Olin

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October 31, 2008

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 is the second Semiannual report for 2008 as required by Olin's Administrative Order on Consent (AOC) for our Niagara Falls Plant, (Index #R9-4171-94-08, Site Registry #9-32-051A, and B). The timeframe for this report covers the period from April 1, 2008 through September 30, 2008. A full copy of this report is also included as a PDF file on the attached CD.

Operation / Maintenance issues :
Details of the implementation of routine maintenance tasks and trouble shooting activities are included for this reporting period in the six monthly memoranda from Olin's consultant, Mactec Engineering and Consulting, (***Attachment 1***). The most significant metrics of system performance are the tracking of downtime and of target drawdown levels. Historically, when the system is running and operating efficiently, hydraulic capture is achieved. The monthly O&M reports document the details of all issues.

The primary O&M issues are the addressing of the site inspection items identified in the NYSDEC letter of June 11, 2008 (Alex Czuhanich to Michael J. Bellotti), and the conversion of the site process automation software from OMNX to APACS. The site inspection correspondence, including a detailed listing of addressed items, is included in ***Attachment 5.*** The completion of the response actions following the POTW discharge excursion that occurred in June, 2007. Software conversion was completed in August of 2008. The conversion implementation caused the remediation system to be down for approximately one week.

Olin has submitted notifications to NYSDEC for this outage and several other maintenance outages resulting in system down time. These notifications are included in ***Attachment 5.***

Hydraulic Capture:
Attachment 2 includes 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. Data for piezometric levels are included electronically on the CD in ***Attachment 3.***

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. This is largely aided by seasonally dry conditions. A-zone capture has been maintained during the two reporting quarters.

B-zone: Capture is being maintained. C-zone: C and CD-zone capture is achieved, with flow gradients consistent over time, per the pumping at the high volume Production well in Plant 1.

Groundwater Quality:
The recovery well header groundwater data for the most recent two quarters are included on the CD in ***Attachment 3***. This attachment also includes piezometric data and system flow data plus the May, 2008 annual sitewide groundwater monitoring data.

Overview of extracted groundwater volume and contaminant mass:
The volume of pumped groundwater for the two quarters comprising this reporting period was approximately 15 million gallons. The total volume of groundwater extracted and treated since system startup is approximately 266 million gallons. Since startup the system has extracted over 55,000 pounds of organics, 256 pounds of pesticides and 3 pounds of mercury.

Attachment 4 contains data and tables to support calculations of mass removed during the currently reported quarter and for the entire project duration. Included are recovery well flow data, recovery well header contaminant concentrations, estimated mass removed for each quarter by parameter group and a table of groundwater flow and mass removed since start-up. ***Attachment 4*** also contains tables of chemical analysis data for discharge headers.

We believe that we are continuing to make significant progress in removing contaminant mass from Olin's Niagara Falls Plant site via our remediation system. We will continue to improve the system and monitor its effectiveness. Please direct any questions or comments to me at 423/336-4587.

Sincerely,

Michael J. Bellotti

Michael J. Bellotti
OLIN CORPORATION

List of Attachments

Attachment 1:
Monthly Operation and Maintenance Status Reports:

Attachment 2:
Piezometric maps, hydrographs and supporting data

Attachment 3:
Data CD:

- Piezometric data
- Groundwater Quality Data:
  - May, 2008 sitewide and quarterly recovery well header data
  - August, 2008 quarterly recovery well header data
- Groundwater collection system flow data

Attachment 4:
Tables:

- Quarterly Contaminant mass removed
- Groundwater flow and mass removed since project start-up
- Recovery well header and constituent concentrations (hard copy)

Attachment 5
Correspondence

cc:
Pat Concannon - NYSDEC Buffalo, NY
Gina Senia: Olin Niagara Falls, NY
Ellen Stein: USEPA: Region II, New York, NY
Rick Marotte: Mactec Engineering: Kennesaw, GA

ATTACHMENT 1

MACTEC

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston; Don Greer, Gil Doucet, Greg Moslow, and Gina Senia @ Olin-Niagara.

From: Tony Englund/Rick Marotte

Date: May 16, 2008

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System for April 2008
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6100080001

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 April 2008:

Ground-Water Collection and Treatment System Status
April 2008

Recovery Well	Average Flowrate (gpm)	Average GW Elevation (ft MSL)	Target Drawdown Level (ft MSL)	Days Meeting Target Drawdown
RW-1	2.4	557.12	559	30
RW-2	28.2	557.31	556	0
RW-3	10.5	556.96	558.3	30
RW-4	2.2	556.85	558.1	30
PR-4	0.7	554.64	556.7	27
RW-5	2.8	557.29	557.5	30
PR-12	0.1	561.18	558.9	11
OBA-9AR	0.002	556.08*	557.7	30

*** Estimates based on weekly piezometer measurements**

Prepared By: CMB 5/1/2008 CMB 5/1/08
Checked By: AWE 5/7/2008 AWE 5/7/08

RW-1, RW-3, RW-4, PR-4, RW-5, and OBA-9AR all operated at adequate flowrates to meet their respective drawdown target levels.

RW-2 operated at a flowrate of approximately 28 gpm but the water level continued to be higher than the target drawdown level. However, the potentiometric surface maps generated with February 2008 water levels suggest that RW-2 is providing capture at this draw down level.

PR-12 was down due to a pump malfunction and a carbonate scaling issue. The pump was replaced, and the well was acid bathed to break up the carbonates.

A liquid phase carbon adsorber was added to the treatment system in April 2008. The carbon adsorber treats the groundwater after the air stripper and before discharge to the POTW.

DOWNTIMES

Well	Date	Duration (hrs:min)	Reason
System	4/3/2008	1:35	pH adjustment system calibration
System	4/4/2008	0:50	RW-1 pH calibration
System	4/7/2008	0:50	RW-2 pH calibration
System	4/8/2008	12:50	Planned Plant shut down
System	4/12/2008	14:55	Rain event
PR-12	4/1/2008 – 4/30/2008		Well encrusted with carbonates and bad pump.
PR-4	4/24/2008	5:00	Pump plugged – acid bathed
RW-1	4/25/2008	4 days.	Pump bad – replaced.

Prepared By: CMB 4/28/2008 CMB 5/28/08
Checked By: AWE 5/7/2008 AWE 5/7/08

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 and is generally corrected by acid washing the well. Any differences seen between the OMNX 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/OMNX Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	4/1/2008	0.22	0.02	
	4/9/2008	0.15	-0.08	
	4/15/2008	0.24	-0.31	
	4/22/2008	0.30	0.06	
	4/29/2008	0.20	-0.24	
RW-2	4/1/2008	0.03	-0.05	
	4/9/2008	0.06	-0.04	
	4/15/2008	0.05	-0.08	
	4/22/2008	0.05	-0.05	
	4/29/2008	0.07	-0.14	
RW-3	4/1/2008	0.29	-0.07	
	4/9/2008	-0.06	0.02	
	4/15/2008	0.26	-0.16	
	4/22/2008	0.26	0.01	
	4/29/2008	0.27	0.00	
RW-4	4/1/2008	0.11	0.05	
	4/9/2008	-0.17	0.05	
	4/15/2008	0.19	0.04	
	4/22/2008	0.15	0.04	
	4/29/2008	-0.21	0.01	
PR-4	4/1/2008	0.24	-0.07	
	4/9/2008	0.22	0.63	
	4/15/2008	0.33	0.58	
	4/22/2008	0.81	1.05	Well acid washed on 4/24/2008
	4/29/2008	0.86	1.76	
RW-5	4/1/2008	0.06	-0.05	
	4/9/2008	0.14	-0.05	
	4/15/2008	0.28	-0.05	
	4/22/2008	0.19	-0.05	
	4/29/2008	0.24	-0.05	
PR-12	4/1/2008	-0.19	NA	Pump down
	4/9/2008	-1.02	NA	Pump down
	4/15/2008	-0.37	NA	Pump down
	4/22/2008	-1.74	NA	Pump down
	4/29/2008	-1.21	NA	Pump down
OBA-9AR	4/1/2008	NM	-0.04	No water level in reading in OMNX
	4/9/2008	NM	0.00	
	4/15/2008	NM	-0.02	
	4/22/2008	NM	-0.11	
	4/29/2008	NM	0.04	

