5
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 B-1
B-Zone
RW-1 and Adjacent Monitoring Point Peizometric Elevations

Location ID	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
RW-1	557.67	557.58	557.52	557.56	557.70	557.98	557.91	557.81	557.63	557.81	557.76	558.61	558.78	558.60	559.10
Gill Creek -Stilling Well	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
OBA-23B	558.42	558.41	558.13	558.11	558.38	558.71	558.48	558.36	558.09	558.23	558.22	558.58	558.73	558.54	558.87
PN-10B	558.24	558.21	557.99	557.94	558.11	558.50	558.32	563.10	557.97	558.12	558.08	558.47	558.51	558.32	558.65
PN-1B	558.55	558.56	558.27	558.29	558.49	558.82	558.59	558.49	558.23	558.34	558.37	558.79	558.94	558.72	559.16
RW-1 B-zone Target	559	559	559	559	559	559	559	559	559	559	559	559	559	559	559

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 01/19/2012
Checked by: AWE 1/24/2012

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

Location ID	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
RW-2	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
Gill Creek -Stilling Well	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
OBA-16B	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
PN-2B	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
PN-9B	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
RW-2 B-zone Target	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556

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 01/19/2012
Checked by: AWE 1/24/2012

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

Location ID	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
RW-3	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
Gill Creek - Stilling Well	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
OBA-16B	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
PN-3B	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
PN-4B	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
PN-9B	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
B-zone Target	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3

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 01/19/2011

Checked by: AWE 1/24/2012

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

Location ID	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
RW-4	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
Gill Creek - Stilling Well	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
PR-4	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
PN-6B	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
PN-4B	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
PN-5B	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
PR-6*	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
PR-7*	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
PR-8*	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
B-zone Target	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10

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

Prepared by : AWM 01/19/2012
Checked by: AWE 1/24/2012

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

Location ID	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
RW-5	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
Gill Creek - Stilling Well	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
PN-7B	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
PN-8B	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
PR-9*	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
PR-10*	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
PR-11*	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
PR-12*	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
B-zoneTarget	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5

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

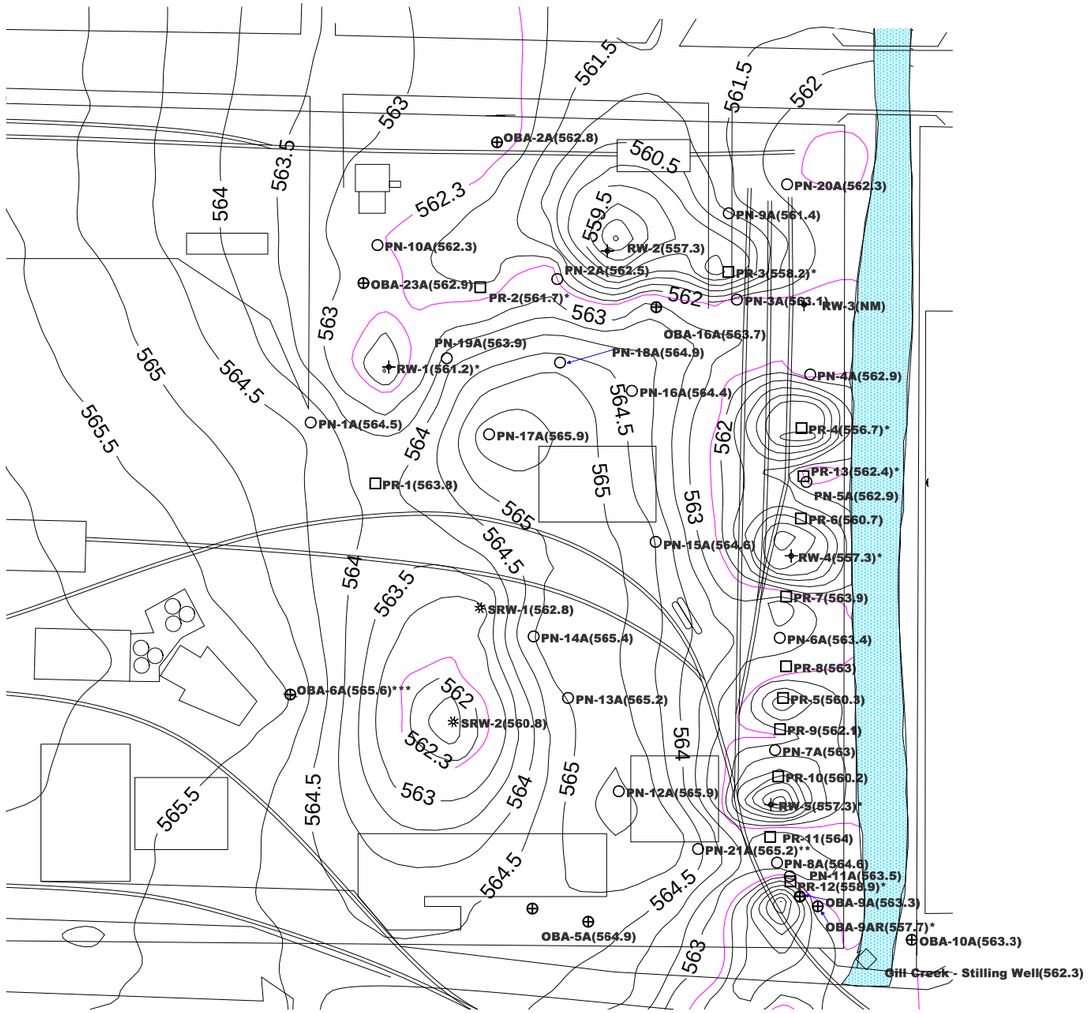
Prepared by : AWM 01/19/2012

Checked by: AWE 1/24/2012

Olin - Niagara Falls
OMNX Systems Check
Summary of Total Flow and Average System Flow Rates for 2011

			Average Flow Rate (gpm)									Flow Contribution Per Well (gal/month)							
Period	**Total Flow (gal/month)**	**Total Quarterly Flow (gal)**	**RW-1**	**RW-2**	**RW-3**	**RW-4**	**PR-4**	**RW-5**	**PR-12**	**OBA-9AR**	**Total**	**RW-1**	**RW-2**	**RW-3**	**RW-4**	**PR-4**	**RW-5**	**PR-12**	**OBA-9AR**
Jan-11	2,520,102		2.7	28.3	2.3	1.2	2.2	16.2	3.2	0.4	56.5	120,793	1,262,507	100,687	55,491	97,223	724,684	141,131	17,585
Feb-11	2,243,249		2.4	29.6	2.1	0.2	1.4	16.4	2.7	0.8	55.6	96,421	1,193,248	86,630	7,126	55,866	662,715	107,738	33,507
Mar-11	1,968,867		2.2	24.5	1.5	-	0.6	13.5	1.0	0.8	44.1	98,019	1,091,819	66,167	0	28,312	601,180	46,381	36,990
1st Qtr 11		**6,732,217**																	
Apr-11	1,461,431		2.5	1.1	1.9	8.7	2.4	16.4	-	0.9	33.8	107,115	48,350	80,972	374,711	104,623	706,593	0	39,068
May-11	1,631,944		1.8	12.0	1.4	7.5	1.8	11.0	0.5	0.6	36.6	78,400	536,356	61,841	335,101	78,575	489,785	24,200	27,686
Jun-11	2,717,912		2.3	29.0	2.1	10.2	2.4	14.8	1.7	0.6	63.1	101,044	1,250,154	90,945	441,601	96,270	640,937	72,080	24,881
2ndQtr 11		**5,811,287**																	
Jul-11	2,947,834		2.0	27.6	3.8	12.5	2.3	15.7	1.7	0.5	66.0	87,061	1,232,841	167,695	560,105	100,837	701,426	74,478	23,390
Aug-11	3,363,563		1.7	30.0	1.2	11.3	12.1	16.7	1.7	0.6	75.3	77,171	1,338,075	54,680	504,818	540,332	743,987	78,079	26,421
Sep-11	2,749,407		0.2	27.4	0.7	7.1	10.8	15.5	1.6	0.5	63.6	6,857	1,183,743	28,594	306,524	465,941	669,956	67,439	20,353
3rdQtr 11		**9,060,804**																	
Oct-11	2,477,935		0.6	22.4	4.5	2.0	9.5	15.6	0.2	0.8	55.5	27,037	999,477	200,227	90,419	423,653	694,203	8,471	34,448
Nov-11	1,160,426		2.7	0.0	4.4	1.2	9.7	6.2	2.4	0.2	26.8	118,696	179	188,208	50,654	419,359	267,848	105,103	10,379
Dec-11	2,681,296		1.7	25.2	4.9	1.5	4.0	15.7	5.9	1.1	60.1	77,919	1,125,046	218,693	68,956	176,846	699,677	264,432	49,727
4thQtr 11		**6,319,657**																	
Maximum	**3,363,563.5**		**2.7**	**30.0**	**4.9**	**12.5**	**12.1**	**16.7**	**5.9**	**1.1**	**75.3**	**120,793**	**1,338,075**	**218,693**	**560,105**	**540,332**	**743,987**	**264,432**	**49,727**
Average	**2,381,675**		**1.9**	**21.4**	**2.6**	**5.3**	**4.9**	**14.5**	**1.9**	**0.7**	**53.1**	**83,044**	**938,483**	**112,112**	**232,959**	**215,653**	**633,583**	**82,461**	**28,703**
2011 System Total	**27,923,966**											**996,532**	**11,261,794**	**1,345,340**	**2,795,505**	**2,587,837**	**7,602,991**	**989,531**	**344,435**

First Quarter 2012 Piezometric Maps, Hydrographs, and System Flows



Extraction Well	Average Flow Rate (gpm)***
RW-1	3.20
RW-2	29.31
RW-3	5.00
RW-4	12.30
RW-5	16.00
PR-4	8.9
PR-12	5.3
OBA-9AR	0.2

*** :Averaged using daily flow rates for February 2, 2012. The water levels in RW-1, RW-4, RW-5, PR-4, PR-12, and OBA-9AR were below the bottom of the A-zone. The water level 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
- 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

*** :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 February 2, 2012 (562.3 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 03/15/2012
Checked By: AWE 03/16/2012

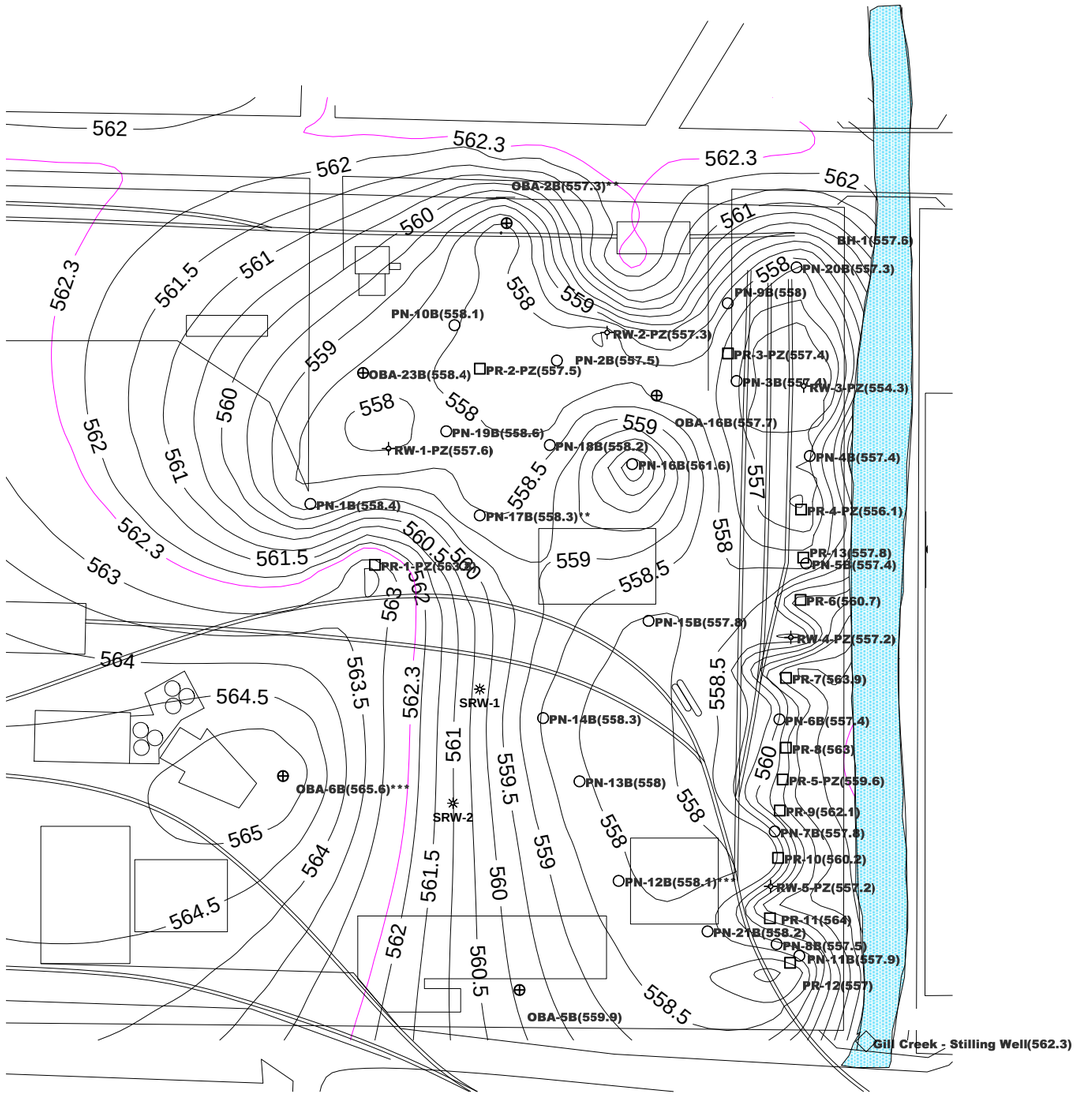
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

ARGC AREA
POTENTIOMETRIC SURFACE -- A ZONE
(FEBRUARY 02, 2012)

Job No.: 6107-12-0002

Figure 1



Extraction Well	Average Flow Rate (gpm)***
RW-1	3.20
RW-2	29.31
RW-3	5.00
RW-4	12.30
RW-5	16.00
PR-4	8.9
PR-12	5.3
OBA-9AR	0.2

*** :Averaged using daily flow rates for February 2, 2012. The water levels in RW-1, RW-4, RW-5, PR-4, PR-12, 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

** :Cracked concrete

*** :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: VUO 03/15/2012
Checked By: AWE 03/16/2012

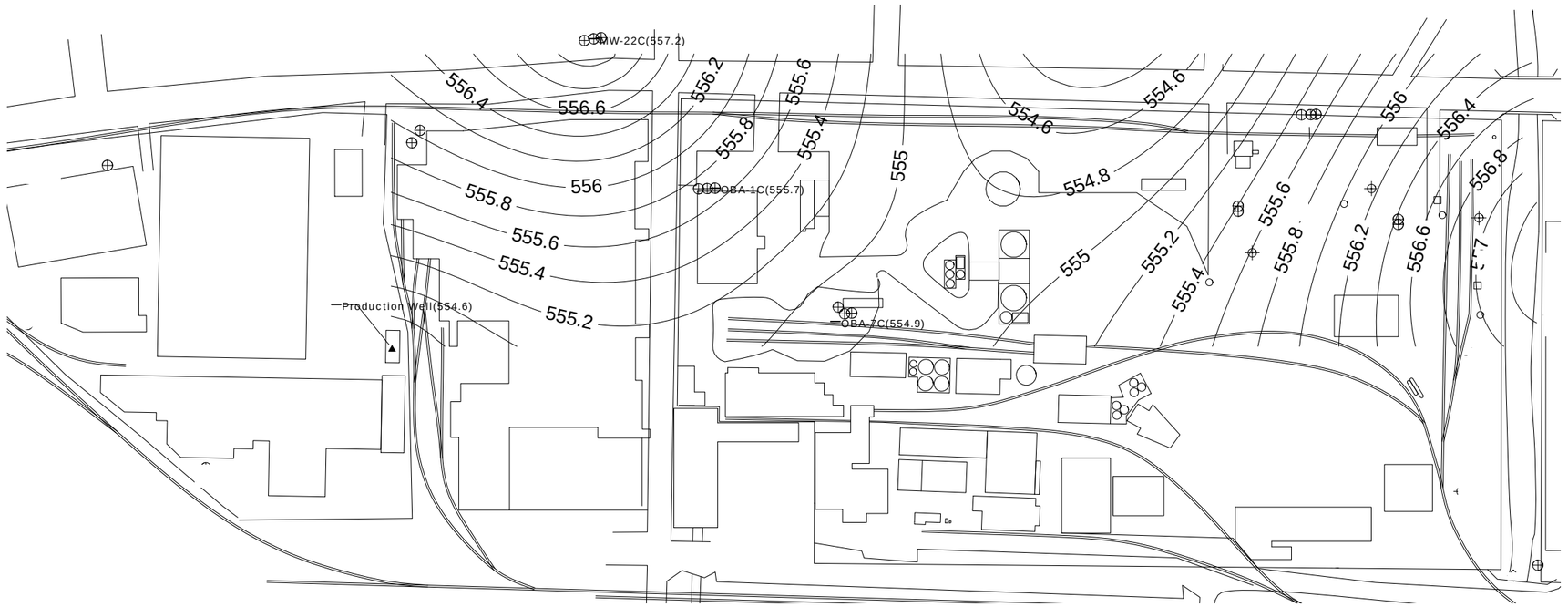
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

ARGC AREA
POTENTIOMETRIC SURFACE -- B ZONE
(FEBRUARY 02, 2012)

Job No.: 6107-12-0002

Figure 2



LEGEND

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

Well	Average Flow Rate (gpm)
Olin Production Well	547

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 03/15/2012
Checked By: AWE 03/16/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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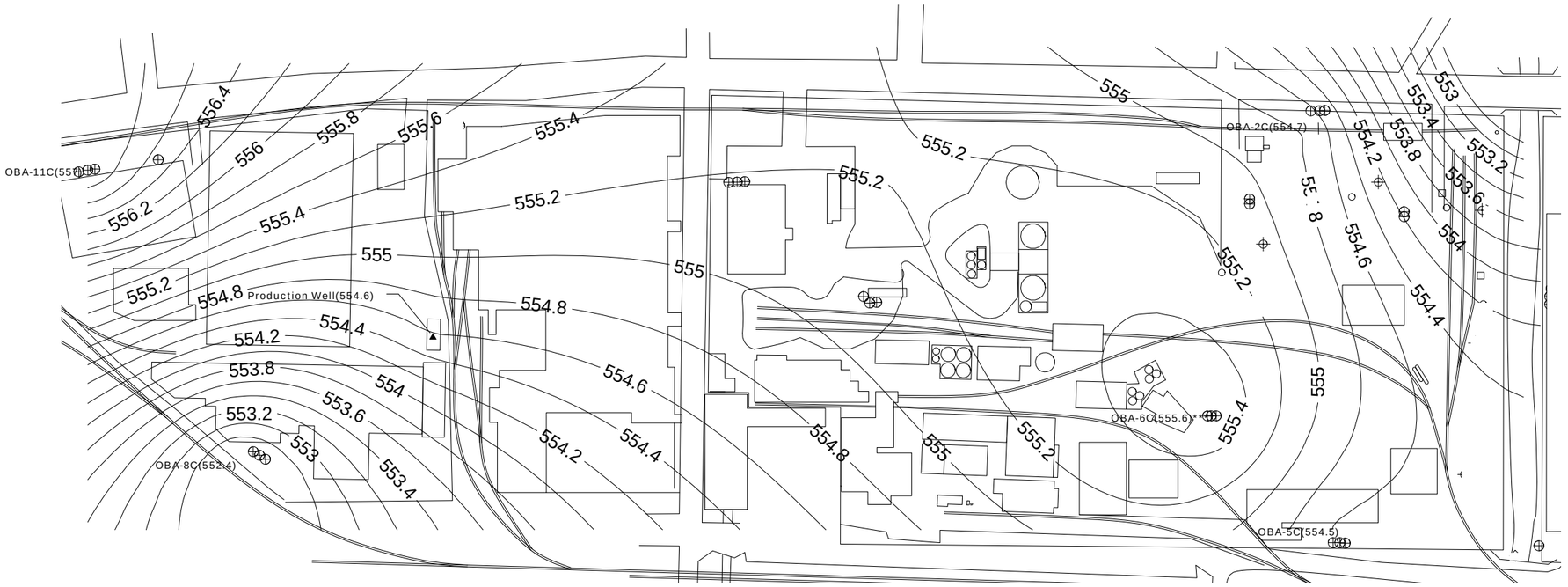
POTENTIOMETRIC SURFACE -- C ZONE
(FEBRUARY 02, 2012)

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	547

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 03/15/2012
Checked By: AWE 03/16/2012

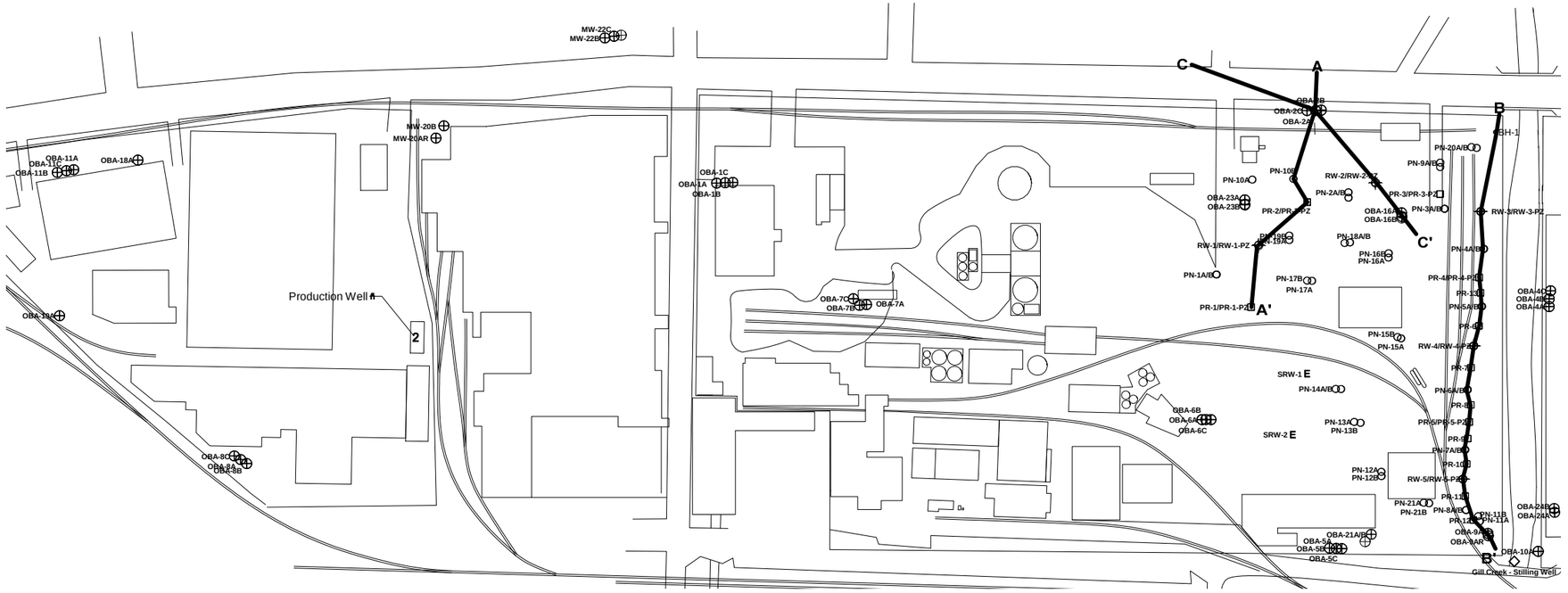
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

POTENTIOMETRIC SURFACE -- CD ZONE
(FEBRUARY 02, 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
E	SUPPLEMENTAL REMEDIATION WELL
———	PROPERTY LINE

Prepared By: VUO 03/15/2012
Checked By: AWE 03/16/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

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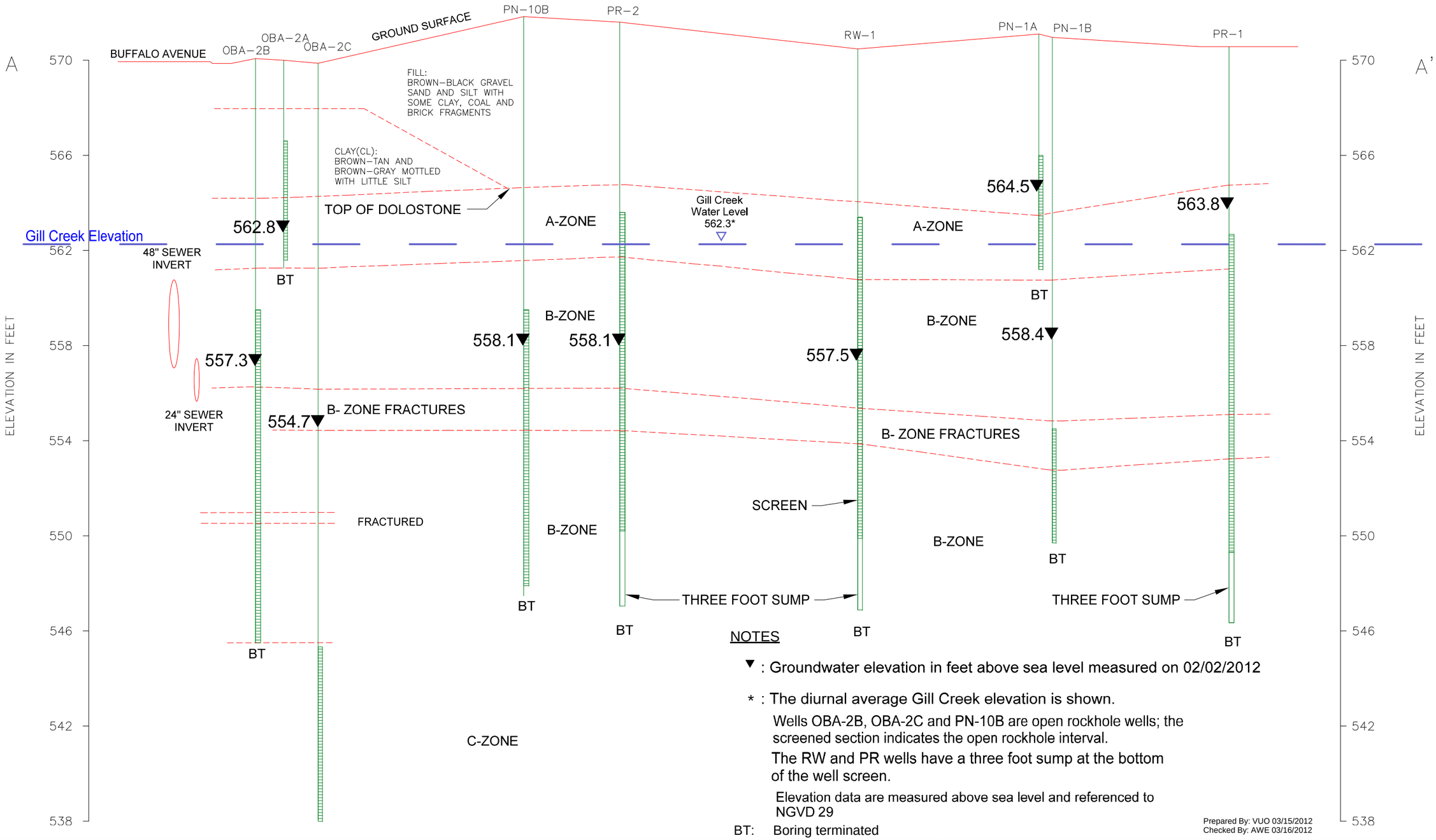
CROSS SECTION LOCATION MAP
(FEBRUARY 02, 2012)

Job No.: 6107-12-0002

Figure 5



NOTES

▼ : Groundwater elevation in feet above sea level measured on 02/02/2012

* : 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 03/15/2012
Checked By: AWE 03/16/2012

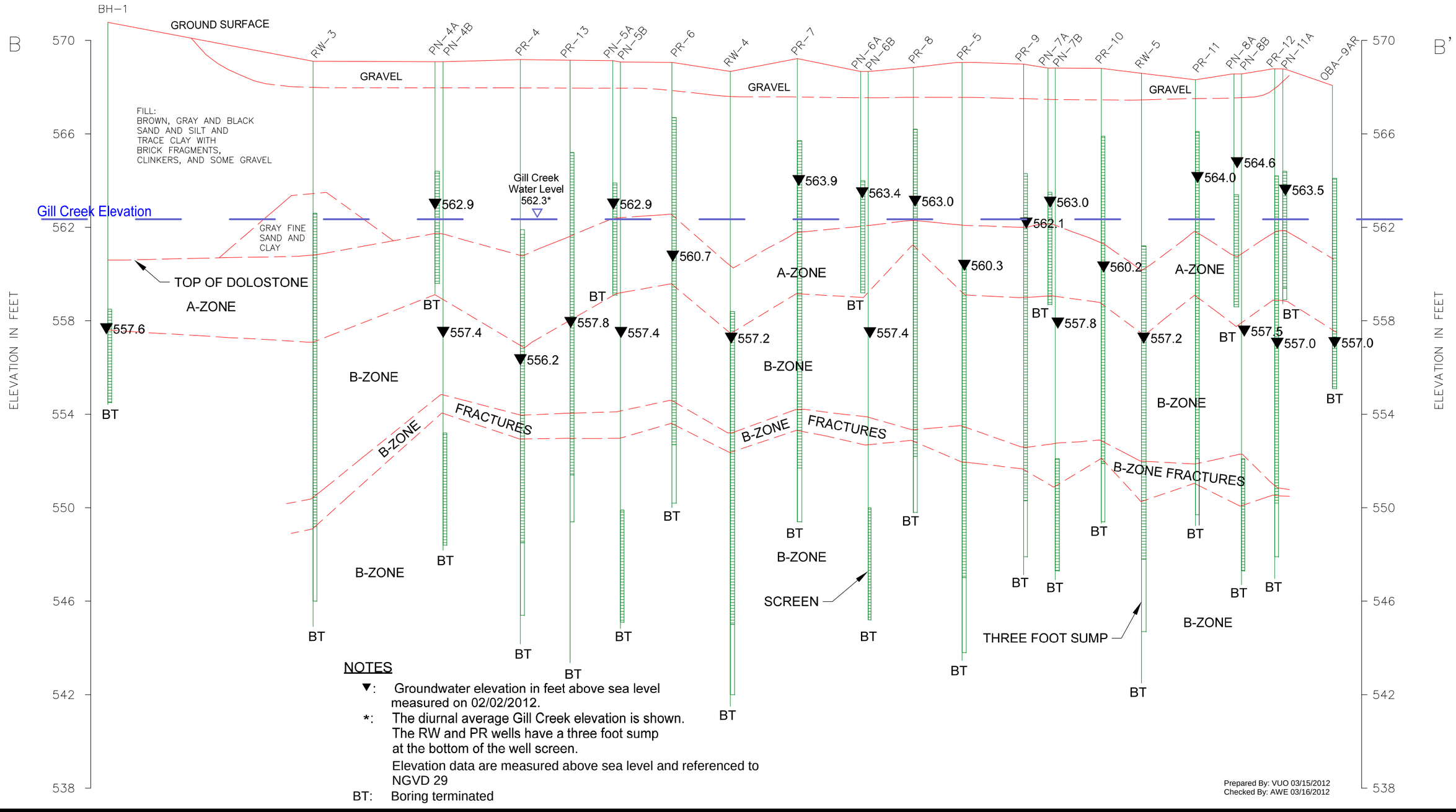
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

HYDROGEOLOGIC CROSS SECTION AA'
(FEBRUARY 02, 2012)

Job No.: 6107-12-0002

Figure 6



NOTES

▼: Groundwater elevation in feet above sea level measured on 02/02/2012.

*: 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 03/15/2012
Checked By: AWE 03/16/2012

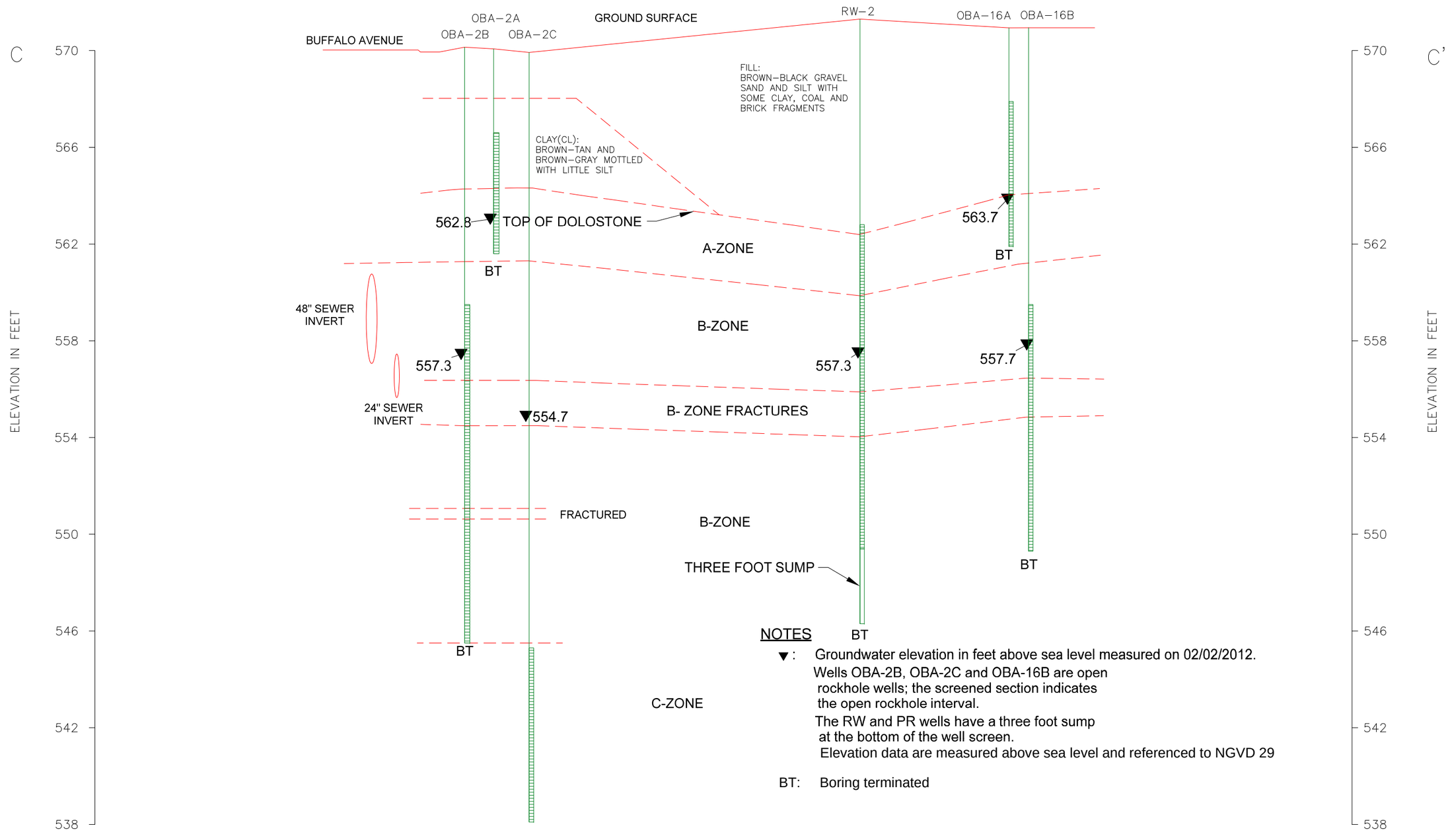
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

amec

HYDROGEOLOGIC CROSS SECTION BB'
(FEBRUARY 02, 2012)

Job No.: 6107-12-0002

Figure 7



Prepared By: VUO 03/15/2012
Checked By: AWE 03/16/2012

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

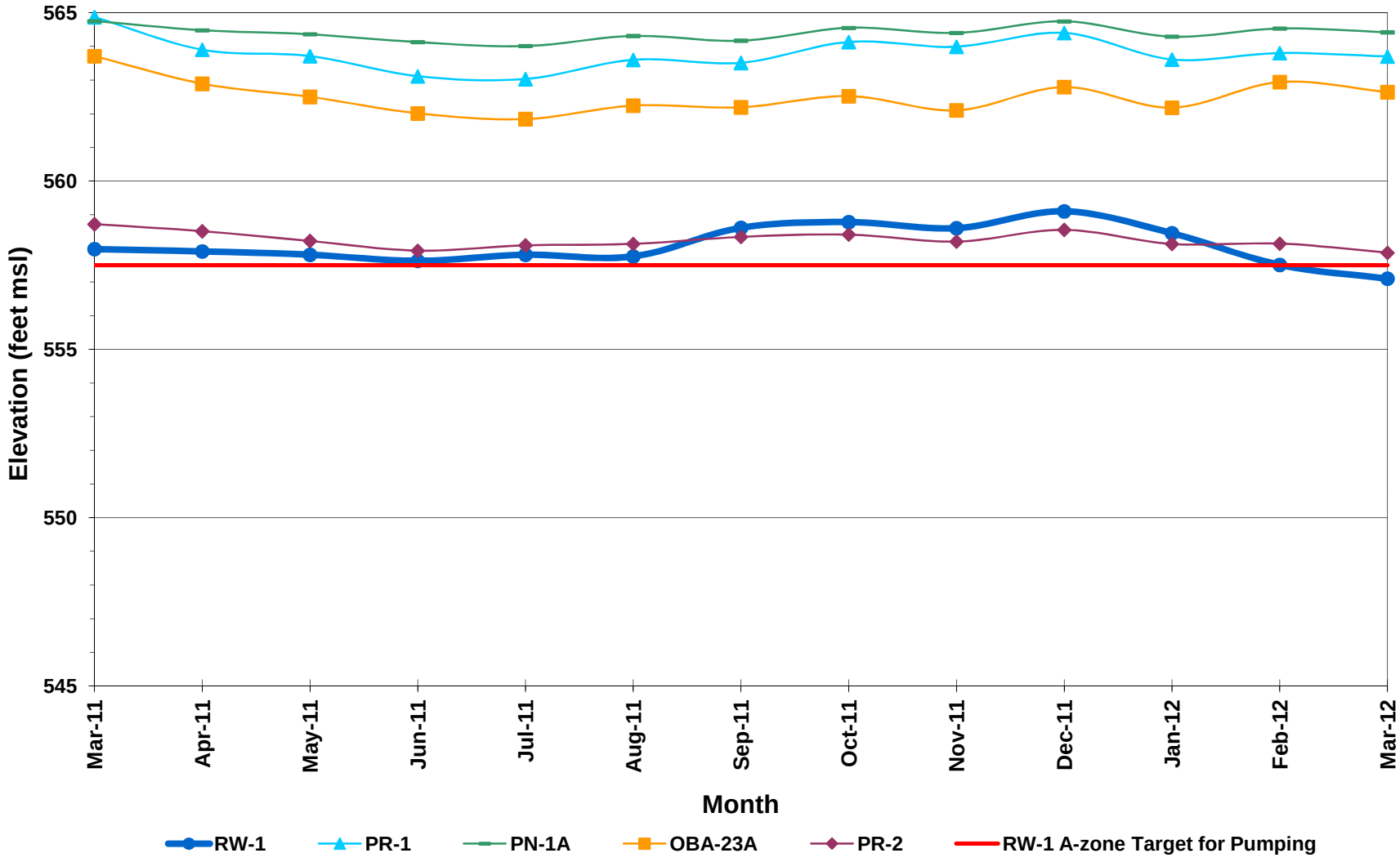
amec

HYDROGEOLOGIC CROSS SECTION CC'
(FEBRUARY 02, 2012))

Job No.: 6107-12-0002

Figure 8

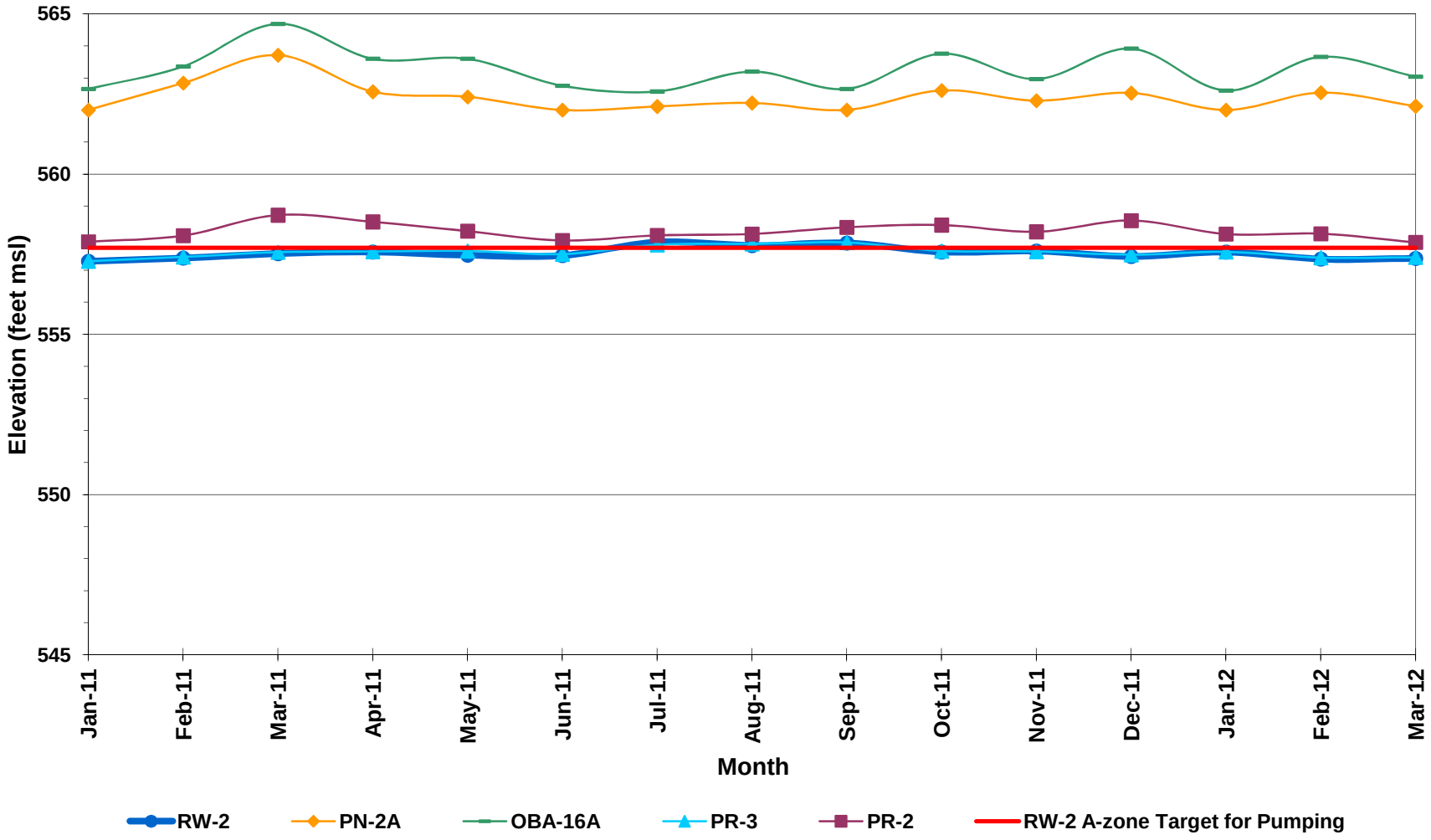
Figure A-1
RW-1 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

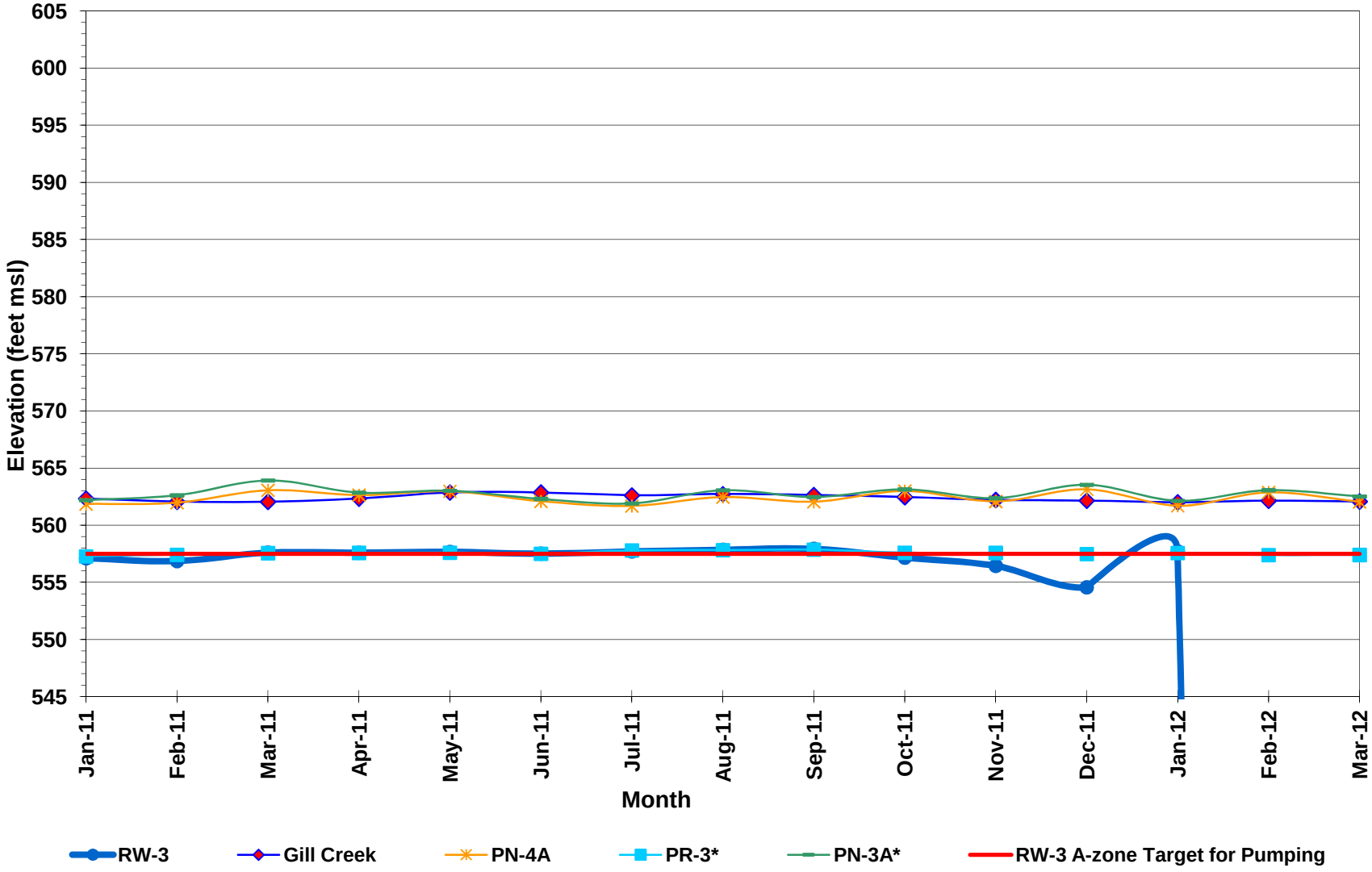
Figure A-2
RW-2 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