Prepared By: CMB 4/28/2008 CMB 4/28/08
Checked By: AWE 5/7/2008 Awe 5/7/08

DNAPL INSPECTION

On April 10, 2008, eight recovery wells and four monitoring 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
PR-4	1	No		
PR-12	1	No		
RW-1	1	No		
RW-2	1	No		
RW-3	1	No		
RW-4	1	No		
RW-5	1	No		
OBA-9AR	1	Yes	150ml	
OBA-10A	1	Yes	100ml	
PN-11B	1	No		
PN-12B	1	Yes	50ml	
PN-14B	1	Yes	100ml	
PN-21B	1	No		

Prepared By: CMB 4/29/2008 CMB 4/29/08
Checked By: AWE 5/7/2008 AWE 5/7/08

Anthony W. Englund
Senior Engineer

Frederick K. Marotte
Project Principal

MACTEC

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston; Don Greer, Gil Doucet, Greg Moslow, and Gina Senia @ Olin-Niagara.

From: Tony Englund/Rick Marotte

Date: June 23, 2008

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System for May 2008
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6100080001

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 May 2008:

Ground-Water Collection and Treatment System Status
May 2008

Recovery Well	Average Flowrate (gpm)	Average GW Elevation (ft MSL)	Target Drawdown Level (ft MSL)	Days Meeting Target Drawdown
RW-1	2.8	557.11	559	31
RW-2	29.0	557.37	556	0
RW-3	9.8	556.95	558.3	31
RW-4	3.0	556.52	558.1	31
PR-4	0.7	553.60	556.7	31
RW-5	6.1	557.28	557.5	29
PR-12	3.6	557.75	558.9	30
OBA-9AR	0.002	560.70	557.7	0

*** Estimates based on weekly piezometer measurements**

Prepared By: CMB 6/6/2008
Checked By: AWE 6/6/2008

RW-1, RW-3, RW-4, PR-4, RW-5, and PR-12 all operated at adequate flowrates to meet their respective drawdown target levels.

RW-2 operated at a flowrate of approximately 29 gpm but the water level continued to be higher than the target drawdown level. However, the potentiometric surface maps generated with May 2008 water levels suggest that RW-2 is providing capture at this draw down level.

OBA-9AR did not operate consistently in May most likely due to plugging of the well screen and piping. OBA-9AR, PR-12, and PR-4 have been scheduled for rehabilitation in June 2008.

There was only one brief downtime occurring on May 10th for the stripper to be inspected and cleaned and a backwash of the carbon beds.

DOWNTIMES

Well	Date	Duration (hrs:min)	Reason
System	5/10/2008	2:35	Inspect and clean the stripper and backwash carbon beds

Prepared By: CMB 6/6/2008
Checked By: AWE 6/6/2008

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 and is generally corrected by acid washing the well. Any differences seen between the OMNX 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/OMNX Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	5/6/2008	0.34	0.12	
	5/13/2008	0.32	0.07	
	5/20/2008	0.16	0.14	
	5/28/2008	0.19	0.14	
RW-2	5/6/2008	-0.09	0.03	
	5/13/2008	0.08	0.00	
	5/20/2008	0.06	-0.04	
	5/28/2008	0.03	-0.02	
RW-3	5/6/2008	0.04	0.00	
	5/13/2008	0.23	-0.01	
	5/20/2008	0.25	-0.06	
	5/28/2008	0.19	-0.02	
RW-4	5/6/2008	-0.52	0.21	
	5/13/2008	0.16	0.23	
	5/20/2008	0.19	0.06	
	5/28/2008	0.03	0.04	
PR-4	5/6/2008	1.44	0.84	
	5/13/2008	1.40	0.42	
	5/20/2008	1.57	0.77	
	5/28/2008	1.19	046	Transducer pulled and cleaned.
RW-5	5/6/2008	-0.02	-0.05	
	5/13/2008	0.13	-0.05	
	5/20/2008	0.11	-0.05	
	5/28/2008	0.00	-0.05	
PR-12	5/6/2008	0.16	NA	
	5/13/2008	0.02	NA	
	5/20/2008	0.18	NA	
	5/28/2008	-0.09	NA	
OBA-9AR	5/6/2008	NA	0.12	
	5/13/2008	NA	0.13	
	5/20/2008	NA	-0.08	
	5/28/2008	NA	0.01	

Prepared By: CMB 6/6/2008
Checked By: AWE 6/6/2008

DNAPL INSPECTION

On May 27, 2008, eight recovery wells and four monitoring 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
PR-1	1	NO	—	
PR-2	1	NO	—	
PR-3	1	NO	—	
PR-4	1	NO	—	
PR-5	1	NO	—	
PR-6	1	NO	—	
PR-7	1	NO	—	
PR-8	1	NO	—	
PR-9	1	NO	—	
PR-10	1	YES	30 ml	
PR-11	1	NO	—	
PR-12	1	NO	—	
RW-1	1	NO	—	
RW-2	1	NO	—	
RW-3	1	NO	—	
RW-4	1	NO	—	
RW-5	1	NO	—	
OBA-9AR	1	YES	250 ml	
OBA-10A	1	YES	10 ml	
PN-11 B	1	NO	—	
PN-12 B	1	YES	100 ml	
PN-14B	1	YES	100 ml	
PN-15 B	1	NO	—	
PN-21 B	1	NO	—	
PR-1	1	NO	—	
PR-2	1	NO	—	
PR-3	1	NO	—	
PR-4	1	NO	—	
PR-5	1	NO	—	
PR-6	1	NO	—	

Prepared By: CMB 6/16/2008
Checked By: AWE 6/16/2008

Anthony W. Englund
Senior Engineer

Frederick K. Marotte
Project Principal

MACTEC

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston; Don Greer, Gil Doucet, Greg Moslow, and Gina Senia @ Olin-Niagara.

From: Tony Englund/Rick Marotte

Date: July 17, 2008

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System for June 2008
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6100080001

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 June 2008:

Ground-Water Collection and Treatment System Status
June 2008

Recovery Well	Average Flowrate (gpm)	Average GW Elevation (ft MSL)	Target Drawdown Level (ft MSL)	Days Meeting Target Drawdown
RW-1	1.7	557.39	559	30
RW-2	28.4	557.52	556	1
RW-3	8.2	557.21	558.3	30
RW-4	1.4	557.23	558.1	30
PR-4	2.3	554.15	556.7	19
RW-5	5.8	557.44	557.5	22
PR-12	3.9	557.36	558.9	30
OBA-9AR	0	560.50	557.7	0

*** Estimates based on weekly piezometer measurements**

Prepared By: CMB 7/9/2008 CMB 7/9/08
Checked By: AWE 7/17/2008 AWE 7/17/08

RW-1, RW-3, RW-4, and PR-12 all operated at adequate flowrates to meet their respective drawdown target levels.

RW-2 operated at a flowrate of approximately 28.4 gpm but the water level continued to be higher than the target drawdown level of 556 ft amsl. However, the potentiometric surface maps from the previous four quarters suggest that RW-2 is providing capture at the current average draw down level of 557.5.

RW-5 operated consistently throughout June around the target drawdown level. However, small fluctuations in flow rate and water level caused several instances of water level being higher than the target drawdown level. The flow rate will be increased as necessary.