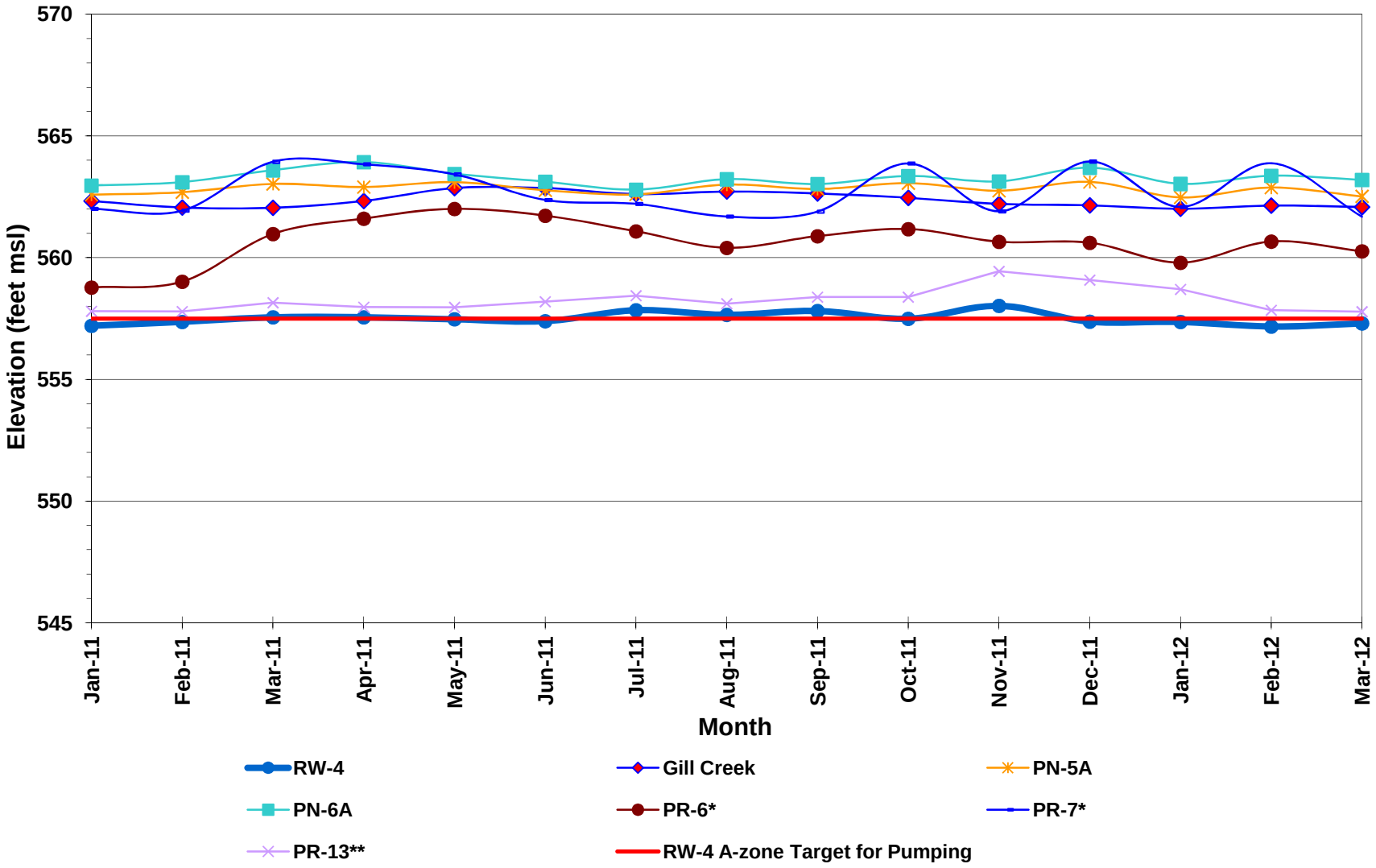
Figure A-3
RW-3 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

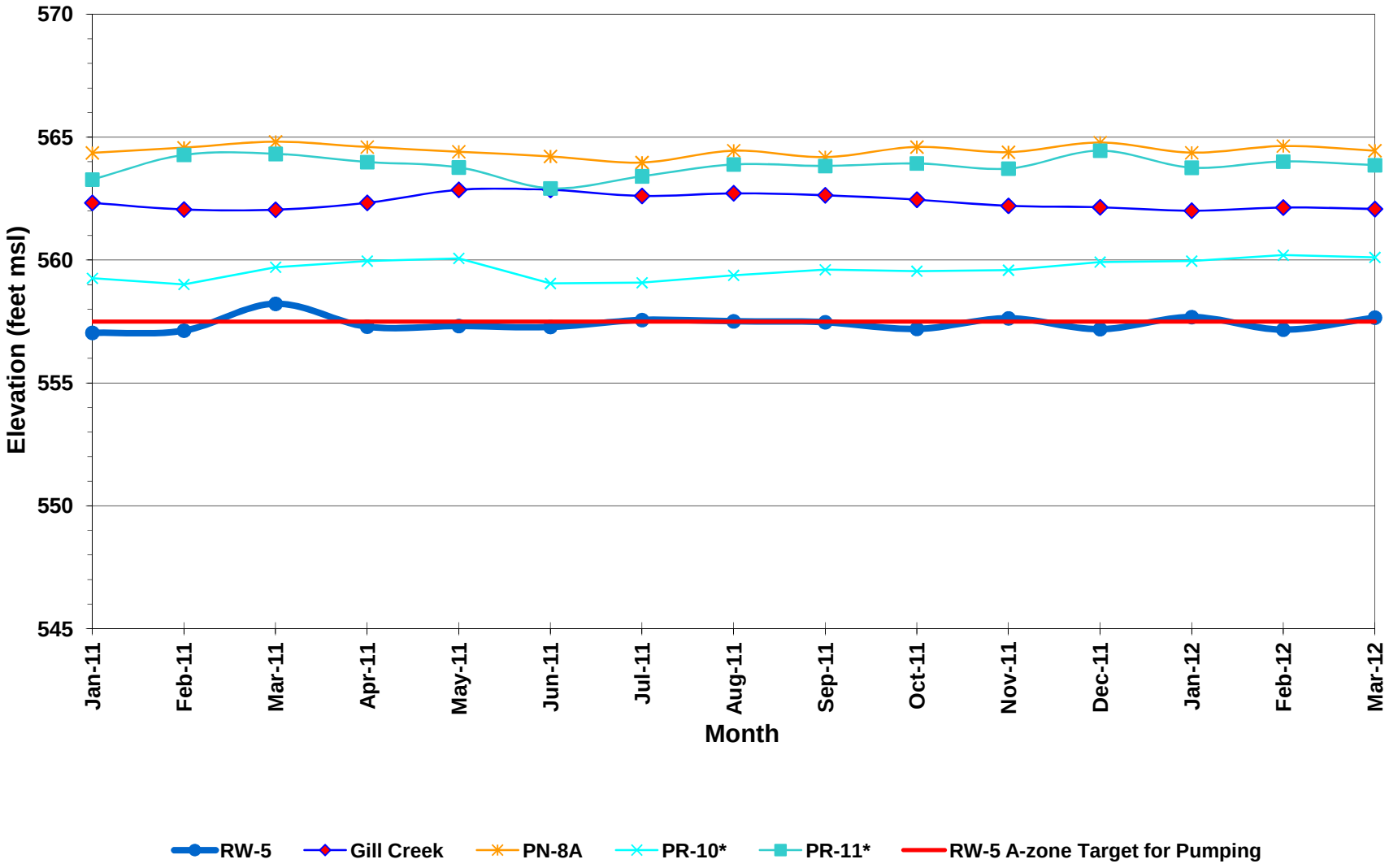
Figure A-4
RW-4 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

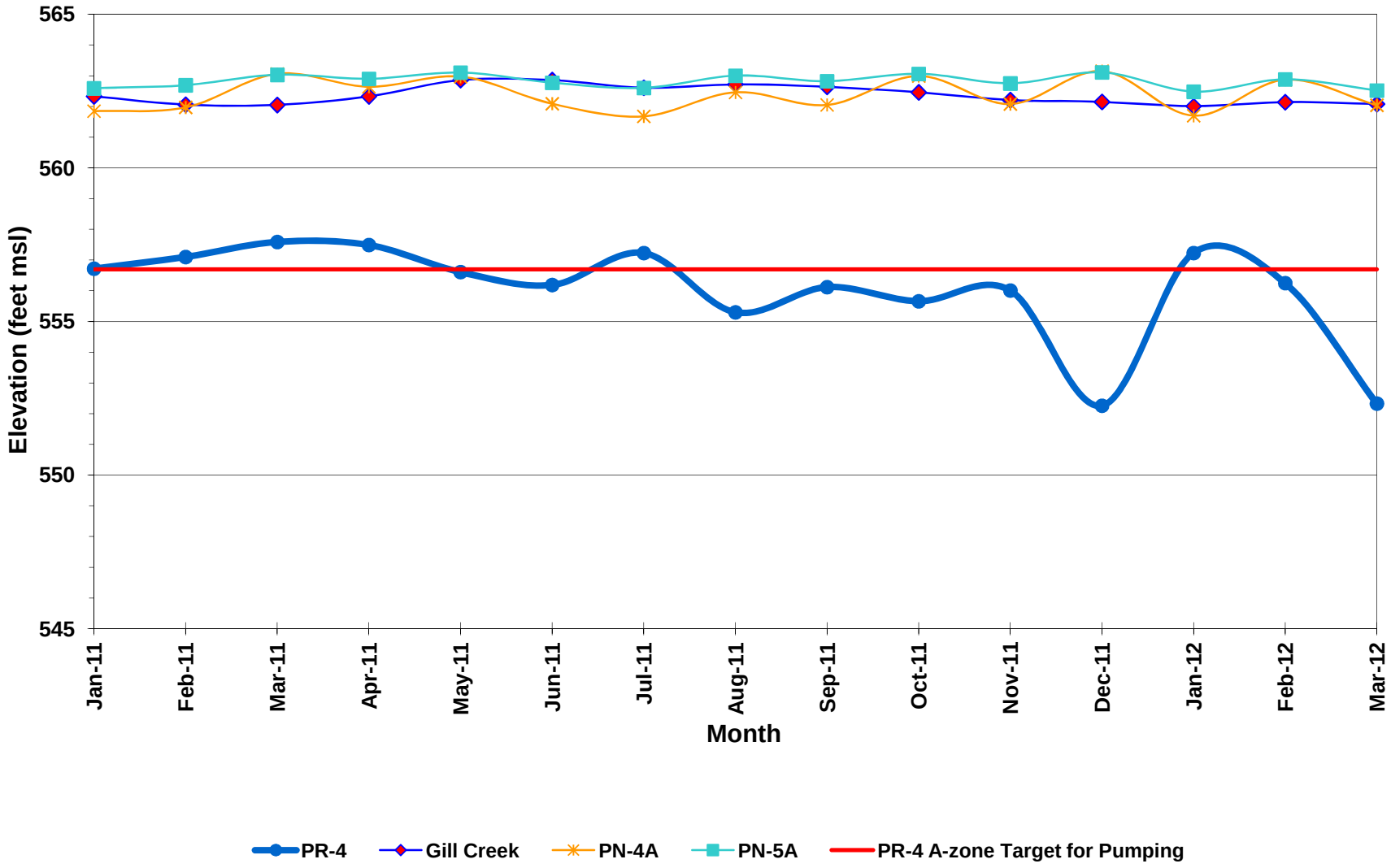
Figure A-5
RW-5 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

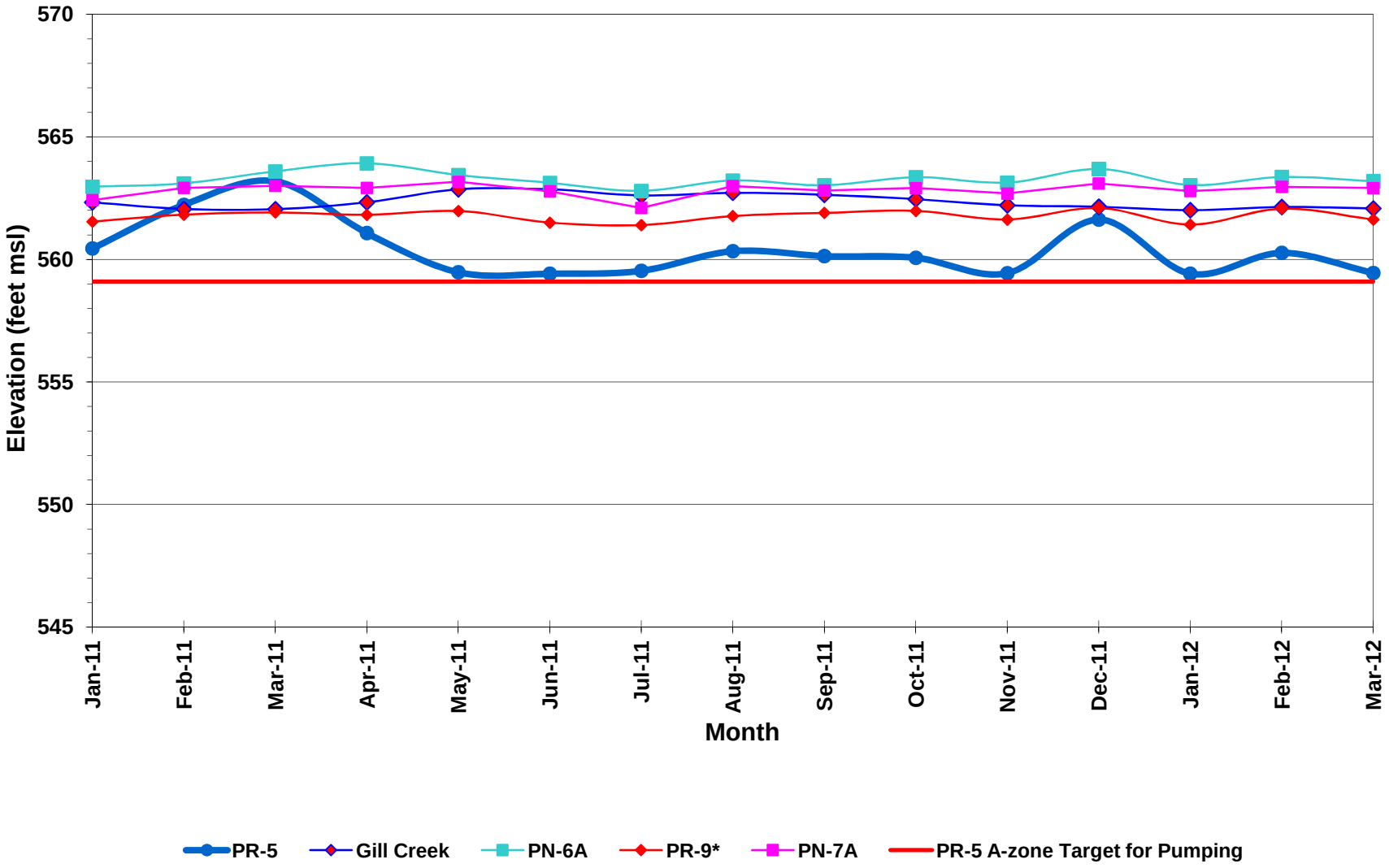
Figure A-6
PR-4 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

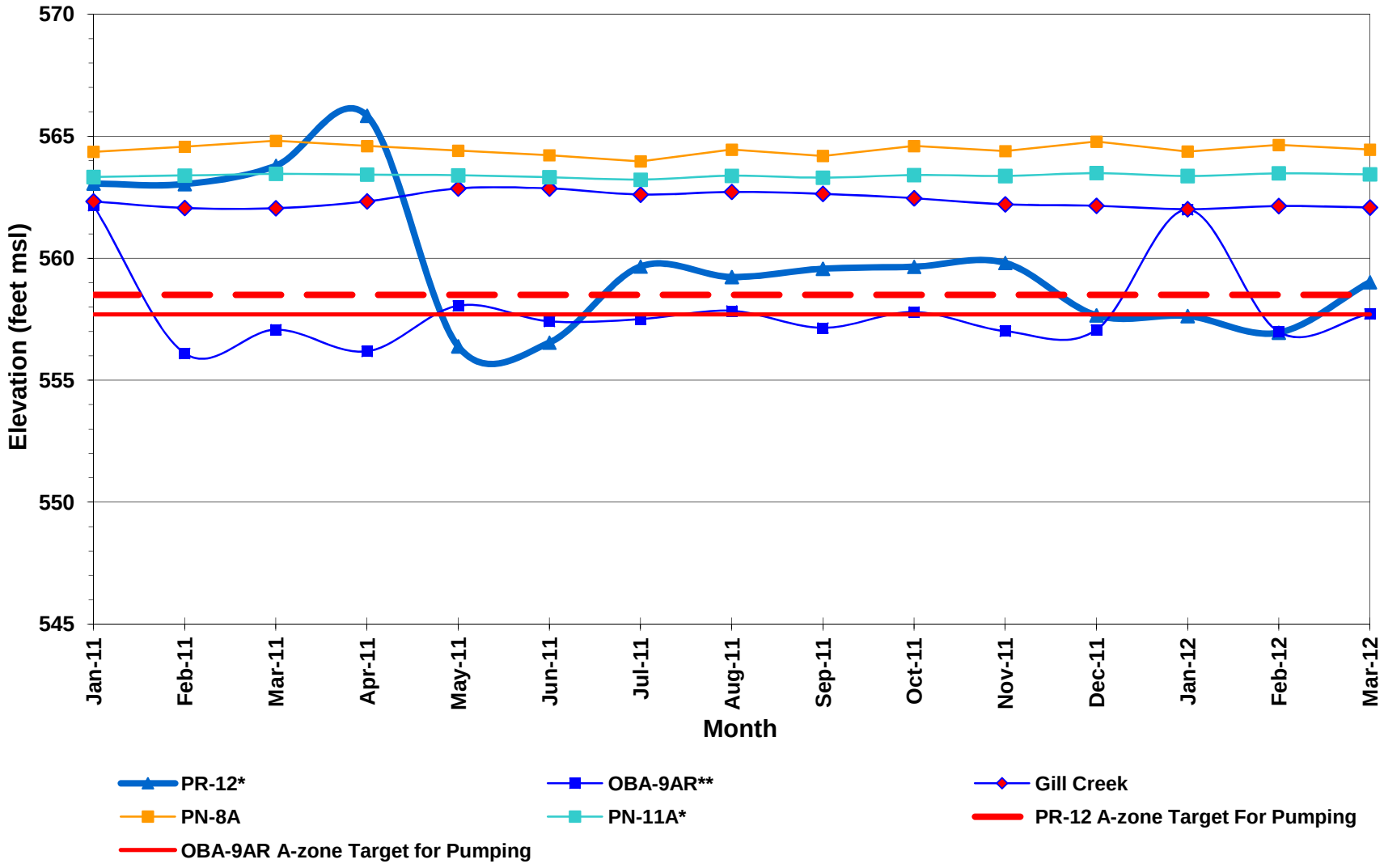
Figure A-7
PR-5 Drawdown and Adjacent A-Zone Water Table Surface



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

msl - mean sea level

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



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

msl - mean sea level

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

Location ID	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
PR-1	564.87	563.90	563.71	563.11	563.03	563.60	563.51	564.13	563.99	564.40	563.61	563.80	563.70
PN-1A	564.75	564.48	564.36	564.13	564.01	564.31	564.17	564.55	564.40	564.74	564.29	564.53	564.42
RW-1	557.98	557.91	557.81	557.63	557.81	557.76	558.61	558.78	558.60	559.10	558.45	557.51	557.10
OBA-23A	563.71	562.89	562.50	562.01	561.84	562.24	562.19	562.52	562.10	562.79	562.18	562.94	562.64
PR-2	558.72	558.51	558.22	557.93	558.09	558.13	558.34	558.41	558.20	558.55	558.13	558.14	557.87
RW-1 A-zone Target	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50

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

Prepared by : AWM 03/28/2012
Checked by: AWE 03/29/2012

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

Location ID	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
PN-2A*	562.00	562.84	563.71	562.57	562.41	562.00	562.11	562.22	562.00	562.61	562.29	562.53	562.00	562.54	562.12
RW-2	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
OBA-16A	562.66	563.36	564.69	563.60	563.60	562.76	562.58	563.20	562.66	563.76	562.97	563.92	562.61	563.66	563.04
PR-3	557.28	557.41	557.56	557.58	557.60	557.50	557.79	557.82	557.86	557.60	557.58	557.48	557.57	557.39	557.40
PR-2	557.89	558.08	558.72	558.51	558.22	557.93	558.09	558.13	558.34	558.41	558.20	558.55	558.13	558.14	557.87
RW-2 A-zone Target	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70

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.