OBA-9AR, PR-12, and PR-4 were mechanically rehabilitated in June 2008. The wells were taken offline from June 16 through June 19, and cleaned with a wire brush, acid, and a surge block. The specific capacities of each well were improved by this procedure. However, after the cleaning, PR-4 did not meet the drawdown level due the large increase in specific capacity. The PR-4 flowrate will be increased as necessary to meet the target drawdown level.

The yield from OBA-9AR was improved from the well cleaning, but a pump failure prevented it the well from being brought back online. The pump will be replaced and the well brought back online by August 2008.

The following is a list of downtimes occurring in June and their associated causes.

DOWNTIMES

Well	Date	Duration (hrs:min)	Reason
PR-12	6/1/2008	14:45	Replaced pump and piping
System	6/9/2008	4:25	I/O box and OMNX are not communicating
System	6/9/2008	9:00	I/O box and OMNX are not communicating
PR-12	6/4/2008	4:55	Pump locked out of computer for unknown reason
System	6/16/2008	11:05	High System Effluent in 7S/High Rain Event
PR-12	6/16/2008	2 days	Cleaned well casing – Well Rehab
PR-4	6/16/2008	3 days	Cleaned well casing – Well Rehab
System	6/20/2008	2:15	High Rain Event
System	6/20/2008	2:55	High Rain Event
System	6/28/2008	9:45	High System Effluent in 7S/High Rain Event
OBA-9AR	6/1/2008-6/30/2008	NA	Fouled casing – pump failure
RW-1	6/28/2008	2 days	Pump issue; repaired 7/6/08

Prepared By: CMB 7/9/2008 CMB 7/9/08
Checked By: AWE 7/17/2008 AWE 7/17/08

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 and is generally corrected by acid washing the well. Any differences seen between the OMNX 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/OMNX Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	6/3/2008	0.15	-0.01	
	6/10/2008	0.27	0.00	
	6/17/2008	0.36	-0.03	
	6/24/2008	0.31	0.00	
RW-2	6/3/2008	0.03	-0.07	
	6/10/2008	0.13	-0.02	
	6/17/2008	0.12	-0.04	
	6/24/2008	0.06	-0.08	
RW-3	6/3/2008	-0.60	-0.01	
	6/10/2008	0.22	-0.04	
	6/17/2008	0.25	-0.05	
	6/24/2008	0.27	-0.04	
RW-4	6/3/2008	0.03	0.09	
	6/10/2008	0.22	0.07	
	6/17/2008	-0.06	0.07	
	6/24/2008	0.16	0.08	
PR-4	6/3/2008	1.51	0.30	
	6/10/2008	1.70	0.62	
	6/17/2008	NA	-0.07	Down for well rehab
	6/24/2008	NA	NA	Transducer being replaced
RW-5	6/3/2008	0.14	-0.05	
	6/10/2008	0.05	-0.05	
	6/17/2008	0.22	-0.05	
	6/24/2008	0.04	-0.05	
PR-12	6/3/2008	-0.18	NA	
	6/10/2008	0.12	NA	
	6/17/2008	NA	NA	Down for well rehab
	6/24/2008	0.20	NA	
OBA-9AR	6/3/2008	NA	-0.37	
	6/10/2008	NA	0.04	
	6/17/2008	NA	-0.17	
	6/24/2008	NA	0.01	

Prepared By: CMB 7/9/2008 CMB 7/9/08
Checked By: AWE 7/17/2008 Awe 7/17/08

DNAPL INSPECTION

On June 9, 2008, eight recovery wells and four monitoring 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
PR-12	1	Yes	5 ml	
RW-1	1	No		
RW-2	1	No		
RW-3	1	No		
RW-4	1	No		
PR-4	1	No		
RW-5	1	No		
OBA-9AR	1	Yes	5 ml	
OBA-10A	1	Yes	35 ml	
PN-11 B	1	No		
PN-12 B	1	Yes	50ml	
PN-14B	1	Yes	30ml	
PN-21 B	1	No		

Prepared By: CMB 7/9/2008 CMB 7/9/08
Checked By: AWE 7/17/2008 AWE 7/17/08

Anthony W. Englund
Senior Engineer

Frederick K. Marotte
Project Principal

MACTEC

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston; Don Greer, Gil Doucet, Greg Moslow, and Gina Senia @ Olin-Niagara.

From: Tony Englund/Rick Marotte

Date: August 22, 2008

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System for July 2008
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6100080001

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 July 2008:

Ground-Water Collection and Treatment System Status
July 2008

Recovery Well	Average Flowrate (gpm)	Average GW Elevation (ft MSL)	Target Drawdown Level (ft MSL)	Days Meeting Target Drawdown
RW-1	1.5	557.57	559	31
RW-2	25.6	557.64	556	0
RW-3	5.5	558.26	558.3	26
RW-4	0.6	557.51	558.1	30
PR-4	7.4	557.03	556.7	3
RW-5	5.6	557.56	557.5	15
PR-12	6.1	557.48	558.9	31
OBA-9AR	0.0	561.81*	557.7	31*

*** Estimates based on weekly piezometer measurements**

Prepared By: CMB 8/12/2008 CMB 8/12/08
Checked By: AWE AWE 8/12/08

RW-1, RW-3, RW-4, and PR-12 all operated at adequate flowrates to meet their respective drawdown target levels.

PR-4 operated at a higher flowrate than June but did not meet target drawdown for most of the month. The well rehabilitation process has increased the specific capacity of the well significantly. Therefore the flowrate will be increased to lower the operating level.

The RW-5 water level fluctuated above and below the target drawdown for most of the month. However, most of the exceedances were less than 0.2'. The flowrate will be increased as necessary to keep the water level below the target level.

RW-2 operated at a flowrate of approximately 25.6 gpm but the water level continued to be higher than the current target drawdown level. However, potentiometric surface maps from August 2007, October 2007, February 2008, and May 2008 all suggest that RW-2 is providing capture at this draw down level. Since the potentiometric surface maps show capture over this period at this drawdown level, the target level for RW-2 should be updated. In addition, the drawdown targets for each of the wells was evaluated based on the potentiometric surface maps and updated if necessary. The following chart summarizes the changes:

Target Drawdown Level Update			
Recovery Well	**Current Target Drawdown Level (ft MSL)**	**Average GW Elevation for past 12 months (ft MSL)**	**Updated Target Drawdown Level (ft MSL)**
RW-1	**559**	**557.33**	**557.5**
RW-2	**556**	**557.48**	**557.7**
RW-3	**558.3**	**557.43**	**557.5**
RW-4	**558.1**	**557.27**	**557.5**
PR-4	**556.7**	**555.25**	**556.7**
RW-5	**557.5**	**557.50**	**557.5**
PR-12	**558.9**	**558.10**	**558.5**
OBA-9AR	**557.7**	**559.04**	**557.7**

Prepared By: AWE 8/26/2008 8/26/08
Checked By: JC 8/26/2008 JC 8/26/08

The average groundwater elevations were not used for target levels because the actual water level will consistently fluctuate above and below this level. Therefore, the drawdown targets for RW-1, RW-2, RW-3, RW-4, and PR-12 have been updated to be within 0.25 feet of the average groundwater elevations for the past 12 months which have provided capture. PR-4 was not updated since fouling had caused its average water level to be biased low. The PR-4 target level will be evaluated after consistent operational data has been obtained. Since rehabilitation, the PR-4 water level has been near the current drawdown level. The RW-5 target level was not updated since it operates consistently at the current drawdown. The OBA-9AR target level was not updated because inconsistent operation has caused the average water level to biased high. Consistent operation will meet the current the target level.

DOWNTIMES

A leak in the air stripper caused a system downtime for 3 days in the middle of the month. The remaining downtimes were generally related to maintenance and high rain events.

The following is a list of downtimes occurring in July and their associated causes.

Well	Date	Duration (hrs:min)	Reason
RW-1	6/28/2008	5+ days	Pump issue; repaired 7/4/08
PR-12	7/1/2008	1+ days	OMNX control problem
System	7/3/2008	2:15	calibrate probes and backflush
System	7/9/2008	1:30	High Rain Event
System	7/11/2008	1:30	calibrate probes and backflush
System	7/13/2008	3+ days	Leak in the air stripper
System	7/17/2008	1:05	High level in air stripper sump
System	7/17/2008	1:00	High level in air stripper sump
System	7/17/2008	1:00	High level in air stripper sump
System	7/18/2008	1:00	High level in air stripper sump
System	7/18/2008	0:50	High level in air stripper sump
System	7/20/2008	7:10	High System Effluent in 7S/High Rain Event (?)
System	7/22/2008	2:30	High Rain Event
System	7/23/2008	6:05	High Rain Event
System	7/24/2008	3:00	High Rain Event

Prepared By: CMB 8/12/2008 CMB 8/12/08
Checked By: AWE 8/12/2008 AWE 8/12/08

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 and is generally corrected by acid washing the well. Any differences seen between the OMNX 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/OMNX Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	7/1/2008	0.28	-0.08	
	7/8/2008	0.15	-0.05	
	7/15/2008	0.25	-0.06	
	7/22/2008	0.21	-0.02	
	7/29/2008	0.28	-0.02	
RW-2	7/1/2008	0.06	-0.06	
	7/8/2008	0.07	-0.06	
	7/15/2008	0.09	-0.03	
	7/22/2008	0.10	-0.03	
	7/29/2008	0.09	-0.06	
RW-3	7/1/2008	0.41	-0.04	
	7/8/2008	0.30	-0.01	
	7/15/2008	0.28	-0.03	
	7/22/2008	0.10	0.01	
	7/29/2008	-7.15	-0.01	Bad transducer – replacement on order
RW-4	7/1/2008	0.57	0.09	
	7/8/2008	0.21	0.04	
	7/15/2008	0.09	0.04	
	7/22/2008	0.11	0.05	
	7/29/2008	0.15	0.04	
PR-4	7/1/2008	0.49	-0.07	
	7/8/2008	0.38	-0.05	
	7/15/2008	0.19	-0.05	
	7/22/2008	0.28	-0.07	
	7/29/2008	0.10	-0.02	
RW-5	7/1/2008	0.26	-0.05	
	7/8/2008	0.26	-0.05	
	7/15/2008	0.07	-0.05	
	7/22/2008	0.22	-0.05	
	7/29/2008	0.08	-0.05	
PR-12	7/1/2008	-0.09	NA	
	7/8/2008	-0.13	NA	
	7/15/2008	0.30	NA	
	7/22/2008	-0.03	NA	
	7/29/2008	0.22	NA	
OBA-9AR	7/1/2008	NA	0	
	7/8/2008	NA	-0.21	
	7/15/2008	NA	-0.01	
	7/22/2008	NA	-0.02	
	7/29/2008	NA	-0.09	

Prepared By: CMB 8/12/2008 CMB 8/12/08
Checked By: AWE 8/12/2008 AWE 8/12/08

DNAPL INSPECTION

On July 1, 2008, eight recovery wells and four monitoring 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
PR-4	1	No		
PR-12	1	No		
RW-1	1	No		
RW-2	1	No		
RW-3	1	No		
RW-4	1	No		
RW-5	1	No		
OBA-9AR	1.5	Yes	250 ml	
OBA-10A	1	Yes	5 ml	
PN-11B	1	No		
PN-12B	1.5	Yes	150 ml	
PN-14B	1.5	Yes	150 ml	
PN-21B	1	Yes	Trace	

Prepared By: CMB 8/13/2008 CMB 8/13/08
Checked By: AWE 8/13/2008 AWE 8/13/08

Anthony W. Englund
Senior Engineer

Frederick K. Marotte
Project Principal

MACTEC

MEMORANDUM

To: Mike Bellotti @ Olin-CERG; Don Greer, Mike Sebring, Greg Moslow, and Gina Senia @ Olin-Niagara.

From: Tony Englund/Rick Marotte

Date: September 16, 2008

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System for August 2008
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6100080001

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 August 2008:

Ground-Water Collection and Treatment System Status
August 2008

Recovery Well	Average Flowrate (gpm)	Average GW Elevation (ft MSL)	Target Drawdown Level (ft MSL)	Days Meeting Target Drawdown
RW-1	2.2	557.3	557.5	27
RW-2	28.4	557.6	557.7	30
RW-3	3.9	557.2	557.5	26
RW-4	7.0	556.7	557.5	30
PR-4	11.4	556.3	556.7	20
RW-5	10.6	557.4	557.5	26
PR-12	5.9	556.6	558.5	31
OBA-9AR	0.1	560.3	557.7	11

Prepared By: CMB 9/16/2008 CMB 9/16/08
Checked By: AWE 9/16/2008 AWE 9/16/08

With exception of OBA-9AR, each well operated at an adequate flowrate to meet its target drawdown level for the majority of August 2008. Exceedances were minor and mostly due to small fluctuations in pump flow rates. Flow rates were increased as necessary to meet the target drawdown levels. Some exceedances were due to a system shutdown for the conversion of the control system from OMNX to Apacs from August 5 -6, 2008.

A new pump was installed in OBA-9AR on August 27 and the well operated properly and consistently for the remainder of the month.

The following is a list of downtimes occurring in August and their associated causes.

DOWNTIMES

Well	Date	Duration (hrs:min)	Reason
RW-3	8/11/2008	8:00	
RW-3	8/19/2008	1:00	
System	8/24/2008	0:30	
RW-3	8/27/2008	0:45	
PR-12	8/27/2008	2:00	

Prepared By: CMB 9/16/2008 CMB 9/16/08
Checked By: AWE 9/16/2008 AWE 9/16/08

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 and is generally corrected by acid washing the well. Any differences seen between the OMNX 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/OMNX Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	8/5/2008	0.21	0.01	
	8/12/2008	0.32	-0.03	
	8/19/2008	0.35	-0.05	
	8/27/2008	0.23	-0.01	Transducer pulled, cleaned, and position checked – ok
RW-2	8/5/2008	0.05	-0.01	
	8/12/2008	0.20	0.10	
	8/19/2008	0.10	-0.04	
	8/27/2008	0.20	-0.04	Transducer pulled, cleaned, and position checked –repositioned to 22.23' btoc
RW-3	8/5/2008	-6.88	0.03	
	8/12/2008	-7.69	-0.06	Transducer replaced – 8/14/2008
	8/19/2008	0.21	-0.06	
	8/27/2008	0.33	-0.06	
RW-4	8/5/2008	0.24	0.04	
	8/12/2008	-0.09	0.00	
	8/19/2008	0.10	0.11	
	8/27/2008	0.08	-0.17	Transducer pulled, cleaned, and position checked – ok
PR-4	8/5/2008	0.28	-3.06	
	8/12/2008	0.26	-0.02	
	8/19/2008	0.25	-0.07	
	8/27/2008	0.27	-0.07	Transducer pulled, cleaned, and position checked – ok
RW-5	8/5/2008	0.07	-0.05	
	8/12/2008	0.22	-0.05	
	8/19/2008	0.25	-0.05	
	8/27/2008	0.34	-0.05	Transducer pulled, cleaned, and position checked – ok
PR-12	8/5/2008	0.23	NA	
	8/12/2008	0.07	NA	
	8/19/2008	0.24	NA	
	8/27/2008	0.24	NA	
OBA-9AR	8/5/2008	NA	0.10	
	8/12/2008	0.47	-0.03	
	8/19/2008	0.33	-0.03	
	8/27/2008	0.44	-0.02	Transducer pulled, cleaned, and position checked – ok