Prepared by : AWM 03/28/2012
Checked by: AWE 03/29/2012

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

Location ID	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
Gill Creek - Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
PN-3A	562.20	562.62	563.92	562.85	563.02	562.30	561.91	563.06	562.47	563.14	562.37	563.54	562.14	563.07	562.52
RW-3	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
PN-4A	561.85	561.97	563.06	562.64	562.97	562.09	561.68	562.46	562.05	562.99	562.08	563.15	561.70	562.87	562.04
PR-3	557.28	557.41	557.56	557.58	557.60	557.50	557.79	557.82	557.86	557.60	557.58	557.48	557.57	557.39	557.40
RW-3 A-zone Target	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50

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

Prepared by : AWM 03/28/2012
Checked by: AWE 03/29/2012

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

Location ID	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
Gill Creek -Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
PN-5A	562.59	562.69	563.03	562.90	563.10	562.77	562.60	563.00	562.82	563.06	562.75	563.11	562.48	562.88	562.52
PR-13**	557.80	557.79	558.15	557.97	557.96	558.19	558.44	558.11	558.38	558.38	559.44	559.08	558.70	557.84	557.78
RW-4	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
PN-6A	562.96	563.10	563.59	563.92	563.44	563.12	562.79	563.22	563.02	563.35	563.13	563.69	563.03	563.36	563.19
PR-6*	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*	562.01	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
RW-4 A-zone Target	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50

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

Prepared by : AWM 03/28/12
Checked by: AWE 03/29/2012

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

Location ID	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
Gill Creek - Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
RW-5	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
PN-8A	564.36	564.57	564.81	564.60	564.41	564.22	563.97	564.45	564.19	564.60	564.39	564.78	564.37	564.64	564.45
PR-10*	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*	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
RW-5 A-zone Target	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50	557.50

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

Prepared by : AWM 03/28/2012
Checked by: AWE 03/29/2012

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

Location ID	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
Gill Creek - Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
PR-4	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-4A	561.85	561.97	563.06	562.64	562.97	562.09	561.68	562.46	562.05	562.99	562.08	563.15	561.70	562.87	562.04
PN-5A	562.59	562.69	563.03	562.90	563.10	562.77	562.60	563.00	562.82	563.06	562.75	563.11	562.48	562.88	562.52
PR-4 A-zone Target	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70	556.70

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

Prepared by : AWM 03/28/2012
Checked by: AWE 03/29/2012

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

Location ID	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
Gill Creek - Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
PR-5	560.45	562.23	563.19	561.08	559.48	559.42	559.54	560.34	560.14	560.07	559.44	561.63	559.42	560.27	559.45
PN-7A	562.42	562.92	563.00	562.92	563.17	562.78	562.10	562.99	562.81	562.91	562.69	563.10	562.79	562.96	562.91
PR-9*	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
PN-6A	562.96	563.10	563.59	563.92	563.44	563.12	562.79	563.22	563.02	563.35	563.13	563.69	563.03	563.36	563.19
PR-5 A-zone Target	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10	559.10

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

Prepared by : AWM 3/28/2012
Checked by: AWE 03/29/2012

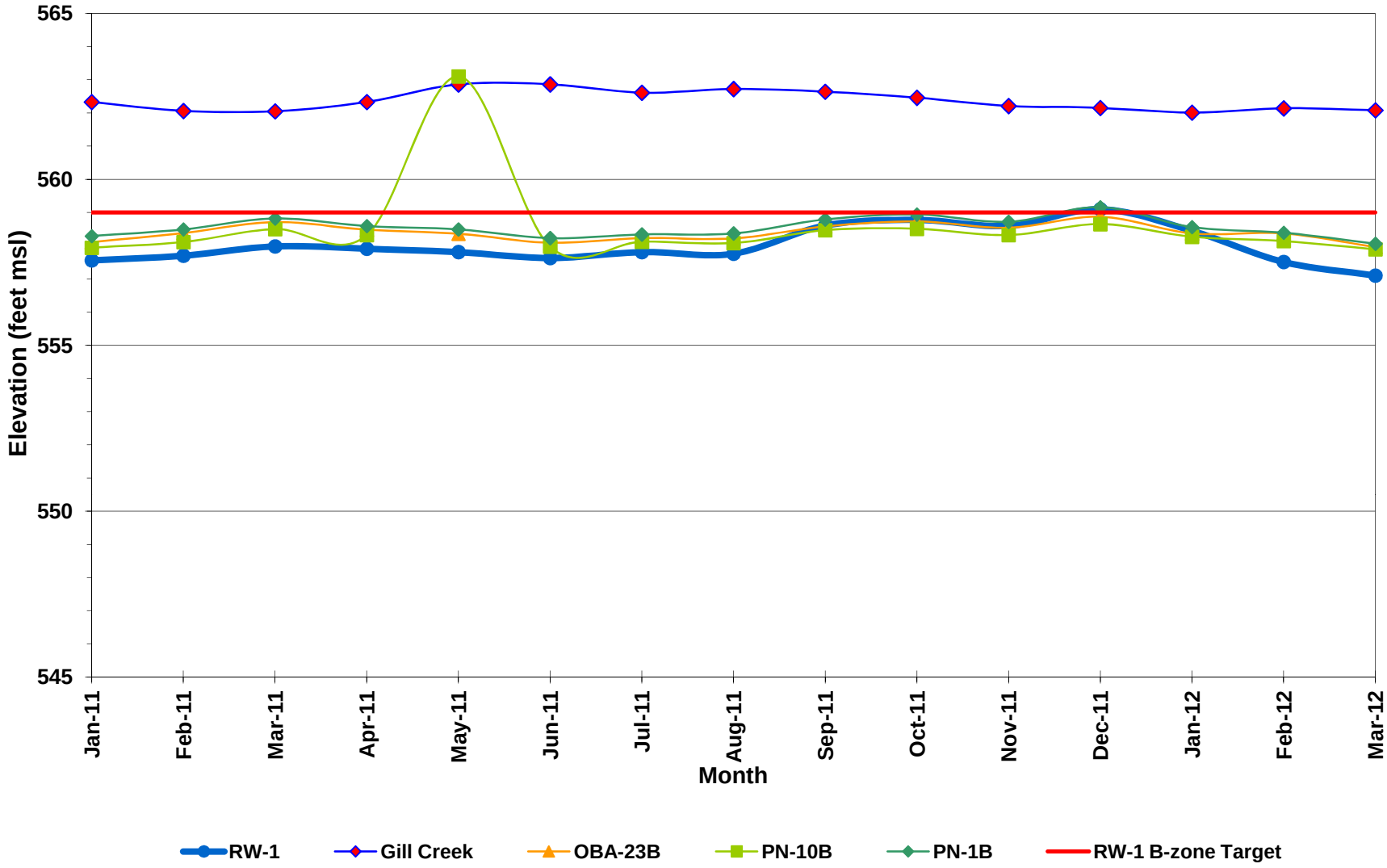
Table A-8
A-Zone
PR-12 and OBA-9AR and Adjacent Monitoring Point Water Elevations

Location ID	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
Gill Creek -Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
PN-8A	564.36	564.57	564.81	564.60	564.41	564.22	563.97	564.45	564.19	564.60	564.39	564.78	564.37	564.64	564.45
PR-12*	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
PN-11A*	563.33	563.39	563.46	563.43	563.40	563.32	563.22	563.38	563.30	563.41	563.37	563.49	563.37	563.48	563.44
OBA-9AR**	562.16	556.10	557.07	556.18	558.05	557.41	557.50	557.84	557.14	557.79	557.01	557.06	561.99	556.98	557.72
PR-12 A-zone Target	558.50	558.50	558.50	558.50	558.50	558.50	558.50	558.50	558.50	558.50	558.50	558.50	558.50	558.50	558.50
OBA-9AR A-zone Target	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70	557.70

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

Prepared by : AWM 03/28/2012
Checked by: AWE 03/29/2012

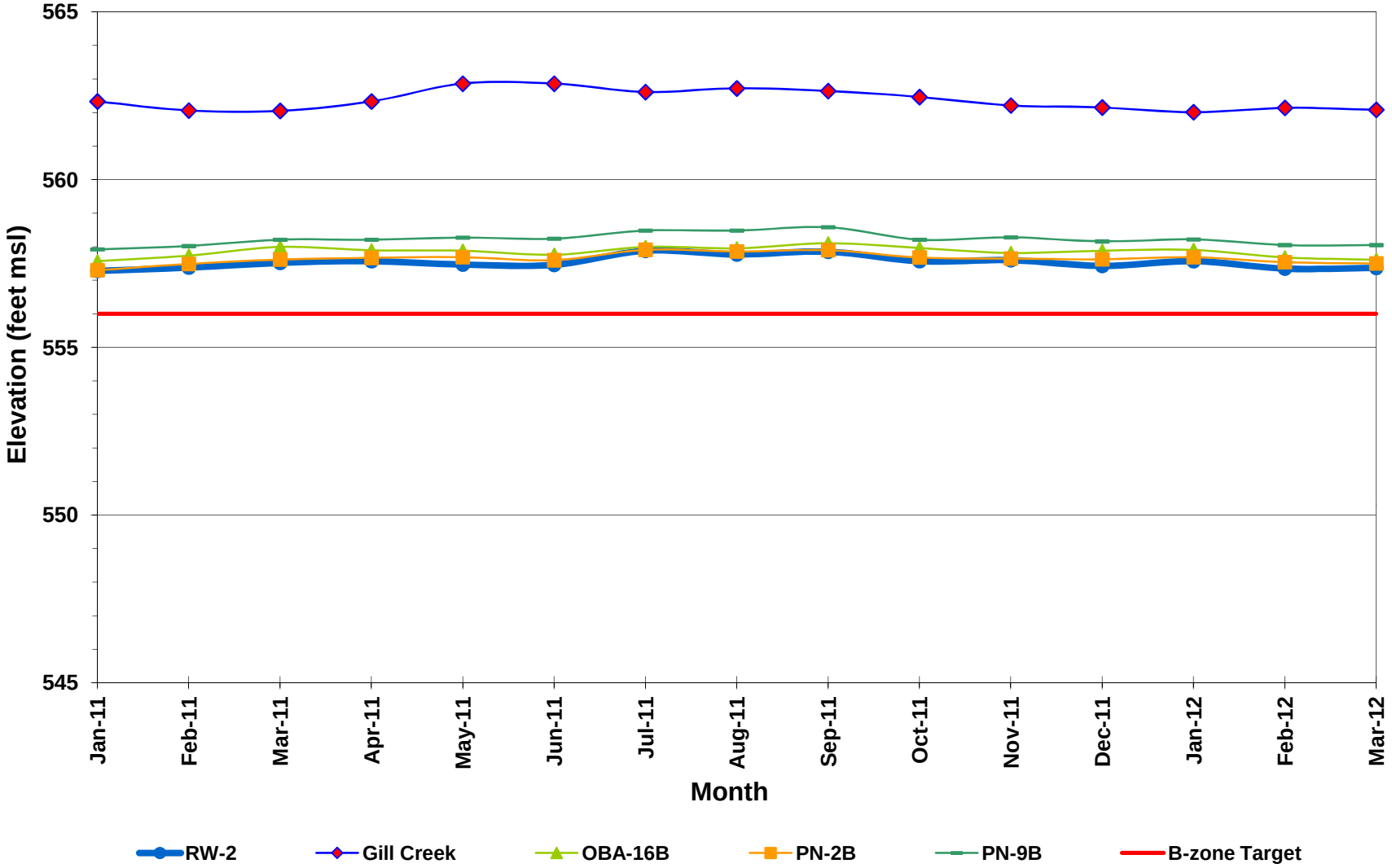
Figure B-1
RW-1 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

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

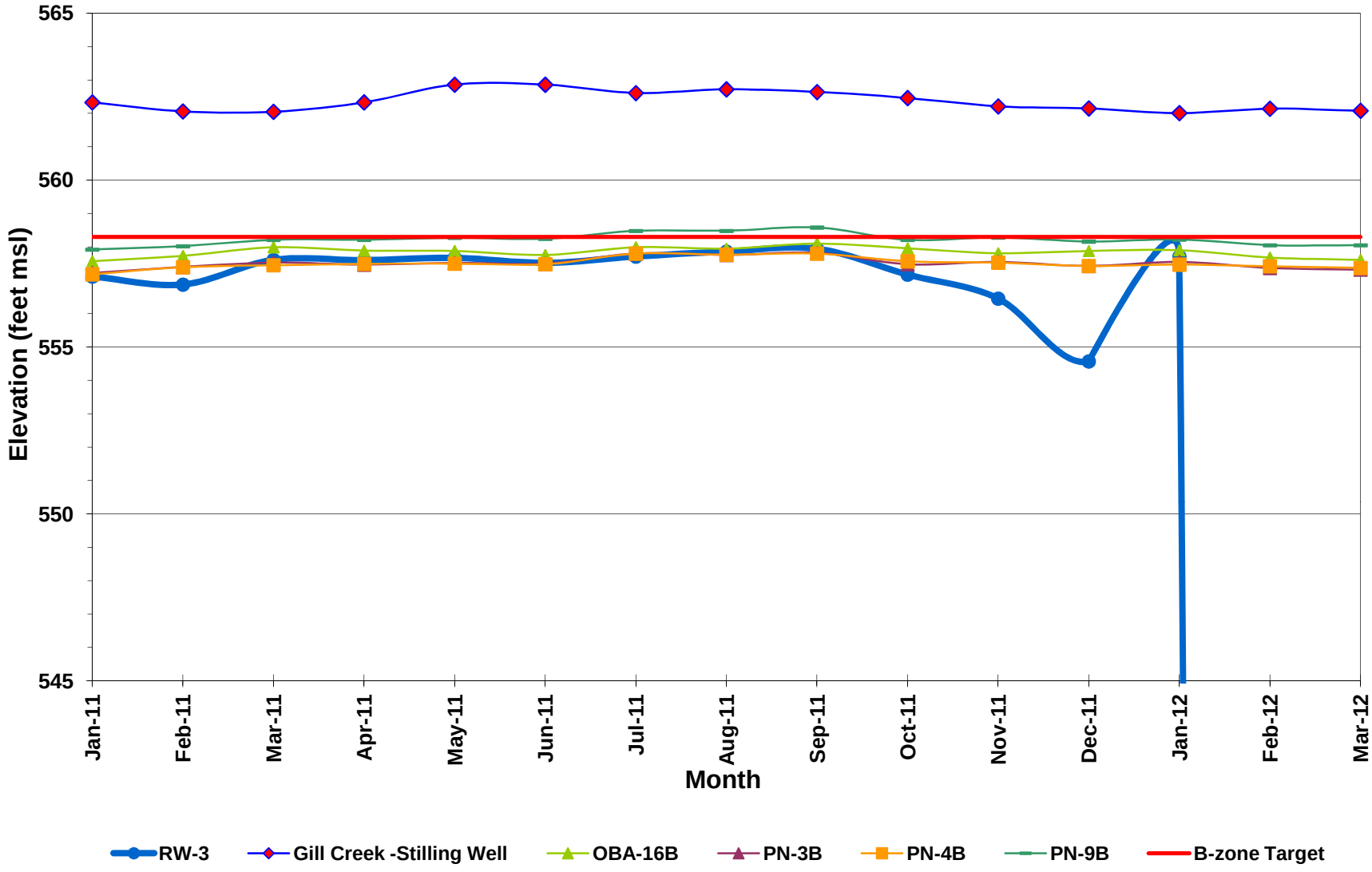
Figure B-2
RW-2 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

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

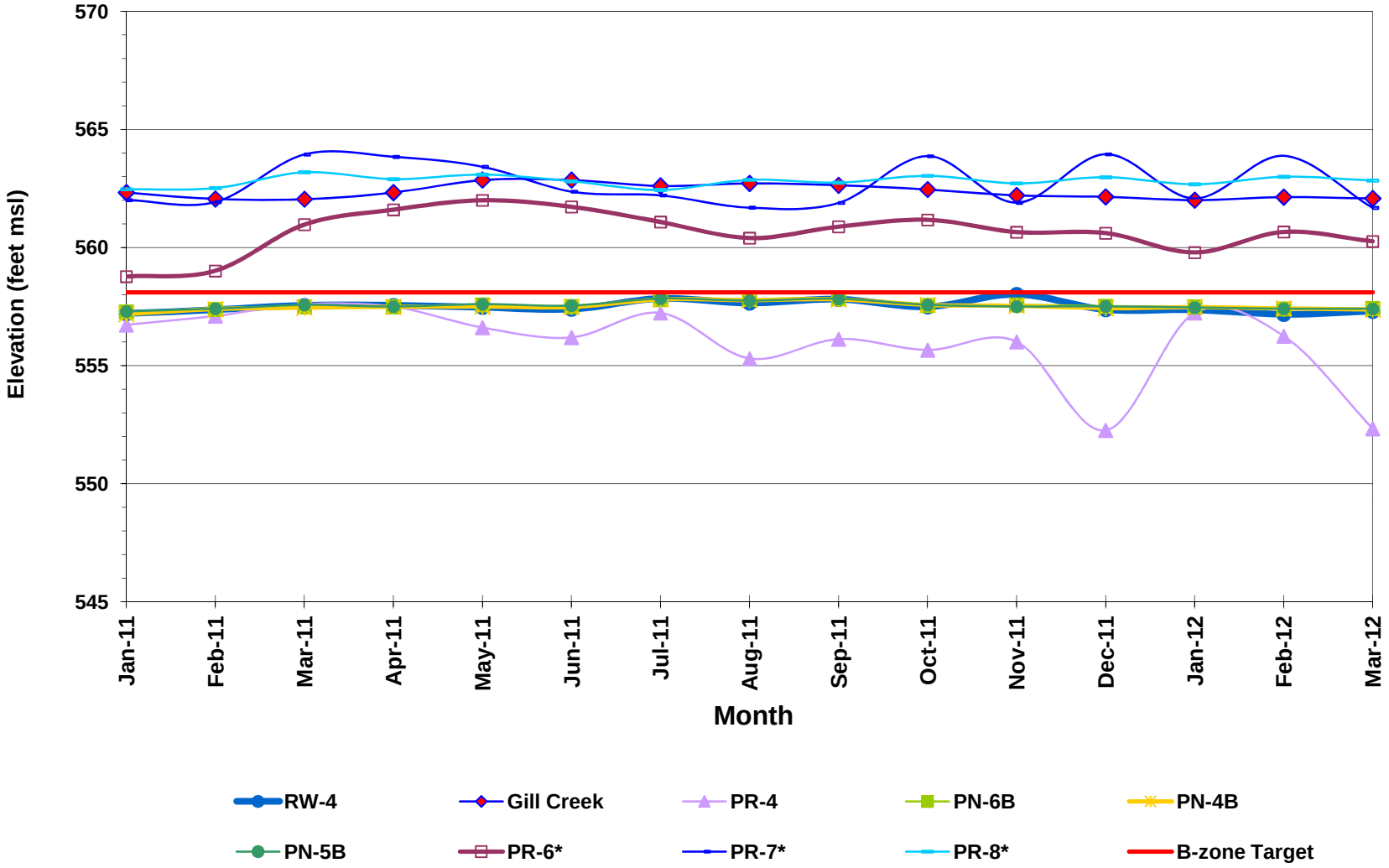
Figure B-3
RW-3 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

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

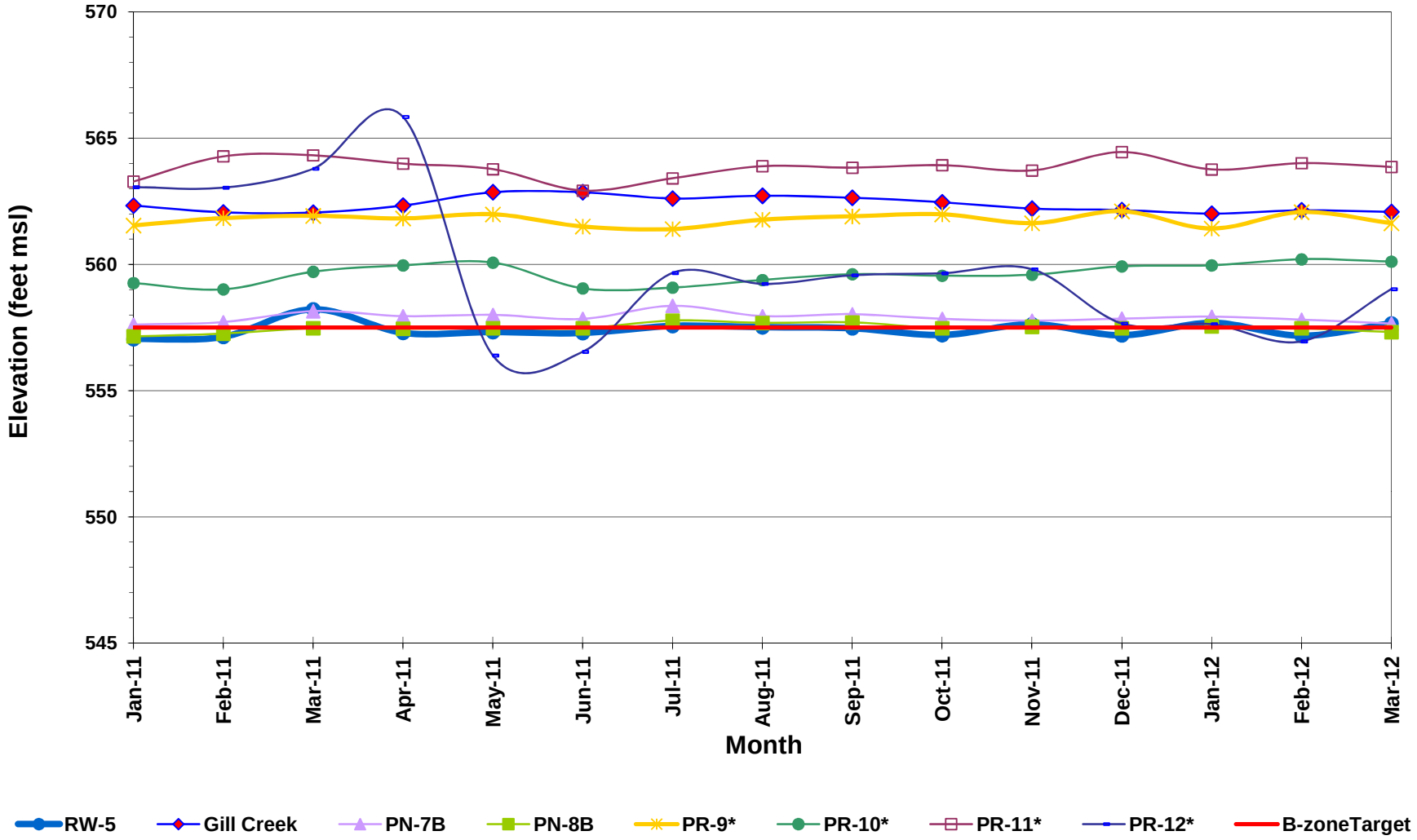
Figure B-4
RW-4 and PR-4 Drawdown and Adjacent B-Zone Potentiometric Surface



msl - mean sea level

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

Figure B-5
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 B-1
B-Zone
RW-1 and Adjacent Monitoring Point Peizometric Elevations

Location ID	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-1	557.56	557.70	557.98	557.91	557.81	557.63	557.81	557.76	558.61	558.78	558.60	559.10	558.45	557.51	557.10
Gill Creek -Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
OBA-23B	558.11	558.38	558.71	558.48	558.36	558.09	558.23	558.22	558.58	558.73	558.54	558.87	558.37	558.37	557.96
PN-10B	557.94	558.11	558.50	558.32	563.10	557.97	558.12	558.08	558.47	558.51	558.32	558.65	558.27	558.14	557.89
PN-1B	558.29	558.49	558.82	558.59	558.49	558.23	558.34	558.37	558.79	558.94	558.72	559.16	558.56	558.39	558.06
RW-1 B-zone Target	559	559	559	559	559	559	559	559	559	559	559	559	559	559	559

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 03/29/2012
Checked by: AWE 03/30/2012

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

Location ID	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-2	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
Gill Creek -Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
OBA-16B	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
PN-2B	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
PN-9B	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
RW-2 B-zone Target	556	556	556	556	556	556	556	556	556	556	556	556	556	556	556

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 03/29/2012
Checked by: AWE 03/30/2012

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

Location ID	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-3	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
Gill Creek - Stilling Well	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
OBA-16B	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
PN-3B	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
PN-4B	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-9B	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
B-zone Target	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3	558.3

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 03/29/2012
Checked by: AWE 03/30/2012

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

Location ID	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	557.20	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	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
PR-4	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	557.28	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	557.18	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	557.29	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*	558.77	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*	562.01	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*	562.47	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
B-zone Target	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10	558.10

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

Prepared by : AWM 03/29/2012
Checked by: AWE 03/30/2012

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

Location ID	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	557.04	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	562.33	562.06	562.05	562.33	562.86	562.86	562.61	562.72	562.64	562.46	562.21	562.15	562.01	562.14	562.08
PN-7B	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	557.15	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*	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*	559.26	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*	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*	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
B-zoneTarget	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5	557.5

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

Prepared by : AWM 3/28/2012

Checked by: AWE 3/29/2012

Olin - Niagara Falls
OMNX Systems Check
Summary of Total Flow and Average System Flow Rates for 2012

Period	Total Flow (gal/month)	Total Quarterly Flow (gal)	Average Flow Rate (gpm)									Flow Contribution Per Well (gal/month)							
			RW-1	RW-2	RW-3	RW-4	PR-4	RW-5	PR-12	OBA-9AR	Total	RW-1	RW-2	RW-3	RW-4	PR-4	RW-5	PR-12	OBA-9AR
Jan-12	2,775,149		2.5	23.8	4.2	4.9	7.3	12.7	3.9	0.6	59.9	116,418	1,104,310	194,043	219,821	341,590	589,944	181,621	27,401
Feb-12	2,793,188		2.5	24.6	3.8	9.8	6.4	13.4	3.9	0.5	64.9	109,234	1,056,902	162,996	424,225	277,322	574,371	166,580	21,559
Mar-12	2,905,877		3.3	27.4	4.0	9.1	3.0	14.3	3.2	0.7	65.1	147,541	1,225,151	179,536	405,984	135,589	640,319	140,780	30,977
1st Qtr 12		**8,474,214**																	
Apr-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
May-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
Jun-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
2ndQtr 12		**0**																	
Jul-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
Aug-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
Sep-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
3rdQtr 12		**0**																	
Oct-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
Nov-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
Dec-12	0		-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0
4thQtr 12		**0**																	
Maximum	**2,905,876.8**		**3.3**	**27.4**	**4.2**	**9.8**	**7.3**	**14.3**	**3.9**	**0.7**	**65.1**	**147,541.0**	**1,225,150.5**	**194,043.2**	**424,225.3**	**341,590.4**	**640,319.1**	**181,621.2**	**30,977.0**
Average	**2,784,168**		**2.5**	**24.2**	**4.0**	**7.4**	**6.9**	**13.0**	**3.9**	**0.5**	**62.4**	**112,825.7**	**1,080,605.7**	**178,519.4**	**322,023.4**	**309,456.1**	**582,157.7**	**174,100.4**	**24,480.0**
2012 System Total	**8,474,214**		**8**	**76**	**12**	**24**	**17**	**40**	**11**	**2**		**373,192**	**3,386,362**	**536,575**	**1,050,031**	**754,501**	**1,804,634**	**488,981**	**79,937**

Attachment 4

Groundwater Quality Data

Olin Niagara Falls
November 2011 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
After Carbon	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
After Carbon	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	T	0	0	Hg
After Carbon	SW8081A	alpha-BHC	0.16		Y	0.013	11/28/2011	N	ug/l	N	0.16		
After Carbon	SW8081A	beta-BHC	1.2		Y	0.047	11/28/2011	N	ug/l	N	1.2		
After Carbon	SW8081A	delta-BHC	0.49		Y	0.019	11/28/2011	N	ug/l	N	0.49		
After Carbon	SW8081A	gamma-BHC			N	0.011	11/28/2011	N	ug/l	N	0	1.85	BHC
After Carbon	SW8260B	1,1,1-Trichloroethane			N	0.82	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	1,1,2,2-Tetrachloroethane	190		Y	1.1	11/28/2011	N	ug/l	N	190		
After Carbon	SW8260B	1,1,2-Trichloroethane	2.9		Y	0.23	11/28/2011	N	ug/l	N	2.9		
After Carbon	SW8260B	1,1-Dichloroethene			N	0.29	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	1,2,4-Trichlorobenzene			N	0.41	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	1,2-Dichlorobenzene			N	0.79	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	1,3-Dichlorobenzene			N	0.78	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	1,4-Dichlorobenzene			N	0.84	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	Benzene			N	0.41	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	Carbon tetrachloride	0.43	JQ	Y	0.27	11/28/2011	N	ug/l	N	0.43		
After Carbon	SW8260B	Chlorobenzene			N	0.75	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	Chloromethane (Methyl chloride)			N	0.35	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	cis-1,2-Dichloroethene	47		Y	0.81	11/28/2011	N	ug/l	N	47		
After Carbon	SW8260B	Methylene chloride (Dichloromethane)	0.77	JQ	Y	0.44	11/28/2011	N	ug/l	N	0.77		
After Carbon	SW8260B	Tetrachloroethene (PCE)	22		Y	0.36	11/28/2011	N	ug/l	N	22		
After Carbon	SW8260B	trans-1,2-Dichloroethene			N	0.90	11/28/2011	N	ug/l	N	0		
After Carbon	SW8260B	Trichloroethene (TCE)	360		Y	2.3	11/28/2011	N	ug/l	N	360		
After Carbon	SW8260B	Vinyl Chloride			N	0.90	11/28/2011	N	ug/l	N	0	623.1	Organics
Before Carbon	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
Before Carbon	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	T	0	0	Hg
Before Carbon	SW8081A	alpha-BHC	64		Y	0.65	11/28/2011	N	ug/l	N	64		
Before Carbon	SW8081A	beta-BHC	7.8		Y	2.4	11/28/2011	N	ug/l	N	7.8		
Before Carbon	SW8081A	delta-BHC	7.0		Y	0.99	11/28/2011	N	ug/l	N	7		
Before Carbon	SW8081A	gamma-BHC	47		Y	0.59	11/28/2011	N	ug/l	N	47	125.8	BHC
Before Carbon	SW8260B	1,1,1-Trichloroethane			N	3.3	11/28/2011	N	ug/l	N	0		
Before Carbon	SW8260B	1,1,2,2-Tetrachloroethane	440		Y	1.7	11/28/2011	N	ug/l	N	440		
Before Carbon	SW8260B	1,1,2-Trichloroethane	2.4	JQ	Y	0.92	11/28/2011	N	ug/l	N	2.4		
Before Carbon	SW8260B	1,1-Dichloroethene			N	1.2	11/28/2011	N	ug/l	N	0		
Before Carbon	SW8260B	1,2,4-Trichlorobenzene	21		Y	1.6	11/28/2011	N	ug/l	N	21		
Before Carbon	SW8260B	1,2-Dichlorobenzene			N	3.2	11/28/2011	N	ug/l	N	0		
Before Carbon	SW8260B	1,3-Dichlorobenzene	4.9		Y	3.1	11/28/2011	N	ug/l	N	4.9		
Before Carbon	SW8260B	1,4-Dichlorobenzene	5.2		Y	3.4	11/28/2011	N	ug/l	N	5.2		

Prepared by: AWM 04/04/2012
Checked by: JDD 04/05/2012

Olin Niagara Falls
November 2011 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
Before Carbon	SW8260B	Benzene			N	1.6	11/28/2011	N	ug/l	N	0		
Before Carbon	SW8260B	Carbon tetrachloride			N	1.1	11/28/2011	N	ug/l	N	0		
Before Carbon	SW8260B	Chlorobenzene	3.5	JQ	Y	3.0	11/28/2011	N	ug/l	N	3.5		
Before Carbon	SW8260B	Chloromethane (Methyl chloride)			N	1.4	11/28/2011	N	ug/l	N	0		
Before Carbon	SW8260B	cis-1,2-Dichloroethene	46		Y	3.2	11/28/2011	N	ug/l	N	46		
Before Carbon	SW8260B	Methylene chloride (Dichloromethane)	7.0		Y	1.8	11/28/2011	N	ug/l	N	7		
Before Carbon	SW8260B	Tetrachloroethene (PCE)	61		Y	1.4	11/28/2011	N	ug/l	N	61		
Before Carbon	SW8260B	trans-1,2-Dichloroethene			N	3.6	11/28/2011	N	ug/l	N	0		
Before Carbon	SW8260B	Trichloroethene (TCE)	220		Y	1.8	11/28/2011	N	ug/l	N	220		
Before Carbon	SW8260B	Vinyl Chloride			N	3.6	11/28/2011	N	ug/l	N	0	811.0	Organics
Between Carbon	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
Between Carbon	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	T	0	0	Hg
Between Carbon	SW8081A	alpha-BHC	1.3		Y	0.13	11/28/2011	N	ug/l	N	1.3		
Between Carbon	SW8081A	beta-BHC	3.7		Y	0.47	11/28/2011	N	ug/l	N	3.7		
Between Carbon	SW8081A	delta-BHC	2.2		Y	0.19	11/28/2011	N	ug/l	N	2.2		
Between Carbon	SW8081A	gamma-BHC			N	0.11	11/28/2011	N	ug/l	N	0	7.2	BHC
Between Carbon	SW8260B	1,1,1-Trichloroethane			N	0.82	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	1,1,2,2-Tetrachloroethane	320		Y	1.1	11/28/2011	N	ug/l	N	320		
Between Carbon	SW8260B	1,1,2-Trichloroethane	2.5		Y	0.23	11/28/2011	N	ug/l	N	2.5		
Between Carbon	SW8260B	1,1-Dichloroethene			N	0.29	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	1,2,4-Trichlorobenzene	0.52	JB	Y	0.41	11/28/2011	N	ug/l	N	0.52		
Between Carbon	SW8260B	1,2-Dichlorobenzene			N	0.79	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	1,3-Dichlorobenzene			N	0.78	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	1,4-Dichlorobenzene			N	0.84	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	Benzene			N	0.41	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	Carbon tetrachloride	0.50		Y	0.27	11/28/2011	N	ug/l	N	0.5		
Between Carbon	SW8260B	Chlorobenzene			N	0.75	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	Chloromethane (Methyl chloride)			N	0.35	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	cis-1,2-Dichloroethene	47		Y	0.81	11/28/2011	N	ug/l	N	47		
Between Carbon	SW8260B	Methylene chloride (Dichloromethane)	2.6		Y	0.44	11/28/2011	N	ug/l	N	2.6		
Between Carbon	SW8260B	Tetrachloroethene (PCE)	45		Y	0.36	11/28/2011	N	ug/l	N	45		
Between Carbon	SW8260B	trans-1,2-Dichloroethene			N	0.90	11/28/2011	N	ug/l	N	0		
Between Carbon	SW8260B	Trichloroethene (TCE)	340		Y	2.3	11/28/2011	N	ug/l	N	340		
Between Carbon	SW8260B	Vinyl Chloride			N	0.90	11/28/2011	N	ug/l	N	0	758.1	Organics
Influent Stripper	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
Influent Stripper	SW7470A	Mercury	0.00013	JQ	Y	0.00012	11/28/2011	N	mg/l	T	0.00013	0.00013	Hg
Influent Stripper	SW8081A	alpha-BHC	65		Y	0.63	11/28/2011	N	ug/l	N	65		

Prepared by: AWM 04/04/2012
Checked by: JDD 04/05/2012

Olin Niagara Falls
November 2011 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
Influent Stripper	SW8081A	beta-BHC	7.7		Y	2.4	11/28/2011	N	ug/l	N	7.7		
Influent Stripper	SW8081A	delta-BHC	6.8		Y	0.95	11/28/2011	N	ug/l	N	6.8		
Influent Stripper	SW8081A	gamma-BHC	47		Y	0.57	11/28/2011	N	ug/l	N	47	126.5	BHC
Influent Stripper	SW8260B	1,1,1-Trichloroethane			N	330	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1,2,2-Tetrachloroethane	3000		Y	84	11/28/2011	N	ug/l	N	3000		
Influent Stripper	SW8260B	1,1,2-Trichloroethane			N	92	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1-Dichloroethene			N	120	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	1,2,4-Trichlorobenzene	640		Y	160	11/28/2011	N	ug/l	N	640		
Influent Stripper	SW8260B	1,2-Dichlorobenzene			N	320	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	1,3-Dichlorobenzene			N	310	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	1,4-Dichlorobenzene			N	340	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	Benzene			N	160	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	Carbon tetrachloride			N	110	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	Chlorobenzene			N	300	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	Chloromethane (Methyl chloride)			N	140	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	cis-1,2-Dichloroethene	2100		Y	320	11/28/2011	N	ug/l	N	2100		
Influent Stripper	SW8260B	Methylene chloride (Dichloromethane)	250	JQ	Y	180	11/28/2011	N	ug/l	N	250		
Influent Stripper	SW8260B	Tetrachloroethene (PCE)	8400		Y	140	11/28/2011	N	ug/l	N	8400		
Influent Stripper	SW8260B	trans-1,2-Dichloroethene			N	360	11/28/2011	N	ug/l	N	0		
Influent Stripper	SW8260B	Trichloroethene (TCE)	20000		Y	180	11/28/2011	N	ug/l	N	20000		
Influent Stripper	SW8260B	Vinyl Chloride			N	360	11/28/2011	N	ug/l	N	0	34,390.0	Organics
OBA-9AR	SW7470A	Mercury	0		N	0.00012	11/28/2011	N	mg/l	D	0		
OBA-9AR	SW7470A	Mercury	0		N	0.00012	11/28/2011	N	mg/l	T	0	0	Hg
OBA-9AR	SW8081A	alpha-BHC	380		Y	12	11/28/2011	N	ug/l	N	380		
OBA-9AR	SW8081A	beta-BHC	33		Y	4.7	11/28/2011	N	ug/l	N	33		
OBA-9AR	SW8081A	delta-BHC	17		Y	1.9	11/28/2011	N	ug/l	N	17		
OBA-9AR	SW8081A	gamma-BHC	250		Y	11	11/28/2011	N	ug/l	N	250	680	BHC
OBA-9AR	SW8260B	1,1,1-Trichloroethane			N	160	11/28/2011	N	ug/l	N	0		
OBA-9AR	SW8260B	1,1,2,2-Tetrachloroethane	1300		Y	42	11/28/2011	N	ug/l	N	1300		
OBA-9AR	SW8260B	1,1,2-Trichloroethane			N	46	11/28/2011	N	ug/l	N	0		
OBA-9AR	SW8260B	1,1-Dichloroethene			N	58	11/28/2011	N	ug/l	N	0		
OBA-9AR	SW8260B	1,2,4-Trichlorobenzene	8400		Y	82	11/28/2011	N	ug/l	N	8400		
OBA-9AR	SW8260B	1,2-Dichlorobenzene	8300		Y	160	11/28/2011	N	ug/l	N	8300		
OBA-9AR	SW8260B	1,3-Dichlorobenzene	1200		Y	160	11/28/2011	N	ug/l	N	1200		
OBA-9AR	SW8260B	1,4-Dichlorobenzene	7400		Y	170	11/28/2011	N	ug/l	N	7400		
OBA-9AR	SW8260B	Benzene	340		Y	82	11/28/2011	N	ug/l	N	340		
OBA-9AR	SW8260B	Carbon tetrachloride			N	54	11/28/2011	N	ug/l	N	0		
OBA-9AR	SW8260B	Chlorobenzene	590		Y	150	11/28/2011	N	ug/l	N	590		

Prepared by: AWM 04/04/2012
Checked by: JDD 04/05/2012

Olin Niagara Falls
November 2011 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
OBA-9AR	SW8260B	Chloromethane (Methyl chloride)			N	70	11/28/2011	N	ug/l	N	0		
OBA-9AR	SW8260B	cis-1,2-Dichloroethene	1200		Y	160	11/28/2011	N	ug/l	N	1200		
OBA-9AR	SW8260B	Methylene chloride (Dichloromethane)			N	88	11/28/2011	N	ug/l	N	0		
OBA-9AR	SW8260B	Tetrachloroethene (PCE)	2100		Y	72	11/28/2011	N	ug/l	N	2100		
OBA-9AR	SW8260B	trans-1,2-Dichloroethene			N	180	11/28/2011	N	ug/l	N	0		
OBA-9AR	SW8260B	Trichloroethene (TCE)	19000		Y	92	11/28/2011	N	ug/l	N	19000		
OBA-9AR	SW8260B	Vinyl Chloride			N	180	11/28/2011	N	ug/l	N	0	49,830.0	Organics
PR-12	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
PR-12	SW7470A	Mercury	0.0003		Y	0.00012	11/28/2011	N	mg/l	T	0.00034	0.00034	Hg
PR-12	SW8081A	alpha-BHC	9.3		Y	0.12	11/28/2011	N	ug/l	N	9.3		
PR-12	SW8081A	beta-BHC	2.5		Y	0.47	11/28/2011	N	ug/l	N	2.5		
PR-12	SW8081A	delta-BHC	1.7		Y	0.19	11/28/2011	N	ug/l	N	1.7		
PR-12	SW8081A	gamma-BHC	9		Y	0.11	11/28/2011	N	ug/l	N	9	22.5	BHC
PR-12	SW8260B	1,1,1-Trichloroethane			N	66	11/28/2011	N	ug/l	N			
PR-12	SW8260B	1,1,2,2-Tetrachloroethane	490		Y	17	11/28/2011	N	ug/l	N	490		
PR-12	SW8260B	1,1,2-Trichloroethane			N	18	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	1,1-Dichloroethene			N	23	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	1,2,4-Trichlorobenzene	97		Y	33	11/28/2011	N	ug/l	N	97		
PR-12	SW8260B	1,2-Dichlorobenzene			N	63	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	1,3-Dichlorobenzene			N	62	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	1,4-Dichlorobenzene	72	JQ	Y	67	11/28/2011	N	ug/l	N	72		
PR-12	SW8260B	Benzene			N	33	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	Carbon tetrachloride			N	22	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	Chlorobenzene			N	60	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	Chloromethane (Methyl chloride)			N	28	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	cis-1,2-Dichloroethene	760		Y	65	11/28/2011	N	ug/l	N	760		
PR-12	SW8260B	Methylene chloride (Dichloromethane)			N	35	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	Tetrachloroethene (PCE)	2300		Y	29	11/28/2011	N	ug/l	N	2300		
PR-12	SW8260B	trans-1,2-Dichloroethene			N	72	11/28/2011	N	ug/l	N	0		
PR-12	SW8260B	Trichloroethene (TCE)	5600		Y	37	11/28/2011	N	ug/l	N	5600		
PR-12	SW8260B	Vinyl Chloride			N	72	11/28/2011	N	ug/l	N	0	9,319.0	Organics
PR-4	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
PR-4	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	T	0	0.0	Hg
PR-4	SW8081A	alpha-BHC	78		Y	0.63	11/28/2011	N	ug/l	N	78		
PR-4	SW8081A	beta-BHC	7.8		Y	2.4	11/28/2011	N	ug/l	N	7.8		
PR-4	SW8081A	delta-BHC	8		Y	0.95	11/28/2011	N	ug/l	N	8		
PR-4	SW8081A	gamma-BHC	51		Y	0.57	11/28/2011	N	ug/l	N	51	144.8	BHC

Prepared by: AWM 04/04/2012
Checked by: JDD 04/05/2012

Olin Niagara Falls
November 2011 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
PR-4	SW8260B	1,1,1-Trichloroethane			N	16	11/28/2011	N	ug/l	N	0		
PR-4	SW8260B	1,1,2,2-Tetrachloroethane			N	4.2	11/28/2011	N	ug/l	N			
PR-4	SW8260B	1,1,2-Trichloroethane			N	4.6	11/28/2011	N	ug/l	N	0		
PR-4	SW8260B	1,1-Dichloroethene			N	5.8	11/28/2011	N	ug/l	N	0		
PR-4	SW8260B	1,2,4-Trichlorobenzene	1100		Y	8.2	11/28/2011	N	ug/l	N	1100		
PR-4	SW8260B	1,2-Dichlorobenzene	140		Y	16	11/28/2011	N	ug/l	N	140		
PR-4	SW8260B	1,3-Dichlorobenzene	660		Y	16	11/28/2011	N	ug/l	N	660		
PR-4	SW8260B	1,4-Dichlorobenzene	470		Y	17	11/28/2011	N	ug/l	N	470		
PR-4	SW8260B	Benzene	79		Y	8.2	11/28/2011	N	ug/l	N	79		
PR-4	SW8260B	Carbon tetrachloride			N	5.4	11/28/2011	N	ug/l	N	0		
PR-4	SW8260B	Chlorobenzene	400		Y	15	11/28/2011	N	ug/l	N	400		
PR-4	SW8260B	Chloromethane (Methyl chloride)			N	7.0	11/28/2011	N	ug/l	N	0		
PR-4	SW8260B	cis-1,2-Dichloroethene	140		Y	16	11/28/2011	N	ug/l	N	140		
PR-4	SW8260B	Methylene chloride (Dichloromethane)			N	8.8	11/28/2011	N	ug/l	N	0		
PR-4	SW8260B	Tetrachloroethene (PCE)	67		Y	7.2	11/28/2011	N	ug/l	N	67		
PR-4	SW8260B	trans-1,2-Dichloroethene			N	18	11/28/2011	N	ug/l	N	0		
PR-4	SW8260B	Trichloroethene (TCE)	140		Y	9.2	11/28/2011	N	ug/l	N	140		
PR-4	SW8260B	Vinyl Chloride	320		Y	18	11/28/2011	N	ug/l	N	320	3,516.0	Organics
RW-1	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
RW-1	SW7470A	Mercury	0.0001	JQ	Y	0.00012	11/28/2011	N	mg/l	T	0.00013	0.00013	Hg
RW-1	SW8081A	alpha-BHC	3.6		Y	0.12	11/28/2011	N	ug/l	N	3.6		
RW-1	SW8081A	beta-BHC	2		Y	0.47	11/28/2011	N	ug/l	N	2		
RW-1	SW8081A	delta-BHC	2.2		Y	0.19	11/28/2011	N	ug/l	N	2.2		
RW-1	SW8081A	gamma-BHC	4.9		Y	0.11	11/28/2011	N	ug/l	N	4.9	12.7	BHC
RW-1	SW8260B	1,1,1-Trichloroethane			N	3.3	11/28/2011	N	ug/l	N	0		
RW-1	SW8260B	1,1,2,2-Tetrachloroethane	15		Y	0.84	11/28/2011	N	ug/l	N	15		
RW-1	SW8260B	1,1,2-Trichloroethane			N	0.92	11/28/2011	N	ug/l	N			
RW-1	SW8260B	1,1-Dichloroethene			N	1.2	11/28/2011	N	ug/l	N	0		
RW-1	SW8260B	1,2,4-Trichlorobenzene	370		Y	1.6	11/28/2011	N	ug/l	N	370		
RW-1	SW8260B	1,2-Dichlorobenzene	31		Y	3.2	11/28/2011	N	ug/l	N	31		
RW-1	SW8260B	1,3-Dichlorobenzene	76		Y	3.1	11/28/2011	N	ug/l	N	76		
RW-1	SW8260B	1,4-Dichlorobenzene	38		Y	3.4	11/28/2011	N	ug/l	N	38		
RW-1	SW8260B	Benzene	3.7	JQ	Y	1.6	11/28/2011	N	ug/l	N	3.7		
RW-1	SW8260B	Carbon tetrachloride			N	1.1	11/28/2011	N	ug/l	N	0		
RW-1	SW8260B	Chlorobenzene	25		Y	3.0	11/28/2011	N	ug/l	N	25		
RW-1	SW8260B	Chloromethane (Methyl chloride)			N	1.4	11/28/2011	N	ug/l	N	0		
RW-1	SW8260B	cis-1,2-Dichloroethene	140		Y	3.2	11/28/2011	N	ug/l	N	140		
RW-1	SW8260B	Methylene chloride (Dichloromethane)			N	1.8	11/28/2011	N	ug/l	N	0		