Prepared By: CMB 9/16/2008 CMB 9/16/08
Checked By: AWE 9/16/2008 AWE 9/16/08

DNAPL INSPECTION

On August 12, 2008, eight recovery wells and sixteen monitoring 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
RW-1	1	No		
RW-2	1	No		
RW-3	1	No		
RW-4	1	No		
PR-4	1	No		
RW-5	1	Yes	50 ml	
OBA-9AR	2.5	Yes	2.5 L	
PR-12	1	Yes	100 ml	
PR-1	1	No		
PR-2	1	No		
PR-3	1	No		
PR-5	1	No		
PR-6	1	No		
PR-7	1	No		
PR-8	1	No		
PR-9	1	No		
PR-10	1	Yes	15 ml	
PR-11	1	No		
OBA-10A	1	Yes	trace	
PN-11 B	1	No		
PN-12 B	1	Yes	500 ml	
PN-14B	1	Yes	100ml	
PN-15B	1	No		
PN-21 B	3	Yes	2.25 L	

Prepared By: CMB 9/16/2008 CMB 9/16/08
Checked By: AWE 9/16/2008 AWE 9/16/08

Anthony W. Englund
Senior Engineer

Frederick K. Marotte
Project Principal

MACTEC

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston; Don Greer, Gil Doucet, Greg Moslow, and Gina Senia @ Olin-Niagara.

From: Tony Englund/Rick Marotte

Date: October 8, 2008

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System for September 2008
Olin Corporation, Niagara Falls, New York
MACTEC Job # 6100080001

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 September 2008:

Ground-Water Collection and Treatment System Status
September 2008

Recovery Well	Average Flowrate (gpm)	Average GW Elevation (ft MSL)	Target Drawdown Level (ft MSL)	Days Meeting Target Drawdown
RW-1	2.6	557.14	557.5	28
RW-2	27.8	557.32	557.7	30
RW-3	3.0	557.29	557.5	24
RW-4	5.3	556.76	557.5	27
PR-4	13.3	555.91	556.7	25
RW-5	10.2	557.26	557.5	28
PR-12	5.2	556.44	558.5	30
OBA-9AR	0.3	557.86	557.7	24

Prepared By: CMB 10/8/2008 CMB 10/8/08
Checked By: AWE 10/15/2008 AWE 10/15/08

Each well operated at an adequate flowrate to meet its target drawdown level for the majority of September 2008. Exceedances were minor and mostly due to small fluctuations in pump flow rates. Flow rates were increased as necessary to meet the target drawdown levels.

The following is a list of downtimes occurring in September and their associated causes.

DOWNTIMES

Well	Date	Duration (hrs:min)	Reason
RW-3	9/2/2008	21:50	Shut down due to low level, but did not restart automatically. Manual restart was required
RW-3	9/3/2008	21:05	Shut down due to low level, but did not restart automatically. Manual restart was required. Olin has modified control setpoints to allow for automatic restart.
RW-3	9/9/2008	13:20	Shut down due to low level, but did not restart automatically. Manual restart was required. Olin has modified control setpoints to allow for automatic restart.
System	9/5/2008	3:20	Air stripper sump high level.
System	9/7/2008	7:00	Air stripper sump high level.
System	9/12/2008	2:35	Air stripper sump high level. Increased carbon pump flowrate.
System	9/13/2008	3:20	Air stripper sump high level.
System	9/26/2008	2:30	Air stripper sump high level. Possible failure of air stripper sump level instrument. Olin maintenance troubleshooting unit.

Prepared By: CMB 10/8/2008 CMB 10/8/08
Checked By: AWE 10/16/2008 AWE 10/16/08

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 and is generally corrected by acid washing the well. Any differences seen between the OMNX 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/OMNX Difference (ft)	Piez/Well Difference (ft)	Comment
RW-1	9/2/2008	0.35	0.11	
	9/9/2008	0.34	0.01	
	9/16/2008	0.23	-0.03	Transducer range reset to correct value of 30' H2O
	9/23/2008	0.22	-0.05	
	9/30/2008	0.24	-0.05	
RW-2	9/2/2008	0.41	-0.07	
	9/9/2008	0.43	-0.05	
	9/16/2008	0.43	-0.06	Transducer replaced 9/19/2008 – zero reset to correct value of 549.99' MSL.
	9/23/2008	0.16	-0.08	
	9/30/2008	0.27	0.03	
RW-3	9/2/2008	0.37	-0.06	
	9/9/2008	0.21	-0.04	
	9/16/2008	0.29	-0.04	
	9/23/2008	0.36	-0.04	
	9/30/2008	0.09	-0.04	
RW-4	9/2/2008	0.08	0.00	
	9/9/2008	0.00	0.04	
	9/16/2008	0.12	0.04	
	9/23/2008	0.09	-0.04	
	9/30/2008	0.11	0.04	
PR-4	9/2/2008	0.38	-0.05	
	9/9/2008	0.18	-0.12	
	9/16/2008	0.34	-0.07	
	9/23/2008	0.30	-0.82	
	9/30/2008	0.37	-1.09	
RW-5	9/2/2008	0.36	-0.05	
	9/9/2008	0.22	-0.05	
	9/16/2008	0.32	-0.05	
	9/23/2008	0.34	-0.05	
	9/30/2008	0.34	-0.05	
PR-12	9/2/2008	-0.07	NA	
	9/9/2008	0.04	NA	
	9/16/2008	0.28	NA	Transducer range reset to correct value of 30' H2O
	9/23/2008	0.37	NA	
	9/30/2008	0..34	NA	
OBA-9AR	9/2/2008	1.00	-0.04	
	9/9/2008	0.37	0.08	
	9/16/2008	0.33	-0.10	
	9/23/2008	0.32	-0.04	
	9/30/2008	0.36	-0.07	

Prepared By: CMB 10/8/2008 CMB 10/8/08
Checked By: AWE 10/16/2008 AWE 10/16/08

DNAPL INSPECTION

On September 3, 2008, eight recovery wells and five monitoring wells were inspected for the presence of DNAPL. The following table presents the results of the inspection:

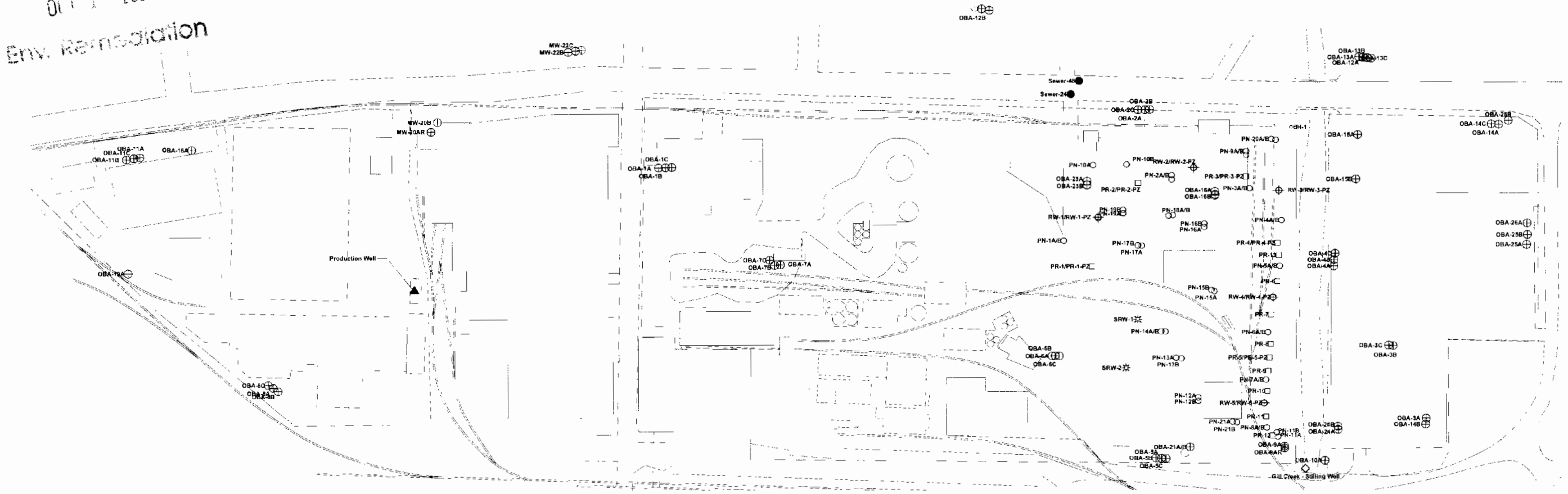
Well	Volume Purged (gallons)	DNAPL Presence	DNAPL Quantity Removed (mL)	Comment
PR-4	1	No		
PR-12	1	Yes	1000ml	
RW-1	1	No		
RW-2	1	No		
RW-3	1	No		
RW-4	1	No		
RW-5	1	Yes	Trace	
OBA-9AR	1	Yes	1000ml	
OBA-10A	1	Yes	Trace	
PN-11B	1	No		
PN-12B	1	Yes	100ml	
PN-14B	1	Yes	40ml	
PN-21B	1	Yes	100ml	