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Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
RW-1	SW8260B	Tetrachloroethene (PCE)	190		Y	1.4	11/28/2011	N	ug/l	N	190		
RW-1	SW8260B	trans-1,2-Dichloroethene			N	3.6	11/28/2011	N	ug/l	N	0		
RW-1	SW8260B	Trichloroethene (TCE)	240		Y	1.8	11/28/2011	N	ug/l	N	240		
RW-1	SW8260B	Vinyl Chloride	10		Y	3.6	11/28/2011	N	ug/l	N	10	1,138.7	Organics
RW-2	SW7470A	Mercury	0.0002	JQ	Y	0.00012	11/28/2011	N	mg/l	D	0.00019		
RW-2	SW7470A	Mercury	0.0004		Y	0.00012	11/28/2011	N	mg/l	T	0.00037	0.00037	Hg
RW-2	SW8081A	alpha-BHC	5.6		Y	0.062	11/28/2011	N	ug/l	N	5.6		
RW-2	SW8081A	beta-BHC	3.5		Y	0.23	11/28/2011	N	ug/l	N	3.5		
RW-2	SW8081A	delta-BHC			N	0.094	11/28/2011	N	ug/l	N	0		
RW-2	SW8081A	gamma-BHC	3.8		Y	0.057	11/28/2011	N	ug/l	N	3.8	12.9	BHC
RW-2	SW8260B	1,1,1-Trichloroethane			N	1.6	11/28/2011	N	ug/l	N	0		
RW-2	SW8260B	1,1,2,2-Tetrachloroethane	2.3		Y	0.42	11/28/2011	N	ug/l	N	2.3		
RW-2	SW8260B	1,1,2-Trichloroethane	3.1		Y	0.46	11/28/2011	N	ug/l	N	3.1		
RW-2	SW8260B	1,1-Dichloroethene	10		Y	0.58	11/28/2011	N	ug/l	N			
RW-2	SW8260B	1,2,4-Trichlorobenzene	1100		Y	16	11/28/2011	N	ug/l	N	1100		
RW-2	SW8260B	1,2-Dichlorobenzene	40		Y	1.6	11/28/2011	N	ug/l	N	40		
RW-2	SW8260B	1,3-Dichlorobenzene	140		Y	1.6	11/28/2011	N	ug/l	N	140		
RW-2	SW8260B	1,4-Dichlorobenzene	59		Y	1.7	11/28/2011	N	ug/l	N	59		
RW-2	SW8260B	Benzene	38		Y	0.82	11/28/2011	N	ug/l	N	38		
RW-2	SW8260B	Carbon tetrachloride			N	0.54	11/28/2011	N	ug/l	N	0		
RW-2	SW8260B	Chlorobenzene	37		Y	1.5	11/28/2011	N	ug/l	N	37		
RW-2	SW8260B	Chloromethane (Methyl chloride)			N	0.70	11/28/2011	N	ug/l	N	0		
RW-2	SW8260B	cis-1,2-Dichloroethene	570		Y	32	11/28/2011	N	ug/l	N	570		
RW-2	SW8260B	Methylene chloride (Dichloromethane)	4.1		Y	0.88	11/28/2011	N	ug/l	N	4.1		
RW-2	SW8260B	Tetrachloroethene (PCE)	420		Y	14	11/28/2011	N	ug/l	N	420		
RW-2	SW8260B	trans-1,2-Dichloroethene	9.9		Y	1.8	11/28/2011	N	ug/l	N	9.9		
RW-2	SW8260B	Trichloroethene (TCE)	2000		Y	18	11/28/2011	N	ug/l	N	2000		
RW-2	SW8260B	Vinyl Chloride	43		Y	1.8	11/28/2011	N	ug/l	N	43	4,466.4	Organics
RW-3	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
RW-3	SW7470A	Mercury	0.0001	JQ	Y	0.00012	11/28/2011	N	mg/l	T	0.00013	0.00013	Hg
RW-3	SW8081A	alpha-BHC	3.2		Y	0.064	11/28/2011	N	ug/l	N	3.2		
RW-3	SW8081A	beta-BHC	0.89		Y	0.24	11/28/2011	N	ug/l	N	0.89		
RW-3	SW8081A	delta-BHC	2.5		Y	0.097	11/28/2011	N	ug/l	N	2.5		
RW-3	SW8081A	gamma-BHC	5.9		Y	0.058	11/28/2011	N	ug/l	N	5.9	12.49	BHC
RW-3	SW8260B	1,1,1-Trichloroethane			N	3.3	11/28/2011	N	ug/l	N	0		
RW-3	SW8260B	1,1,2,2-Tetrachloroethane	17		Y	0.84	11/28/2011	N	ug/l	N	17		
RW-3	SW8260B	1,1,2-Trichloroethane			N	0.92	11/28/2011	N	ug/l	N	0		

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Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
RW-3	SW8260B	1,1-Dichloroethene			N	1.2	11/28/2011	N	ug/l	N	0		
RW-3	SW8260B	1,2,4-Trichlorobenzene	27		Y	1.6	11/28/2011	N	ug/l	N			
RW-3	SW8260B	1,2-Dichlorobenzene	3.8	JQ	Y	3.2	11/28/2011	N	ug/l	N	3.8		
RW-3	SW8260B	1,3-Dichlorobenzene	26		Y	3.1	11/28/2011	N	ug/l	N	26		
RW-3	SW8260B	1,4-Dichlorobenzene	19		Y	3.4	11/28/2011	N	ug/l	N	19		
RW-3	SW8260B	Benzene	1.7	JQ	Y	1.6	11/28/2011	N	ug/l	N	1.7		
RW-3	SW8260B	Carbon tetrachloride			N	1.1	11/28/2011	N	ug/l	N	0		
RW-3	SW8260B	Chlorobenzene	6.8		Y	3.0	11/28/2011	N	ug/l	N	6.8		
RW-3	SW8260B	Chloromethane (Methyl chloride)			N	1.4	11/28/2011	N	ug/l	N	0		
RW-3	SW8260B	cis-1,2-Dichloroethene	150		Y	3.2	11/28/2011	N	ug/l	N	150		
RW-3	SW8260B	Methylene chloride (Dichloromethane)			N	1.8	11/28/2011	N	ug/l	N	0		
RW-3	SW8260B	Tetrachloroethene (PCE)	150		Y	1.4	11/28/2011	N	ug/l	N	150		
RW-3	SW8260B	trans-1,2-Dichloroethene			N	3.6	11/28/2011	N	ug/l	N	0		
RW-3	SW8260B	Trichloroethene (TCE)	250		Y	1.8	11/28/2011	N	ug/l	N	250		
RW-3	SW8260B	Vinyl Chloride	11		Y	3.6	11/28/2011	N	ug/l	N	11	635.3	Organics
RW-4	SW7470A	Mercury			N	0.00012	11/28/2011	FD	mg/l	D	0		
RW-4	SW7470A	Mercury	0.0002	JQ	Y	0.00012	11/28/2011	FD	mg/l	T	0.00019	0.00019	Hg
RW-4	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
RW-4	SW7470A	Mercury	0.0002	JQ	Y	0.00012	11/28/2011	N	mg/l	T	0.00015	0.00015	Hg
RW-4	SW8081A	alpha-BHC	76		Y	0.63	11/28/2011	FD	ug/l	N	76		
RW-4	SW8081A	beta-BHC	6.6		Y	2.4	11/28/2011	FD	ug/l	N	6.6		
RW-4	SW8081A	delta-BHC	5.7		Y	0.95	11/28/2011	FD	ug/l	N	5.7		
RW-4	SW8081A	gamma-BHC	35		Y	0.57	11/28/2011	FD	ug/l	N	35	123.3	BHC
RW-4	SW8081A	alpha-BHC	70		Y	3.2	11/28/2011	N	ug/l	N	70		
RW-4	SW8081A	beta-BHC	7		Y	1.2	11/28/2011	N	ug/l	N	7		
RW-4	SW8081A	delta-BHC	5.1		Y	0.48	11/28/2011	N	ug/l	N	5.1		
RW-4	SW8081A	gamma-BHC	38		Y	0.29	11/28/2011	N	ug/l	N	38	120.1	BHC
RW-4	SW8260B	1,1,1-Trichloroethane	2.2		Y	1.6	11/28/2011	FD	ug/l	N	2.2		
RW-4	SW8260B	1,1,2,2-Tetrachloroethane	16		Y	0.42	11/28/2011	FD	ug/l	N	16		
RW-4	SW8260B	1,1,2-Trichloroethane			N	0.46	11/28/2011	FD	ug/l	N			
RW-4	SW8260B	1,1-Dichloroethene	6		Y	0.58	11/28/2011	FD	ug/l	N	6		
RW-4	SW8260B	1,2,4-Trichlorobenzene	2100		Y	16	11/28/2011	FD	ug/l	N	2100		
RW-4	SW8260B	1,2-Dichlorobenzene	56		Y	1.6	11/28/2011	FD	ug/l	N	56		
RW-4	SW8260B	1,3-Dichlorobenzene	380		Y	31	11/28/2011	FD	ug/l	N	380		
RW-4	SW8260B	1,4-Dichlorobenzene	230		Y	34	11/28/2011	FD	ug/l	N	230		
RW-4	SW8260B	Benzene	82		Y	0.82	11/28/2011	FD	ug/l	N	82		
RW-4	SW8260B	Carbon tetrachloride			N	0.54	11/28/2011	FD	ug/l	N	0		
RW-4	SW8260B	Chlorobenzene	150		Y	1.5	11/28/2011	FD	ug/l	N	150		

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Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
RW-4	SW8260B	Chloromethane (Methyl chloride)			N	0.70	11/28/2011	FD	ug/l	N	0		
RW-4	SW8260B	cis-1,2-Dichloroethene	1100		Y	32	11/28/2011	FD	ug/l	N	1100		
RW-4	SW8260B	Methylene chloride (Dichloromethane)	2.7		Y	0.88	11/28/2011	FD	ug/l	N	2.7		
RW-4	SW8260B	Tetrachloroethene (PCE)	620		Y	14	11/28/2011	FD	ug/l	N	620		
RW-4	SW8260B	trans-1,2-Dichloroethene	11		Y	1.8	11/28/2011	FD	ug/l	N	11		
RW-4	SW8260B	Trichloroethene (TCE)	1200		Y	18	11/28/2011	FD	ug/l	N	1200		
RW-4	SW8260B	Vinyl Chloride	360		Y	36	11/28/2011	FD	ug/l	N	360	6,315.9	Organics
RW-4	SW8260B	1,1,1-Trichloroethane	2.4		Y	1.6	11/28/2011	N	ug/l	N	2.4		
RW-4	SW8260B	1,1,2,2-Tetrachloroethane	15		Y	0.42	11/28/2011	N	ug/l	N	15		
RW-4	SW8260B	1,1,2-Trichloroethane	1.5	JQ	Y	0.46	11/28/2011	N	ug/l	N	1.5		
RW-4	SW8260B	1,1-Dichloroethene	5.6		Y	0.58	11/28/2011	N	ug/l	N	5.6		
RW-4	SW8260B	1,2,4-Trichlorobenzene	2000		Y	10	11/28/2011	N	ug/l	N	2000		
RW-4	SW8260B	1,2-Dichlorobenzene	53		Y	1.6	11/28/2011	N	ug/l	N	53		
RW-4	SW8260B	1,3-Dichlorobenzene	380		Y	20	11/28/2011	N	ug/l	N	380		
RW-4	SW8260B	1,4-Dichlorobenzene	230		Y	21	11/28/2011	N	ug/l	N	230		
RW-4	SW8260B	Benzene	80		Y	0.82	11/28/2011	N	ug/l	N	80		
RW-4	SW8260B	Carbon tetrachloride			N	0.54	11/28/2011	N	ug/l	N	0		
RW-4	SW8260B	Chlorobenzene	140		Y	1.5	11/28/2011	N	ug/l	N	140		
RW-4	SW8260B	Chloromethane (Methyl chloride)			N	0.70	11/28/2011	N	ug/l	N	0		
RW-4	SW8260B	cis-1,2-Dichloroethene	990		Y	20	11/28/2011	N	ug/l	N			
RW-4	SW8260B	Methylene chloride (Dichloromethane)	2.8		Y	0.88	11/28/2011	N	ug/l	N	2.8		
RW-4	SW8260B	Tetrachloroethene (PCE)	590		Y	9.0	11/28/2011	N	ug/l	N	590		
RW-4	SW8260B	trans-1,2-Dichloroethene	11		Y	1.8	11/28/2011	N	ug/l	N	11		
RW-4	SW8260B	Trichloroethene (TCE)	1100		Y	12	11/28/2011	N	ug/l	N	1100		
RW-4	SW8260B	Vinyl Chloride	340		Y	23	11/28/2011	N	ug/l	N	340	4,951.3	Organics
RW-5	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	D	0		
RW-5	SW7470A	Mercury			N	0.00012	11/28/2011	N	mg/l	T	0	0.0	Hg
RW-5	SW8081A	alpha-BHC	100		Y	0.63	11/28/2011	N	ug/l	N	100		
RW-5	SW8081A	beta-BHC	12		Y	2.4	11/28/2011	N	ug/l	N	12		
RW-5	SW8081A	delta-BHC	9.5		Y	0.96	11/28/2011	N	ug/l	N	9.5		
RW-5	SW8081A	gamma-BHC	80		Y	0.58	11/28/2011	N	ug/l	N	80	201.5	BHC
RW-5	SW8260B	1,1,1-Trichloroethane			N	660	11/28/2011	N	ug/l	N	0		
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	7800		Y	170	11/28/2011	N	ug/l	N	7800		
RW-5	SW8260B	1,1,2-Trichloroethane			N	180	11/28/2011	N	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene			N	230	11/28/2011	N	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	1600		Y	330	11/28/2011	N	ug/l	N	1600		
RW-5	SW8260B	1,2-Dichlorobenzene			N	630	11/28/2011	N	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene			N	620	11/28/2011	N	ug/l	N	0		

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Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
RW-5	SW8260B	1,4-Dichlorobenzene			N	670	11/28/2011	N	ug/l	N			
RW-5	SW8260B	Benzene			N	330	11/28/2011	N	ug/l	N	0		
RW-5	SW8260B	Carbon tetrachloride	360		Y	220	11/28/2011	N	ug/l	N	360		
RW-5	SW8260B	Chlorobenzene			N	600	11/28/2011	N	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)			N	280	11/28/2011	N	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	6200		Y	650	11/28/2011	N	ug/l	N	6200		
RW-5	SW8260B	Methylene chloride (Dichloromethane)	690	JQ	Y	350	11/28/2011	N	ug/l	N	690		
RW-5	SW8260B	Tetrachloroethene (PCE)	26000		Y	290	11/28/2011	N	ug/l	N	26000		
RW-5	SW8260B	trans-1,2-Dichloroethene			N	720	11/28/2011	N	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	61000		Y	370	11/28/2011	N	ug/l	N	61000		
RW-5	SW8260B	Vinyl Chloride	990		Y	720	11/28/2011	N	ug/l	N	990	104,640.0	Organics

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February 2012 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
After Carbon	SW7470A	Mercury	0		N	0.00012	2/2/2012	N	mg/l	D	0		
After Carbon	SW7470A	Mercury	0		N	0.00012	2/2/2012	N	mg/l	T	0	0	Hg
After Carbon	SW8081A	alpha-BHC	0.19	JQ	Y	0.031	2/2/2012	N	ug/l	N	0.19		
After Carbon	SW8081A	beta-BHC	1.7		Y	0.12	2/2/2012	N	ug/l	N	1.7		
After Carbon	SW8081A	delta-BHC	0.82		Y	0.047	2/2/2012	N	ug/l	N	0.82		
After Carbon	SW8081A	gamma-BHC (Lindane)	0.40		Y	0.028	2/2/2012	N	ug/l	N	0.4	3.11	BHC
After Carbon	SW8260B	1,1,1-Trichloroethane	0		N	4.1	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,1,2,2-Tetrachloroethane	670		Y	2.1	2/2/2012	N	ug/l	N	670		
After Carbon	SW8260B	1,1,2-Trichloroethane	7.7		Y	1.2	2/2/2012	N	ug/l	N	7.7		
After Carbon	SW8260B	1,1-Dichloroethene	0		N	1.5	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,2,4-Trichlorobenzene	0		N	2.1	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,2-Dichlorobenzene	0		N	4.0	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,3-Dichlorobenzene	0		N	3.9	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	1,4-Dichlorobenzene	0		N	4.2	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	Benzene	0		N	2.1	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	Carbon tetrachloride	0		N	1.4	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	Chlorobenzene	0		N	3.8	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	Chloromethane (Methyl chloride)	0		N	1.8	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	cis-1,2-Dichloroethene	35		Y	4.1	2/2/2012	N	ug/l	N	35		
After Carbon	SW8260B	Methylene chloride (Dichloromethane)	0		N	2.2	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	Tetrachloroethene (PCE)	31		Y	1.8	2/2/2012	N	ug/l	N	31		
After Carbon	SW8260B	trans-1,2-Dichloroethene	0		N	4.5	2/2/2012	N	ug/l	N	0		
After Carbon	SW8260B	Trichloroethene (TCE)	280		Y	2.3	2/2/2012	N	ug/l	N	280		
After Carbon	SW8260B	Vinyl Chloride	0		N	4.5	2/2/2012	N	ug/l	N	0	1,023.7	Organics
Before Carbon	SW7470A	Mercury	0		N	0.00012	2/2/2012	N	mg/l	D	0		
Before Carbon	SW7470A	Mercury	0.00017	JQ	Y	0.00012	2/2/2012	N	mg/l	T	0.00017	0.00017	Hg
Before Carbon	SW8081A	alpha-BHC	17		Y	0.13	2/2/2012	N	ug/l	N	17		
Before Carbon	SW8081A	beta-BHC	3.2		Y	0.47	2/2/2012	N	ug/l	N	3.2		
Before Carbon	SW8081A	delta-BHC	2.2		Y	0.19	2/2/2012	N	ug/l	N	2.2		
Before Carbon	SW8081A	gamma-BHC (Lindane)	15		Y	0.11	2/2/2012	N	ug/l	N	15	37.4	BHC
Before Carbon	SW8260B	1,1,1-Trichloroethane	0		N	6.6	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,1,2,2-Tetrachloroethane	1100		Y	4.2	2/2/2012	N	ug/l	N	1100		
Before Carbon	SW8260B	1,1,2-Trichloroethane	8.2		Y	1.8	2/2/2012	N	ug/l	N	8.2		
Before Carbon	SW8260B	1,1-Dichloroethene	0		N	2.3	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,2,4-Trichlorobenzene	58		Y	3.3	2/2/2012	N	ug/l	N	58		
Before Carbon	SW8260B	1,2-Dichlorobenzene	0		N	6.3	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,3-Dichlorobenzene	0		N	6.2	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	1,4-Dichlorobenzene	0		N	6.7	2/2/2012	N	ug/l	N	0		

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Before Carbon	SW8260B	Benzene	0		N	3.3	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Carbon tetrachloride	0		N	2.2	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Chlorobenzene	0		N	6.0	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Chloromethane (Methyl chloride)	0		N	2.8	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	cis-1,2-Dichloroethene	32		Y	6.5	2/2/2012	N	ug/l	N	32		
Before Carbon	SW8260B	Methylene chloride (Dichloromethane)	6.1	JQ	Y	3.5	2/2/2012	N	ug/l	N	6.1		
Before Carbon	SW8260B	Tetrachloroethene (PCE)	32		Y	2.9	2/2/2012	N	ug/l	N	32		
Before Carbon	SW8260B	trans-1,2-Dichloroethene	0		N	7.2	2/2/2012	N	ug/l	N	0		
Before Carbon	SW8260B	Trichloroethene (TCE)	120		Y	3.7	2/2/2012	N	ug/l	N	120		
Before Carbon	SW8260B	Vinyl Chloride	0		N	7.2	2/2/2012	N	ug/l	N	0	1,356.3	Organics
Between Carbon	SW7470A	Mercury	0		N	0.00012	2/2/2012	N	mg/l	D	0		
Between Carbon	SW7470A	Mercury	0.00028		Y	0.00012	2/2/2012	N	mg/l	T	0.00028	0.00028	Hg
Between Carbon	SW8081A	alpha-BHC	0.26		Y	0.032	2/2/2012	N	ug/l	N	0.26		
Between Carbon	SW8081A	beta-BHC	2.4		Y	0.12	2/2/2012	N	ug/l	N	2.4		
Between Carbon	SW8081A	delta-BHC	1.4		Y	0.049	2/2/2012	N	ug/l	N	1.4		
Between Carbon	SW8081A	gamma-BHC (Lindane)	0.62		Y	0.029	2/2/2012	N	ug/l	N	0.62	4.68	BHC
Between Carbon	SW8260B	1,1,1-Trichloroethane	0		N	4.1	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,1,2,2-Tetrachloroethane	780		Y	2.1	2/2/2012	N	ug/l	N	780		
Between Carbon	SW8260B	1,1,2-Trichloroethane	8.6		Y	1.2	2/2/2012	N	ug/l	N	8.6		
Between Carbon	SW8260B	1,1-Dichloroethene	0		N	1.5	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,2,4-Trichlorobenzene	0		N	2.1	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,2-Dichlorobenzene	0		N	4.0	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,3-Dichlorobenzene	0		N	3.9	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	1,4-Dichlorobenzene	0		N	4.2	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Benzene	0		N	2.1	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Carbon tetrachloride	0		N	1.4	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Chlorobenzene	0		N	3.8	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Chloromethane (Methyl chloride)	0		N	1.8	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	cis-1,2-Dichloroethene	34		Y	4.1	2/2/2012	N	ug/l	N	34		
Between Carbon	SW8260B	Methylene chloride (Dichloromethane)	2.7	JQ	Y	2.2	2/2/2012	N	ug/l	N	2.7		
Between Carbon	SW8260B	Tetrachloroethene (PCE)	37		Y	1.8	2/2/2012	N	ug/l	N	37		
Between Carbon	SW8260B	trans-1,2-Dichloroethene	0		N	4.5	2/2/2012	N	ug/l	N	0		
Between Carbon	SW8260B	Trichloroethene (TCE)	210		Y	2.3	2/2/2012	N	ug/l	N	210		
Between Carbon	SW8260B	Vinyl Chloride	0		N	4.5	2/2/2012	N	ug/l	N	0	1,072.3	Organics
Influent Stripper	SW7470A	Mercury	0		N	0.00012	2/2/2012	N	mg/l	D	0		
Influent Stripper	SW7470A	Mercury	0.00018	JQ	Y	0.00012	2/2/2012	N	mg/l	T	0.00018	0.00018	Hg
Influent Stripper	SW8081A	alpha-BHC	23		Y	0.63	2/2/2012	N	ug/l	N	23		