Prepared By: CMB 10/8/2008 CMB 10/8/08
Checked By: AWE 10/16/2008 AWE 10/16/08

Anthony W. Englund
Senior Engineer

Frederick K. Marotte
Project Principal

POTENTIOMETRIC SURFACE MAPS



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

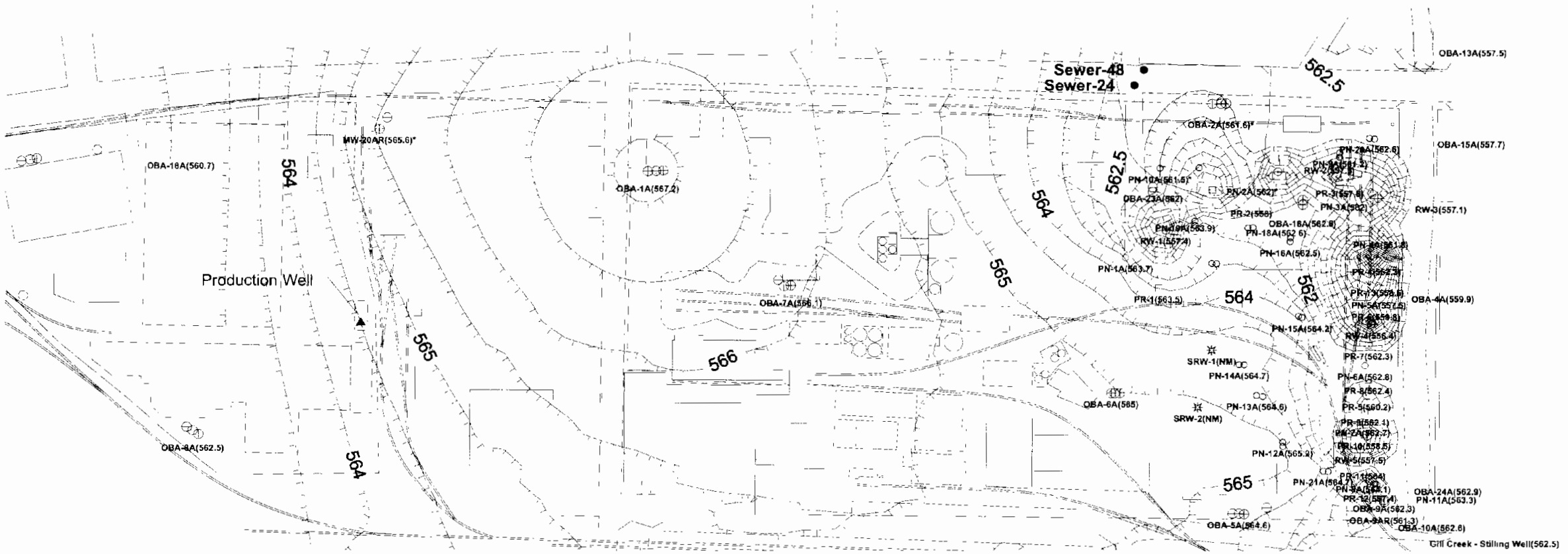
Prepared By: VUO 06/10/2008
Checked By: AWE 06/11/2008

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

WELL LOCATION MAP

Job No.: 6100-08-0001



LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ○ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ⊕ GROUNDWATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ✲ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE
- ——— 565 ——— ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- ——— EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- ESTIMATED DRY AREA IN ZONE A

Extraction Well	Average Flow Rate (gpm)***
RW-1	2.6
RW-2	29.5
RW-3	9.8
RW-4	2.8
RW-5	6.2
PR-4	0.8
PR-12	4.0
OBA-9AR	0.000

*** : Average daily flow rates for May 19, 2008.
: The water levels in RW-1, RW-3, RW-4, PR-4, and PR-12 were below the bottom of the A-zone.

0 200 400

Scale 1 inch = 200 feet

NOTES

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

NM - Not measured. Dupont contact not available

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well. The average diurnal elevation on May 19, 2008 (562.5 ft msl) was used in contouring the A zone.

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

Prepared By: VUO 06/10/2008
Checked By: AWE 06/11/2008

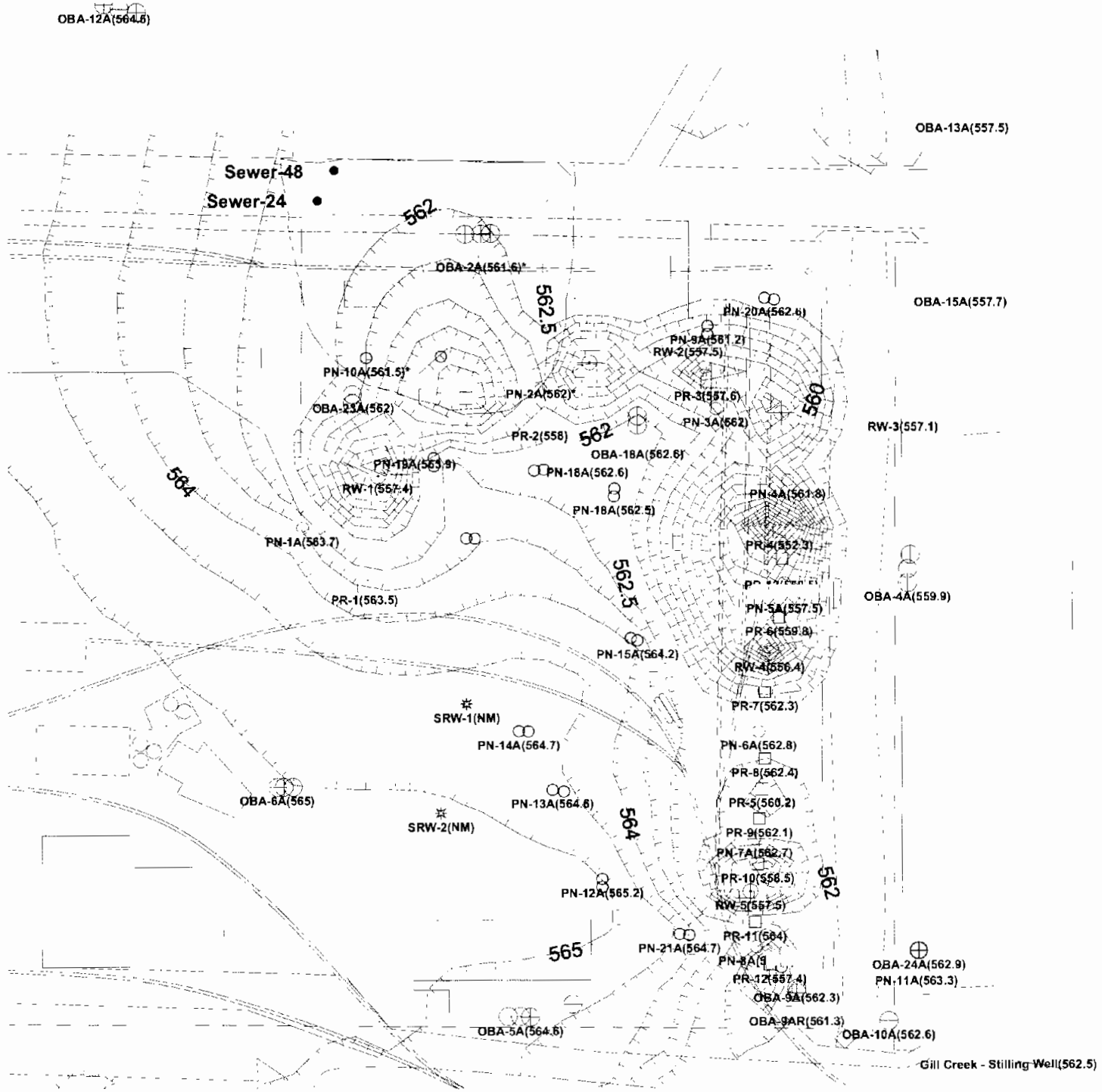
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

POTENTIOMETRIC SURFACE -- A ZONE
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 1



Extraction Well	Average Flow Rate (gpm)***
RW-1	2.6
RW-2	29.5
RW-3	9.8
RW-4	2.8
RW-5	6.2
PR-4	0.8
PR-12	4.0
OBA-9AR	0.000

*** : Average daily flow rates for May 19, 2008.
: The water levels in RW-1, RW-3, RW-4, PR-4, and PR-12 were below the bottom of the A-zone.

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ○ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ○ GROUND WATER RECOVERY WELLS
- ⊐ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ✲ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE
- 565 ——— ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- ——— EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- ESTIMATED DRY AREA IN THE A-ZONE

0 120 240
Scale 1 inch = 120 feet

NOTES

* : Well dry, elevation of bottom of A-Zone used in contouring.
** : Procasing damaged/concrete collar cracked
. 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.
● NM : Not measured. Dupont contact not available

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well. The average diurnal elevation on May 19, 2008 (562.5 ft msl) was used in contouring the A zone.

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

Prepared By VUO 06/10/2008
Checked By AWE 06/11/2008

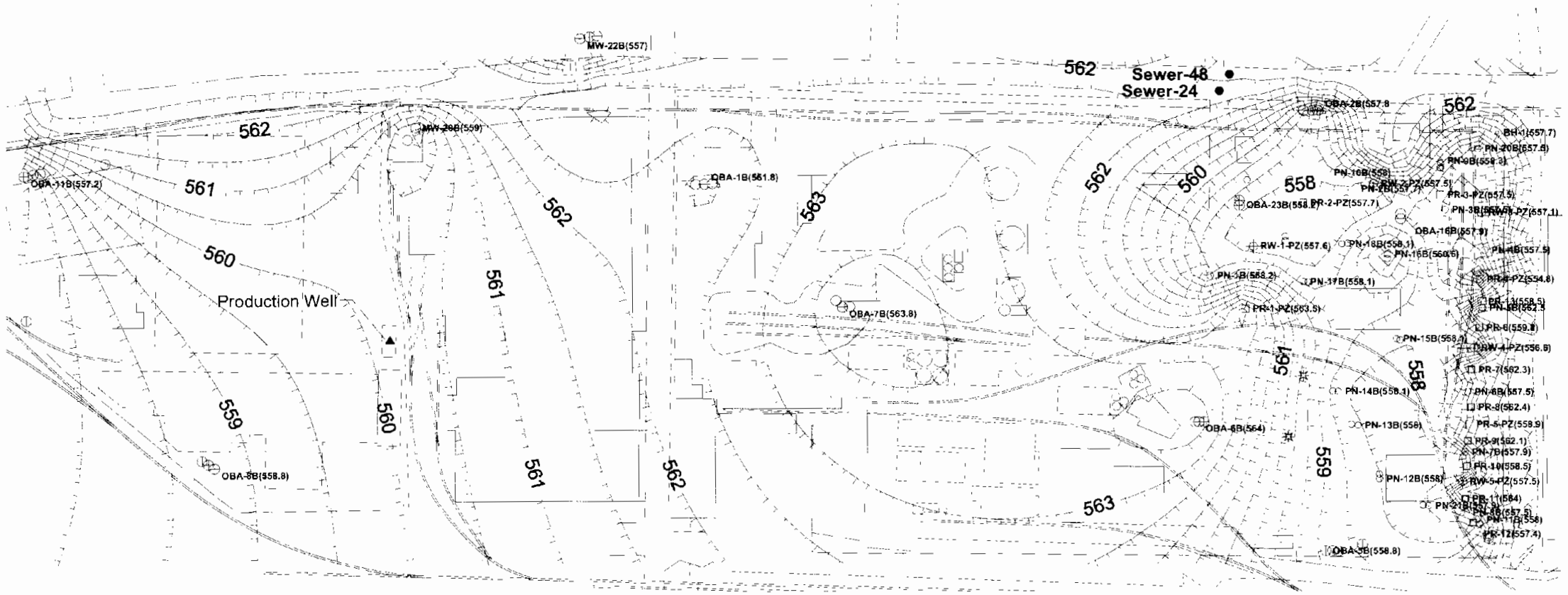
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

ARGC AREA
POTENTIOMETRIC SURFACE -- A ZONE
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 1A



N

0 200 400

Scale: 1 inch = 200 feet

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ⊖ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ○ GROUNDWATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ✲ SUPPLEMENTAL REMEDIATION WELL
- PROPERTY LINE
- 565 ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)

Extraction Well	Average Flow Rate (gpm)***
RW-1	2.6
RW-2	29.5
RW-3	9.8
RW-4	2.8
RW-5	6.2
PR-4	0.8
PR-12	4.0
OBA-9AR	0.000

*** : Average daily flow rates for May 19, 2008.
: The water levels in RW-1, RW-3, RW-4, PR-4, and PR-12 were below the bottom of the A-zone.

NOTES

- ▲ : Olin Production Well.
- ● : Buffalo Avenue Sewer invert is assumed to be a groundwater sink. The piezometric surface is not known. The ground water contours were estimated based on the sewer invert elevation. PN-2B elevation used as dummy points north of RW-2.
- . 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
- : Hypothetical data points (562.9 feet msl) added along southern portion of Gill Creek in area without monitoring wells to account for leakage.