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Influent Stripper	SW8081A	beta-BHC	3.3	JQ	Y	2.4	2/2/2012	N	ug/l	N	3.3		
Influent Stripper	SW8081A	delta-BHC	3.6	JQ	Y	0.95	2/2/2012	N	ug/l	N	3.6		
Influent Stripper	SW8081A	gamma-BHC (Lindane)	18		Y	0.57	2/2/2012	N	ug/l	N	18	47.9	BHC
Influent Stripper	SW8260B	1,1,1-Trichloroethane	0		N	160	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1,2,2-Tetrachloroethane	1300		Y	42	2/2/2012	N	ug/l	N	1300		
Influent Stripper	SW8260B	1,1,2-Trichloroethane	0		N	46	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,1-Dichloroethene	0		N	58	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,2,4-Trichlorobenzene	440		Y	82	2/2/2012	N	ug/l	N	440		
Influent Stripper	SW8260B	1,2-Dichlorobenzene	0		N	160	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,3-Dichlorobenzene	0		N	160	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	1,4-Dichlorobenzene	0		N	170	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Benzene	0		N	82	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Carbon tetrachloride	0		N	54	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Chlorobenzene	0		N	150	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Chloromethane (Methyl chloride)	0		N	70	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	cis-1,2-Dichloroethene	1100		Y	160	2/2/2012	N	ug/l	N	1100		
Influent Stripper	SW8260B	Methylene chloride (Dichloromethane)	90	JQ	Y	88	2/2/2012	N	ug/l	N	90		
Influent Stripper	SW8260B	Tetrachloroethene (PCE)	4900		Y	72	2/2/2012	N	ug/l	N	4900		
Influent Stripper	SW8260B	trans-1,2-Dichloroethene	0		N	180	2/2/2012	N	ug/l	N	0		
Influent Stripper	SW8260B	Trichloroethene (TCE)	10000		Y	92	2/2/2012	N	ug/l	N	10000		
Influent Stripper	SW8260B	Vinyl Chloride	0		N	180	2/2/2012	N	ug/l	N	0	17,830.0	Organics
OBA-9AR	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	D	0		
OBA-9AR	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	T	0	0	Hg
OBA-9AR	SW8081A	alpha-BHC	350		Y	3.1	2/2/2012	N	ug/l	N	350		
OBA-9AR	SW8081A	beta-BHC	27		Y	12	2/2/2012	N	ug/l	N	27		
OBA-9AR	SW8081A	delta-BHC	12		Y	0.094	2/2/2012	N	ug/l	N	12		
OBA-9AR	SW8081A	gamma-BHC (Lindane)	220		Y	2.8	2/2/2012	N	ug/l	N	220	609	BHC
OBA-9AR	SW8260B	1,1,1-Trichloroethane			N	160	2/2/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	1,1,2,2-Tetrachloroethane	1100		Y	42	2/2/2012	N	ug/l	N	1100		
OBA-9AR	SW8260B	1,1,2-Trichloroethane			N	46	2/2/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	1,1-Dichloroethene			N	58	2/2/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	1,2,4-Trichlorobenzene	4800		Y	82	2/2/2012	N	ug/l	N	4800		
OBA-9AR	SW8260B	1,2-Dichlorobenzene	4500		Y	160	2/2/2012	N	ug/l	N	4500		
OBA-9AR	SW8260B	1,3-Dichlorobenzene	720		Y	160	2/2/2012	N	ug/l	N	720		
OBA-9AR	SW8260B	1,4-Dichlorobenzene	4500		Y	170	2/2/2012	N	ug/l	N	4500		
OBA-9AR	SW8260B	Benzene	220		Y	82	2/2/2012	N	ug/l	N	220		
OBA-9AR	SW8260B	Carbon tetrachloride			N	54	2/2/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Chlorobenzene	430		Y	150	2/2/2012	N	ug/l	N	430		

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OBA-9AR	SW8260B	Chloromethane (Methyl chloride)			N	70	2/2/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	cis-1,2-Dichloroethene	800		Y	160	2/2/2012	N	ug/l	N	800		
OBA-9AR	SW8260B	Methylene chloride (Dichloromethane)			N	88	2/2/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Tetrachloroethene (PCE)	2600		Y	72	2/2/2012	N	ug/l	N	2600		
OBA-9AR	SW8260B	trans-1,2-Dichloroethene			N	180	2/2/2012	N	ug/l	N	0		
OBA-9AR	SW8260B	Trichloroethene (TCE)	20000		Y	92	2/2/2012	N	ug/l	N	20000		
OBA-9AR	SW8260B	Vinyl Chloride			N	180	2/2/2012	N	ug/l	N	0	39,670.0	Organics
PR-12	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	D	0		
PR-12	SW7470A	Mercury	0.0006		Y	0.00012	2/2/2012	N	mg/l	T	0.00061	0.00061	Hg
PR-12	SW8081A	alpha-BHC	8.1		Y	0.12	2/2/2012	N	ug/l	N	8.1		
PR-12	SW8081A	beta-BHC	2.6		Y	0.47	2/2/2012	N	ug/l	N	2.6		
PR-12	SW8081A	delta-BHC	1.4		Y	0.19	2/2/2012	N	ug/l	N	1.4		
PR-12	SW8081A	gamma-BHC (Lindane)	8.3		Y	0.11	2/2/2012	N	ug/l	N	8.3	20.4	BHC
PR-12	SW8260B	1,1,1-Trichloroethane			N	66	2/2/2012	N	ug/l	N			
PR-12	SW8260B	1,1,2,2-Tetrachloroethane	310		Y	17	2/2/2012	N	ug/l	N	310		
PR-12	SW8260B	1,1,2-Trichloroethane			N	18	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	1,1-Dichloroethene			N	23	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	1,2,4-Trichlorobenzene	71	JQ	Y	33	2/2/2012	N	ug/l	N	71		
PR-12	SW8260B	1,2-Dichlorobenzene			N	63	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	1,3-Dichlorobenzene			N	62	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	1,4-Dichlorobenzene			N	67	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	Benzene			N	33	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	Carbon tetrachloride			N	22	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	Chlorobenzene			N	60	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	Chloromethane (Methyl chloride)			N	28	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	cis-1,2-Dichloroethene	640		Y	65	2/2/2012	N	ug/l	N	640		
PR-12	SW8260B	Methylene chloride (Dichloromethane)			N	35	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	Tetrachloroethene (PCE)	1900		Y	29	2/2/2012	N	ug/l	N	1900		
PR-12	SW8260B	trans-1,2-Dichloroethene			N	72	2/2/2012	N	ug/l	N	0		
PR-12	SW8260B	Trichloroethene (TCE)	4400		Y	37	2/2/2012	N	ug/l	N	4400		
PR-12	SW8260B	Vinyl Chloride			N	72	2/2/2012	N	ug/l	N	0	7,321.0	Organics
PR-4	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	D	0		
PR-4	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	T	0	0.0	Hg
PR-4	SW8081A	alpha-BHC	59		Y	0.62	2/2/2012	N	ug/l	N	59		
PR-4	SW8081A	beta-BHC	6.4		Y	2.3	2/2/2012	N	ug/l	N	6.4		
PR-4	SW8081A	delta-BHC	6.6		Y	0.94	2/2/2012	N	ug/l	N	6.6		
PR-4	SW8081A	gamma-BHC (Lindane)	50		Y	0.57	2/2/2012	N	ug/l	N	50	122	BHC

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PR-4	SW8260B	1,1,1-Trichloroethane			N	16	2/2/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1,2,2-Tetrachloroethane			N	4.2	2/2/2012	N	ug/l	N			
PR-4	SW8260B	1,1,2-Trichloroethane			N	4.6	2/2/2012	N	ug/l	N	0		
PR-4	SW8260B	1,1-Dichloroethene			N	5.8	2/2/2012	N	ug/l	N	0		
PR-4	SW8260B	1,2,4-Trichlorobenzene	1200		Y	8.2	2/2/2012	N	ug/l	N	1200		
PR-4	SW8260B	1,2-Dichlorobenzene	64		Y	16	2/2/2012	N	ug/l	N	64		
PR-4	SW8260B	1,3-Dichlorobenzene	310		Y	16	2/2/2012	N	ug/l	N	310		
PR-4	SW8260B	1,4-Dichlorobenzene	200		Y	17	2/2/2012	N	ug/l	N	200		
PR-4	SW8260B	Benzene	53		Y	8.2	2/2/2012	N	ug/l	N	53		
PR-4	SW8260B	Carbon tetrachloride			N	5.4	2/2/2012	N	ug/l	N	0		
PR-4	SW8260B	Chlorobenzene	240		Y	15	2/2/2012	N	ug/l	N	240		
PR-4	SW8260B	Chloromethane (Methyl chloride)			N	7.0	2/2/2012	N	ug/l	N	0		
PR-4	SW8260B	cis-1,2-Dichloroethene	110		Y	16	2/2/2012	N	ug/l	N	110		
PR-4	SW8260B	Methylene chloride (Dichloromethane)			N	8.8	2/2/2012	N	ug/l	N	0		
PR-4	SW8260B	Tetrachloroethene (PCE)	87		Y	7.2	2/2/2012	N	ug/l	N	87		
PR-4	SW8260B	trans-1,2-Dichloroethene			N	18	2/2/2012	N	ug/l	N	0		
PR-4	SW8260B	Trichloroethene (TCE)	170		Y	9.2	2/2/2012	N	ug/l	N	170		
PR-4	SW8260B	Vinyl Chloride	76		Y	18	2/2/2012	N	ug/l	N	76	2,510.0	Organics
RW-1	SW7470A	Mercury	0.0004		Y	0.00012	2/2/2012	N	mg/l	D	0.00037		
RW-1	SW7470A	Mercury	0.001		Y	0.00012	2/2/2012	N	mg/l	T	0.00097	0.00097	Hg
RW-1	SW8081A	alpha-BHC	17		Y	0.31	2/2/2012	N	ug/l	N	17		
RW-1	SW8081A	beta-BHC	2.5		Y	0.12	2/2/2012	N	ug/l	N	2.5		
RW-1	SW8081A	delta-BHC	0.17	JQ	Y	0.047	2/2/2012	N	ug/l	N	0.17		
RW-1	SW8081A	gamma-BHC (Lindane)	0.61		Y	0.028	2/2/2012	N	ug/l	N	0.61	20.28	BHC
RW-1	SW8260B	1,1,1-Trichloroethane			N	82	2/2/2012	N	ug/l	N	0		
RW-1	SW8260B	1,1,2,2-Tetrachloroethane	740		Y	21	2/2/2012	N	ug/l	N	740		
RW-1	SW8260B	1,1,2-Trichloroethane			N	23	2/2/2012	N	ug/l	N			
RW-1	SW8260B	1,1-Dichloroethene			N	29	2/2/2012	N	ug/l	N	0		
RW-1	SW8260B	1,2,4-Trichlorobenzene	300		Y	41	2/2/2012	N	ug/l	N	300		
RW-1	SW8260B	1,2-Dichlorobenzene			N	79	2/2/2012	N	ug/l	N	0		
RW-1	SW8260B	1,3-Dichlorobenzene	360		Y	78	2/2/2012	N	ug/l	N	360		
RW-1	SW8260B	1,4-Dichlorobenzene	230		Y	84	2/2/2012	N	ug/l	N	230		
RW-1	SW8260B	Benzene			N	41	2/2/2012	N	ug/l	N	0		
RW-1	SW8260B	Carbon tetrachloride			N	27	2/2/2012	N	ug/l	N	0		
RW-1	SW8260B	Chlorobenzene			N	75	2/2/2012	N	ug/l	N	0		
RW-1	SW8260B	Chloromethane (Methyl chloride)			N	35	2/2/2012	N	ug/l	N	0		
RW-1	SW8260B	cis-1,2-Dichloroethene	3600		Y	81	2/2/2012	N	ug/l	N	3600		
RW-1	SW8260B	Methylene chloride (Dichloromethane)			N	44	2/2/2012	N	ug/l	N	0		

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Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
RW-1	SW8260B	Tetrachloroethene (PCE)	6800		Y	36	2/2/2012	N	ug/l	N	6800		
RW-1	SW8260B	trans-1,2-Dichloroethene			N	90	2/2/2012	N	ug/l	N	0		
RW-1	SW8260B	Trichloroethene (TCE)	7400		Y	46	2/2/2012	N	ug/l	N	7400		
RW-1	SW8260B	Vinyl Chloride	98	JQ	Y	90	2/2/2012	N	ug/l	N	98	19,528.0	Organics
RW-2	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	D	0		
RW-2	SW7470A	Mercury	0.0002		Y	0.00012	2/2/2012	N	mg/l	T	0.00024	0.00024	Hg
RW-2	SW8081A	alpha-BHC	0.17		Y	0.0063	2/2/2012	N	ug/l	N	0.17		
RW-2	SW8081A	beta-BHC	0.16		Y	0.024	2/2/2012	N	ug/l	N	0.16		
RW-2	SW8081A	delta-BHC	0.031	JQ	Y	0.0095	2/2/2012	N	ug/l	N	0.031		
RW-2	SW8081A	gamma-BHC (Lindane)	0.12		Y	0.0057	2/2/2012	N	ug/l	N	0.12	0.481	BHC
RW-2	SW8260B	1,1,1-Trichloroethane			N	1.6	2/2/2012	N	ug/l	N	0		
RW-2	SW8260B	1,1,2,2-Tetrachloroethane	6.9		Y	0.42	2/2/2012	N	ug/l	N	6.9		
RW-2	SW8260B	1,1,2-Trichloroethane			N	0.46	2/2/2012	N	ug/l	N	0		
RW-2	SW8260B	1,1-Dichloroethene			N	0.58	2/2/2012	N	ug/l	N			
RW-2	SW8260B	1,2,4-Trichlorobenzene	21		Y	0.82	2/2/2012	N	ug/l	N	21		
RW-2	SW8260B	1,2-Dichlorobenzene			N	1.6	2/2/2012	N	ug/l	N	0		
RW-2	SW8260B	1,3-Dichlorobenzene	3		Y	1.6	2/2/2012	N	ug/l	N	3		
RW-2	SW8260B	1,4-Dichlorobenzene	1.7	JQ	Y	1.7	2/2/2012	N	ug/l	N	1.7		
RW-2	SW8260B	Benzene	1	JQ	Y	0.82	2/2/2012	N	ug/l	N	1		
RW-2	SW8260B	Carbon tetrachloride			N	0.54	2/2/2012	N	ug/l	N	0		
RW-2	SW8260B	Chlorobenzene			N	1.5	2/2/2012	N	ug/l	N	0		
RW-2	SW8260B	Chloromethane (Methyl chloride)			N	0.70	2/2/2012	N	ug/l	N	0		
RW-2	SW8260B	cis-1,2-Dichloroethene	47		Y	1.6	2/2/2012	N	ug/l	N	47		
RW-2	SW8260B	Methylene chloride (Dichloromethane)	1.4	JQ	Y	0.88	2/2/2012	N	ug/l	N	1.4		
RW-2	SW8260B	Tetrachloroethene (PCE)	78		Y	0.72	2/2/2012	N	ug/l	N	78		
RW-2	SW8260B	trans-1,2-Dichloroethene			N	1.8	2/2/2012	N	ug/l	N	0		
RW-2	SW8260B	Trichloroethene (TCE)	130		Y	0.92	2/2/2012	N	ug/l	N	130		
RW-2	SW8260B	Vinyl Chloride			N	1.8	2/2/2012	N	ug/l	N	0	290.0	Organics
RW-3	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	D	0		
RW-3	SW7470A	Mercury	0.0002		Y	0.00012	2/2/2012	N	mg/l	T	0.0002	0.0002	Hg
RW-3	SW8081A	alpha-BHC	0.81		Y	0.032	2/2/2012	N	ug/l	N	0.81		
RW-3	SW8081A	beta-BHC	0.6		Y	0.12	2/2/2012	N	ug/l	N	0.6		
RW-3	SW8081A	delta-BHC	0.5		Y	0.048	2/2/2012	N	ug/l	N	0.5		
RW-3	SW8081A	gamma-BHC (Lindane)	0.74		Y	0.029	2/2/2012	N	ug/l	N	0.74	2.65	BHC
RW-3	SW8260B	1,1,1-Trichloroethane			N	0.82	2/2/2012	N	ug/l	N	0		
RW-3	SW8260B	1,1,2,2-Tetrachloroethane	15		Y	0.21	2/2/2012	N	ug/l	N	15		
RW-3	SW8260B	1,1,2-Trichloroethane			N	0.23	2/2/2012	N	ug/l	N	0		

Prepared by: AWM 04/04/2012
Checked by: JDD 04/05/2012

Olin Niagara Falls

February 2012 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
RW-3	SW8260B	1,1-Dichloroethene	0.58	JQ	Y	0.29	2/2/2012	N	ug/l	N	0.58		
RW-3	SW8260B	1,2,4-Trichlorobenzene	6.5		Y	0.41	2/2/2012	N	ug/l	N			
RW-3	SW8260B	1,2-Dichlorobenzene	0.83	JQ	Y	0.79	2/2/2012	N	ug/l	N	0.83		
RW-3	SW8260B	1,3-Dichlorobenzene	6.9		Y	0.78	2/2/2012	N	ug/l	N	6.9		
RW-3	SW8260B	1,4-Dichlorobenzene	4.6		Y	0.84	2/2/2012	N	ug/l	N	4.6		
RW-3	SW8260B	Benzene			N	0.41	2/2/2012	N	ug/l	N	0		
RW-3	SW8260B	Carbon tetrachloride			N	0.27	2/2/2012	N	ug/l	N	0		
RW-3	SW8260B	Chlorobenzene	1.3		Y	0.75	2/2/2012	N	ug/l	N	1.3		
RW-3	SW8260B	Chloromethane (Methyl chloride)			N	0.35	2/2/2012	N	ug/l	N	0		
RW-3	SW8260B	cis-1,2-Dichloroethene	70		Y	0.81	2/2/2012	N	ug/l	N	70		
RW-3	SW8260B	Methylene chloride (Dichloromethane)			N	0.44	2/2/2012	N	ug/l	N	0		
RW-3	SW8260B	Tetrachloroethene (PCE)	55		Y	0.72	2/2/2012	N	ug/l	N	55		
RW-3	SW8260B	trans-1,2-Dichloroethene	1.6		Y	0.90	2/2/2012	N	ug/l	N	1.6		
RW-3	SW8260B	Trichloroethene (TCE)	150		Y	0.92	2/2/2012	N	ug/l	N	150		
RW-3	SW8260B	Vinyl Chloride	2.2		Y	0.90	2/2/2012	N	ug/l	N	2.2	308.0	Organics
RW-4	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	D	0		
RW-4	SW7470A	Mercury	0.0003		Y	0.00012	2/2/2012	N	mg/l	T	0.00026	0.00026	Hg
RW-4	SW8081A	alpha-BHC	10		Y	0.062	2/2/2012	N	ug/l	N	10		
RW-4	SW8081A	beta-BHC	0.94		Y	0.23	2/2/2012	N	ug/l	N	0.94		
RW-4	SW8081A	delta-BHC	0.76		Y	0.094	2/2/2012	N	ug/l	N	0.76		
RW-4	SW8081A	gamma-BHC (Lindane)	5.2		Y	0.057	2/2/2012	N	ug/l	N	5.2	16.9	BHC
RW-4	SW8260B	1,1,1-Trichloroethane			N	1.6	2/2/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1,2,2-Tetrachloroethane	3.8		Y	0.42	2/2/2012	N	ug/l	N	3.8		
RW-4	SW8260B	1,1,2-Trichloroethane			N	0.46	2/2/2012	N	ug/l	N	0		
RW-4	SW8260B	1,1-Dichloroethene			N	0.58	2/2/2012	N	ug/l	N	0		
RW-4	SW8260B	1,2,4-Trichlorobenzene	230		Y	1.6	2/2/2012	N	ug/l	N	230		
RW-4	SW8260B	1,2-Dichlorobenzene	8.5		Y	1.6	2/2/2012	N	ug/l	N	8.5		
RW-4	SW8260B	1,3-Dichlorobenzene	42		Y	1.6	2/2/2012	N	ug/l	N	42		
RW-4	SW8260B	1,4-Dichlorobenzene	29		Y	1.7	2/2/2012	N	ug/l	N	29		
RW-4	SW8260B	Benzene	8		Y	0.82	2/2/2012	N	ug/l	N	8		
RW-4	SW8260B	Carbon tetrachloride			N	0.54	2/2/2012	N	ug/l	N	0		
RW-4	SW8260B	Chlorobenzene	23		Y	1.5	2/2/2012	N	ug/l	N	23		
RW-4	SW8260B	Chloromethane (Methyl chloride)			N	0.70	2/2/2012	N	ug/l	N	0		
RW-4	SW8260B	cis-1,2-Dichloroethene	54		Y	1.6	2/2/2012	N	ug/l	N	54		
RW-4	SW8260B	Methylene chloride (Dichloromethane)			N	0.88	2/2/2012	N	ug/l	N	0		
RW-4	SW8260B	Tetrachloroethene (PCE)	80		Y	0.72	2/2/2012	N	ug/l	N	80		
RW-4	SW8260B	trans-1,2-Dichloroethene			N	1.8	2/2/2012	N	ug/l	N	0		
RW-4	SW8260B	Trichloroethene (TCE)	120		Y	0.92	2/2/2012	N	ug/l	N	120		

Prepared by: AWM 04/04/2012
Checked by: JDD 04/05/2012

Olin Niagara Falls

February 2012 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
RW-4	SW8260B	Vinyl Chloride	49		Y	1.8	2/2/2012	N	ug/l	N	49	647.3	Organics
RW-5	SW7470A	Mercury			N	0.00012	2/2/2012	FD	mg/l	D	0		
RW-5	SW7470A	Mercury			N	0.00012	2/2/2012	FD	mg/l	T	0	0	Hg
RW-5	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	D	0		
RW-5	SW7470A	Mercury			N	0.00012	2/2/2012	N	mg/l	T	0	0	Hg
RW-5	SW8081A	alpha-BHC	95		Y	1.6	2/2/2012	FD	ug/l	N	95		
RW-5	SW8081A	beta-BHC	11		Y	1.2	2/2/2012	FD	ug/l	N	11		
RW-5	SW8081A	delta-BHC	7.6		Y	0.49	2/2/2012	FD	ug/l	N	7.6		
RW-5	SW8081A	gamma-BHC (Lindane)	74		Y	1.5	2/2/2012	FD	ug/l	N	74	187.6	BHC
RW-5	SW8081A	alpha-BHC	94		Y	1.3	2/2/2012	N	ug/l	N	94		
RW-5	SW8081A	beta-BHC	11		Y	0.24	2/2/2012	N	ug/l	N	11		
RW-5	SW8081A	delta-BHC	8		Y	0.095	2/2/2012	N	ug/l	N	8		
RW-5	SW8081A	gamma-BHC (Lindane)	73		Y	1.1	2/2/2012	N	ug/l	N	73	186	BHC
RW-5	SW8260B	1,1,1-Trichloroethane			N	660	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	6000		Y	170	2/2/2012	FD	ug/l	N	6000		
RW-5	SW8260B	1,1,2-Trichloroethane			N	180	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene			N	230	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	1500		Y	330	2/2/2012	FD	ug/l	N	1500		
RW-5	SW8260B	1,2-Dichlorobenzene			N	630	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene			N	620	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	1,4-Dichlorobenzene			N	670	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	Benzene			N	330	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	Carbon tetrachloride	330	JQ	Y	220	2/2/2012	FD	ug/l	N	330		
RW-5	SW8260B	Chlorobenzene			N	600	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)			N	280	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	5700		Y	650	2/2/2012	FD	ug/l	N	5700		
RW-5	SW8260B	Methylene chloride (Dichloromethane)	590	JQ	Y	350	2/2/2012	FD	ug/l	N	590		
RW-5	SW8260B	Tetrachloroethene (PCE)	25000		Y	290	2/2/2012	FD	ug/l	N	25000		
RW-5	SW8260B	trans-1,2-Dichloroethene			N	720	2/2/2012	FD	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	55000		Y	370	2/2/2012	FD	ug/l	N	55000		
RW-5	SW8260B	Vinyl Chloride	850		Y	720	2/2/2012	FD	ug/l	N	850	94,970.0	Organics
RW-5	SW8260B	1,1,1-Trichloroethane			N	660	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	6300		Y	170	2/2/2012	N	ug/l	N	6300		
RW-5	SW8260B	1,1,2-Trichloroethane			N	180	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene			N	230	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	1800		Y	330	2/2/2012	N	ug/l	N	1800		
RW-5	SW8260B	1,2-Dichlorobenzene			N	630	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene			N	620	2/2/2012	N	ug/l	N	0		

Prepared by: AWM 04/04/2012
Checked by: JDD 04/05/2012

Olin Niagara Falls

February 2012 Influent, Effluent, and Header Groundwater Quality Data

Location ID	Analytical Method	Parameter Name	Result	Validation Flags	Detect Flag	Method Detection Limit	SampleDate	SampleType	Units	Total or Dissolved	Result	Subtotal	
RW-5	SW8260B	1,4-Dichlorobenzene			N	670	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	Benzene			N	330	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	Carbon tetrachloride			N	220	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	Chlorobenzene			N	600	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)			N	280	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	5600		Y	650	2/2/2012	N	ug/l	N	5600		
RW-5	SW8260B	Methylene chloride (Dichloromethane)	600	JQ	Y	350	2/2/2012	N	ug/l	N	600		
RW-5	SW8260B	Tetrachloroethene (PCE)	24000		Y	290	2/2/2012	N	ug/l	N	24000		
RW-5	SW8260B	trans-1,2-Dichloroethene			N	720	2/2/2012	N	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	53000		Y	370	2/2/2012	N	ug/l	N	53000		
RW-5	SW8260B	Vinyl Chloride	800		Y	720	2/2/2012	N	ug/l	N	800	92,100.0	Organics

Prepared by: AWM 04/04/2012
Checked by: JDD 04/05/2012

Attachment 5

Overview of Extracted Groundwater and Contaminant Mass

Olin Niagara Falls Plant Site: Plant 2 Area Remediation
Groundwater Contaminant Mass Removed
Q4-11

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	1.139	3.8	2.20E-06	0.00000952	1190476.19	223,652	2.13
RW2	4.466	3.8	2.20E-06	0.00003734	1190476.19	2,124,702	79.3
RW3	0.635	3.8	2.20E-06	0.00000531	1190476.19	607,128	3.22
RW4	4.951	3.8	2.20E-06	0.00004139	1190476.19	210,029	8.69
PR4	3.516	3.8	2.20E-06	0.00002939	1190476.19	1,019,859	30.0
RW5	104.640	3.8	2.20E-06	0.00087479	1190476.19	1,661,728	1454
PR12	9.319	3.8	2.20E-06	0.00007791	1190476.19	378,006	29.4
OBA9AR	49.830	3.8	2.20E-06	0.00041658	1190476.19	94,554	39.4
TOTAL							**1,646**

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	0.0001	3.8	2.20E-06	0.00000000	1190476.19	223,652	0.000
RW2	0.0004	3.8	2.20E-06	0.00000000	1190476.19	2,124,702	0.007
RW3	0.0001	3.8	2.20E-06	0.00000000	1190476.19	607,128	0.001
RW4	0.0002	3.8	2.20E-06	0.00000000	1190476.19	210,029	0.000
PR4	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,019,859	0.000
RW5	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,661,728	0.000
PR12	0.0003	3.8	2.20E-06	0.00000000	1190476.19	378,006	0.001
OBA9AR	0.0000	3.8	2.20E-06	0.00000000	1190476.19	94,554	0.000
TOTAL							**0.009**

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	0.0127	3.8	2.20E-06	0.00000011	1190476.19	223,652	0.02
RW2	0.0129	3.8	2.20E-06	0.00000011	1190476.19	2,124,702	0.23
RW3	0.0125	3.8	2.20E-06	0.00000010	1190476.19	607,128	0.06
RW4	0.1217	3.8	2.20E-06	0.00000102	1190476.19	210,029	0.21
PR4	0.1448	3.8	2.20E-06	0.00000121	1190476.19	1,019,859	1.23
RW5	0.2015	3.8	2.20E-06	0.00000168	1190476.19	1,661,728	2.80
PR12	0.0225	3.8	2.20E-06	0.00000019	1190476.19	378,006	0.07
OBA9AR	0.6800	3.8	2.20E-06	0.00000568	1190476.19	94,554	0.538
TOTAL							**5.17**

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

6,319,658
total flow (gal)

Prepared by: AWM 04/03/2012
Checked by: JDD 04/04/2012

Olin Niagara Falls Plant Site: Plant 2 Area Remediation
Groundwater Contaminant Mass Removed
Q1-12

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	19.528	3.8	2.20E-06	0.00016325	1190476.19	389,882	64
RW2	0.290	3.8	2.20E-06	0.00000242	1190476.19	3,511,016	9
RW3	0.308	3.8	2.20E-06	0.00000257	1190476.19	556,077	1
RW4	6.316	3.8	2.20E-06	0.00005280	1190476.19	1,097,547	58
PR4	2.510	3.8	2.20E-06	0.00002098	1190476.19	768,849	16
RW5	92.1	3.8	2.20E-06	0.00076996	1190476.19	1,873,815	1443
PR12	7.321	3.8	2.20E-06	0.00006120	1190476.19	509,356	31
OBA9AR	39.670	3.8	2.20E-06	0.00033164	1190476.19	79,937	27
TOTAL							**1,648**

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	0.0010	3.8	2.20E-06	0.00000001	1190476.19	389,882	0.003
RW2	0.0002	3.8	2.20E-06	0.00000000	1190476.19	3,511,016	0.007
RW3	0.0002	3.8	2.20E-06	0.00000000	1190476.19	556,077	0.001
RW4	0.0003	3.8	2.20E-06	0.00000000	1190476.19	1,097,547	0.002
PR4	0.0000	3.8	2.20E-06	0.00000000	1190476.19	768,849	0.000
RW5	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,873,815	0.000
PR12	0.0006	3.8	2.20E-06	0.00000001	1190476.19	509,356	0.003
OBA9AR	0.0000	3.8	2.20E-06	0.00000000	1190476.19	79,937	0.000
TOTAL							**0.016**

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	0.0203	3.8	2.20E-06	0.00000017	1190476.19	389,882	0.07
RW2	0.0005	3.8	2.20E-06	0.00000000	1190476.19	3,511,016	0.01
RW3	0.0027	3.8	2.20E-06	0.00000002	1190476.19	556,077	0.01
RW4	0.0169	3.8	2.20E-06	0.00000014	1190476.19	1,097,547	0.16
PR4	0.1220	3.8	2.20E-06	0.00000102	1190476.19	768,849	0.78
RW5	0.1868	3.8	2.20E-06	0.00000156	1190476.19	1,873,815	2.93
PR12	0.0204	3.8	2.20E-06	0.00000017	1190476.19	509,356	0.09
OBA9AR	0.6090	3.8	2.20E-06	0.00000509	1190476.19	79,937	0.407
TOTAL							**4.45**

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

8,786,479
total flow (gal)

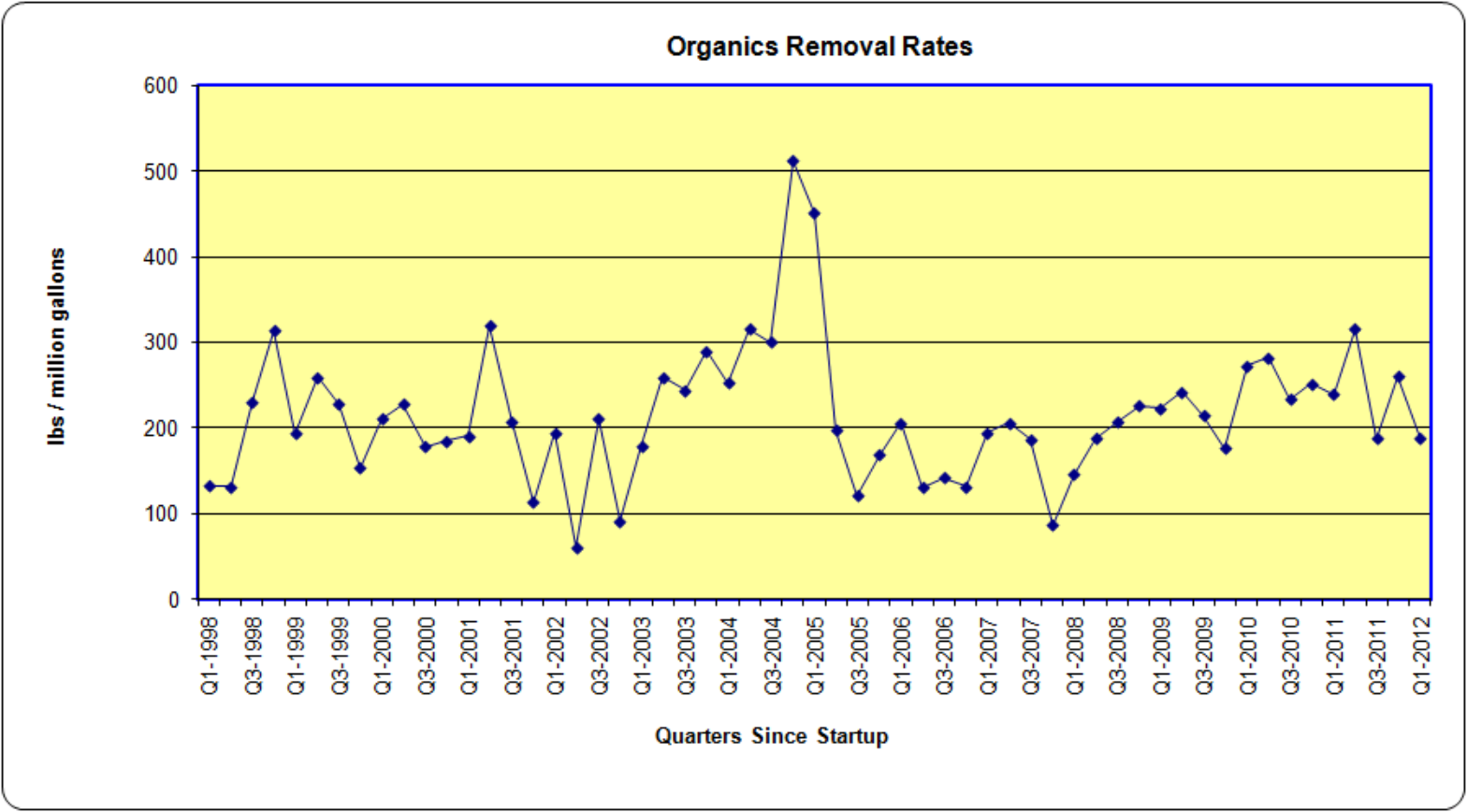
Prepared by: AWM 04/03/2012
Checked by: JDD 04/04/2012

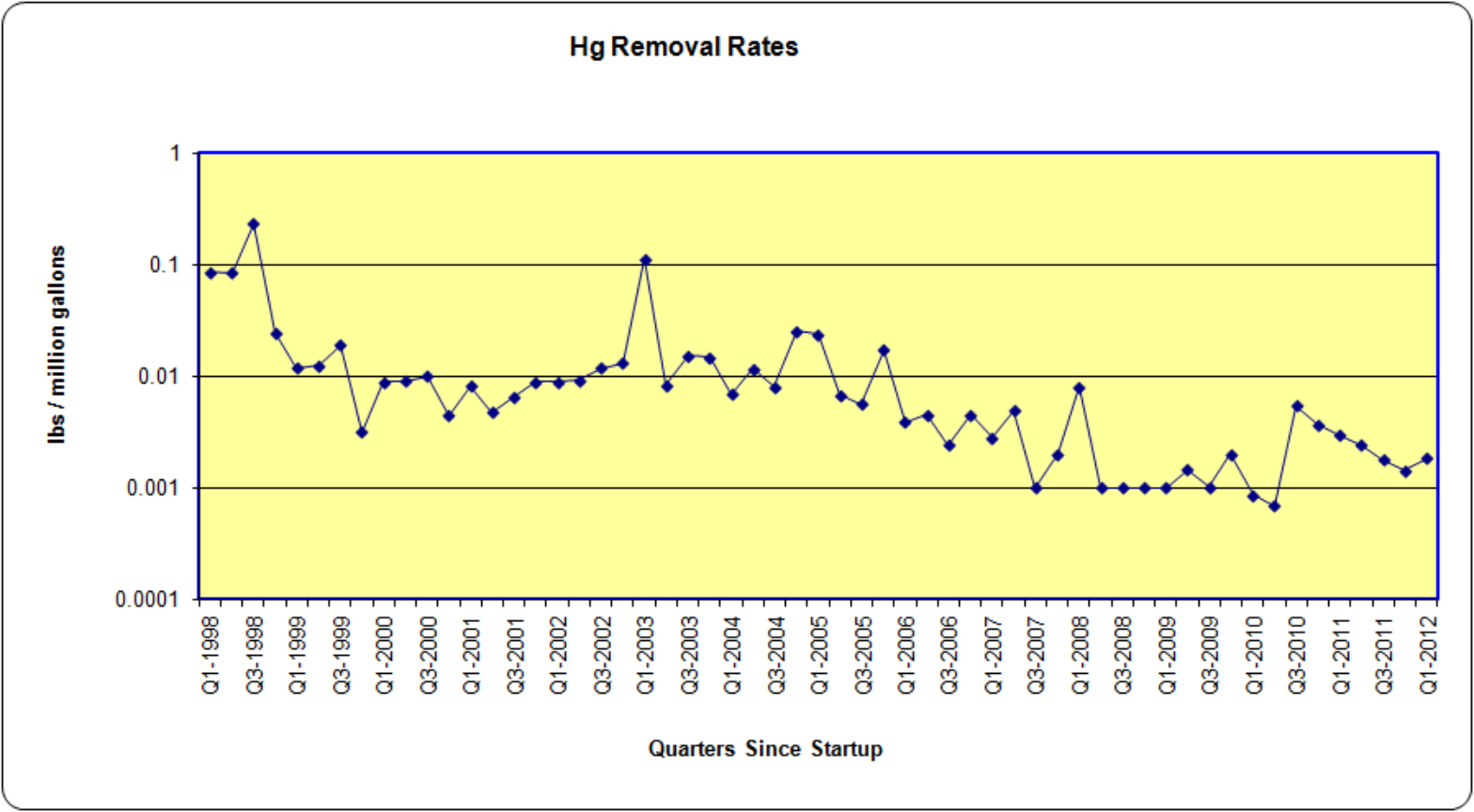
Olin Niagara Falls
Plant 2 Area Remediation
Contaminant Mass and Groundwater Extracted since December 1997

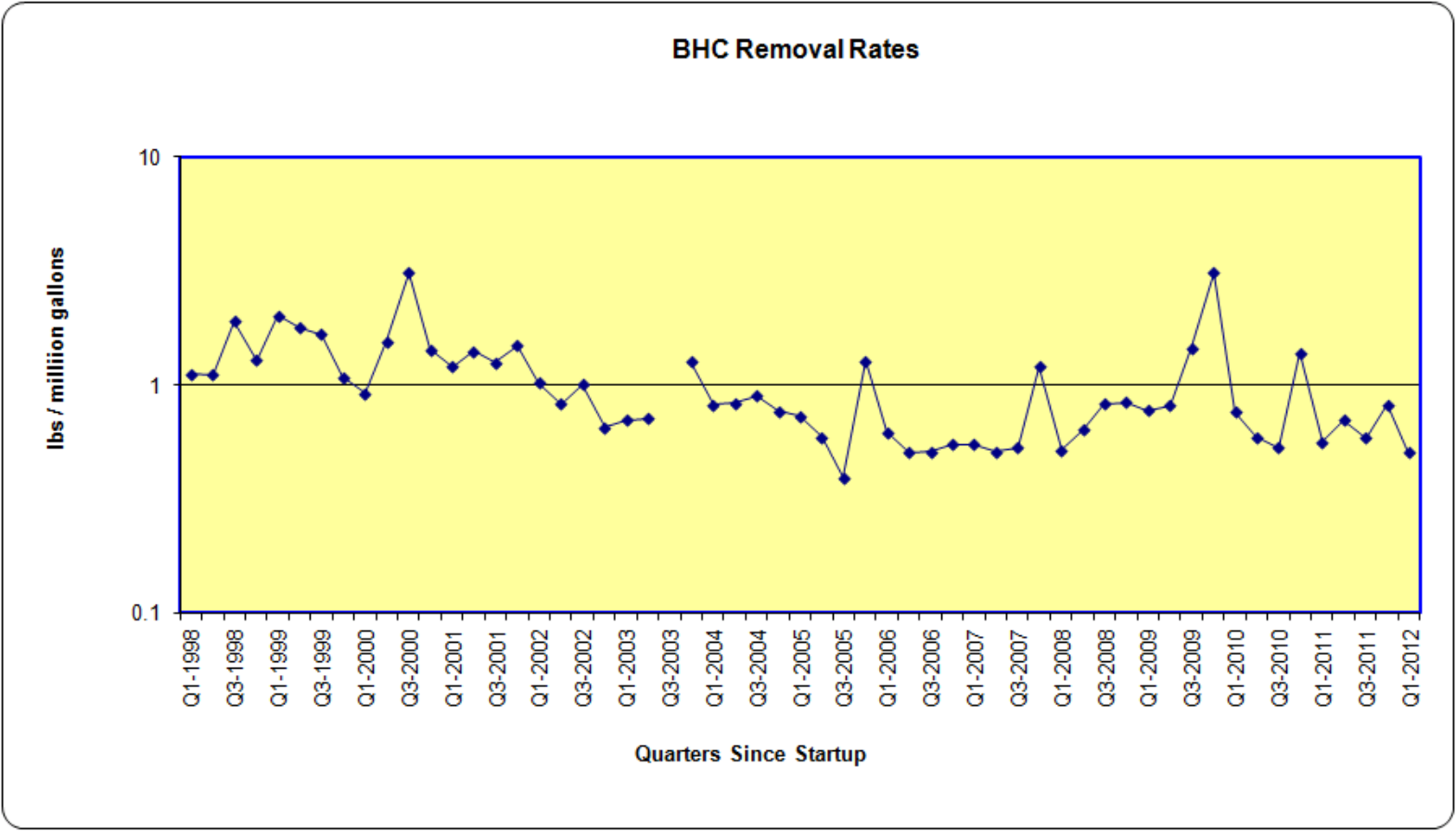
Quarter	Organics		Mercury		Pesticides		G.W. Extracted	
	lb	Ann. Tot.	lb	Ann. Tot.	lb	Ann. Tot.	gal	Ann. Tot.
Startup/Q1-98 [est]	27.81		0.02		0.2		210,000	
Q2-98	154.5		0.1		1.3		1,175,799	
Q3-98	595.5		0.6		4.9		2,583,159	
Q4-98	1273.1		0.1		5.2		4,054,996	
		2,051		1		12		8,023,954
Q1-99	817.3		0.05		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	1,611.00		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								
Q3-12								
Q4-12								
		1,646		0.02		4		8,786,479
TOTAL		**80,894**		**3.7**		**365**		**375,054,956**

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

Prepared by: AWM 04/05/12
Checked by: JDD 04/19/12


Organics Removal Rates
lbs / million gallons
600
500
400
300
200
100
0
Q1-1998
Q3-1998
Q1-1999
Q3-1999
Q1-2000
Q3-2000
Q1-2001
Q3-2001
Q1-2002
Q3-2002
Q1-2003
Q3-2003
Q1-2004
Q3-2004
Q1-2005
Q3-2005
Q1-2006
Q3-2006
Q1-2007
Q3-2007
Q1-2008
Q3-2008
Q1-2009
Q3-2009
Q1-2010
Q3-2010
Q1-2011
Q3-2011
Q1-2012
Quarters Since Startup


Hg Removal Rates
lbs / million gallons
1
0.1
0.01
0.001
0.0001
Q1-1998
Q3-1998
Q1-1999
Q3-1999
Q1-2000
Q3-2000
Q1-2001
Q3-2001
Q1-2002
Q3-2002
Q1-2003
Q3-2003
Q1-2004
Q3-2004
Q1-2005
Q3-2005
Q1-2006
Q3-2006
Q1-2007
Q3-2007
Q1-2008
Q3-2008
Q1-2009
Q3-2009
Q1-2010
Q3-2010
Q1-2011
Q3-2011
Q1-2012
Quarters Since Startup


BHC Removal Rates
lbs / millIion gallons
10
1
0.1
Q1-1998
Q3-1998
Q1-1999
Q3-1999
Q1-2000
Q3-2000
Q1-2001
Q3-2001
Q1-2002
Q3-2002
Q1-2003
Q3-2003
Q1-2004
Q3-2004
Q1-2005
Q3-2005
Q1-2006
Q3-2006
Q1-2007
Q3-2007
Q1-2008
Q3-2008
Q1-2009
Q3-2009
Q1-2010
Q3-2010
Q1-2011
Q3-2011
Q1-2012
Quarters Since Startup