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

Prepared By: VUO 06/10/2008
Checked By: AWE 06/11/2008

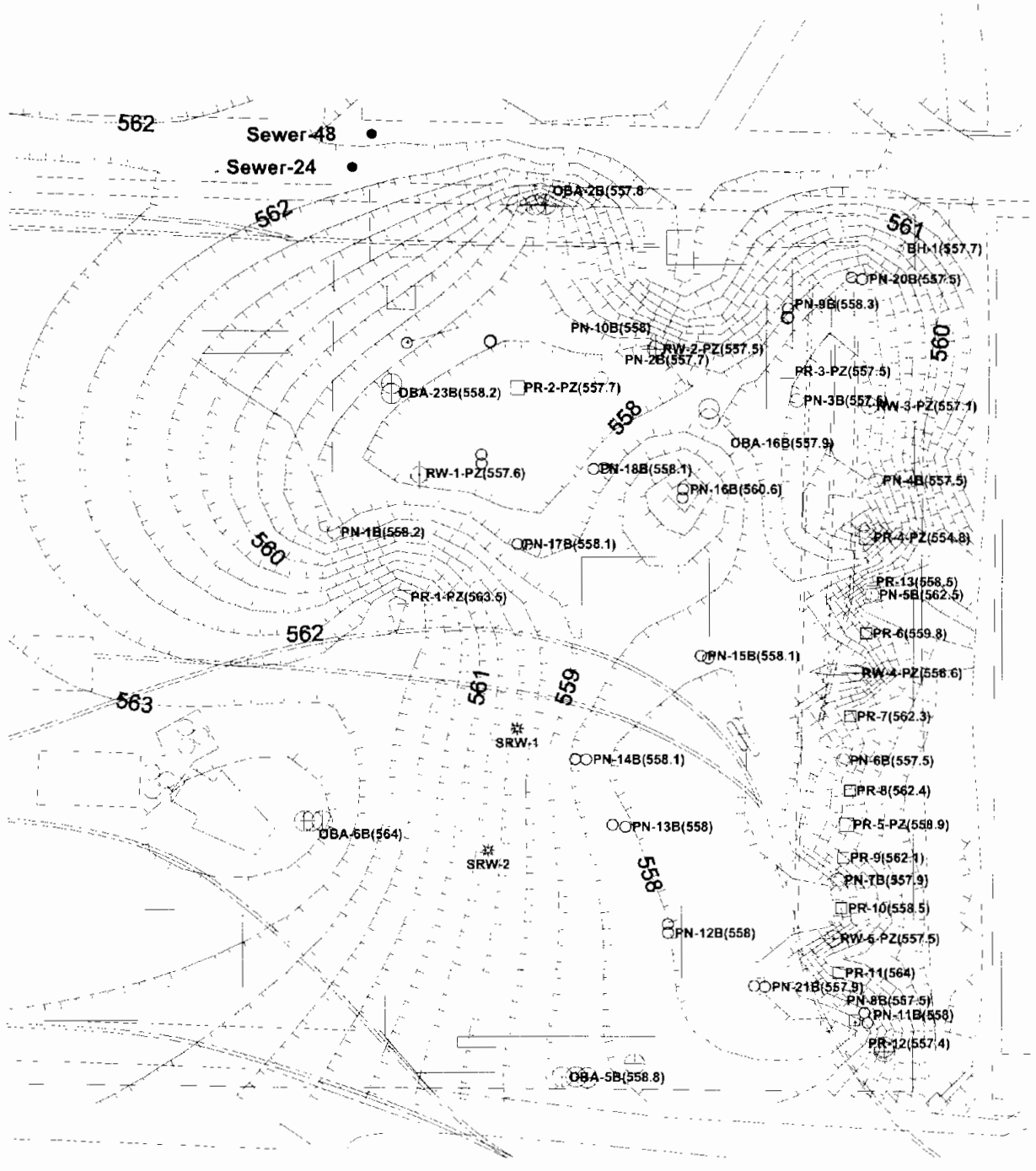
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

POTENTIOMETRIC SURFACE -- B ZONE
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 2



Extraction Well	Average Extraction Average Flow Rate (gpm)***
RW-1	2.6
RW-2	29.5
RW-3	9.8
RW-4	2.8
RW-5	6.2
PR-4	0.8
PR-12	4.0
OBA-9AR	0.000

*** : Average daily flow rates for May 19, 2008.
: The water levels in RW-1, RW-3, RW-4, PR-4, and PR-12 were below the bottom of the A-zone.

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ⊖ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ○ GROUND WATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ✲ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE
- 565 ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)

0 120 240

Scale: 1 inch = 120 feet

NOTES

* : Elevation not used in contouring.
▲ : Olin Production Well.
● : 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. PN-2B elevation used as dummy points north of RW-2.
: 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
: Hypothetical data points (562.9 feet msl) added along southern portion of Gill Creek in area without monitoring wells to account for leakage.

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

Prepared By: VUO 06/10/2008
Checked By: AWE 06/11/2008

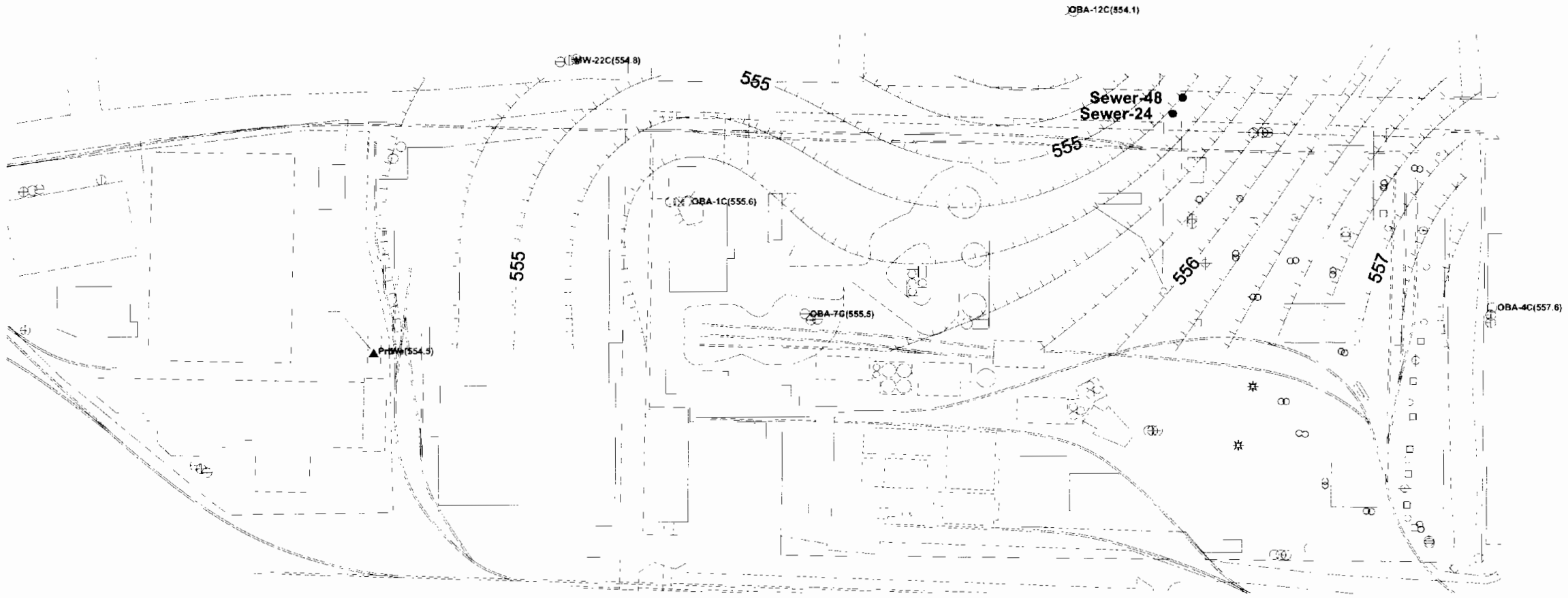
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

ARGC AREA
POTENTIOMETRIC SURFACE -- B ZONE
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 2A



N

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ○ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ⊖ GROUNDWATER RECOVERY WELLS (FLOW RATE FROM OMNISYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ——— PROPERTY LINE
- 565 ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)

Well	Average Flow Rate (gpm)
Olin Production Well	562

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

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

0 200 400
Scale 1 inch = 200 feet

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

Prepared By: VUO 06/10/2008
Checked By: AWE 06/11/2008

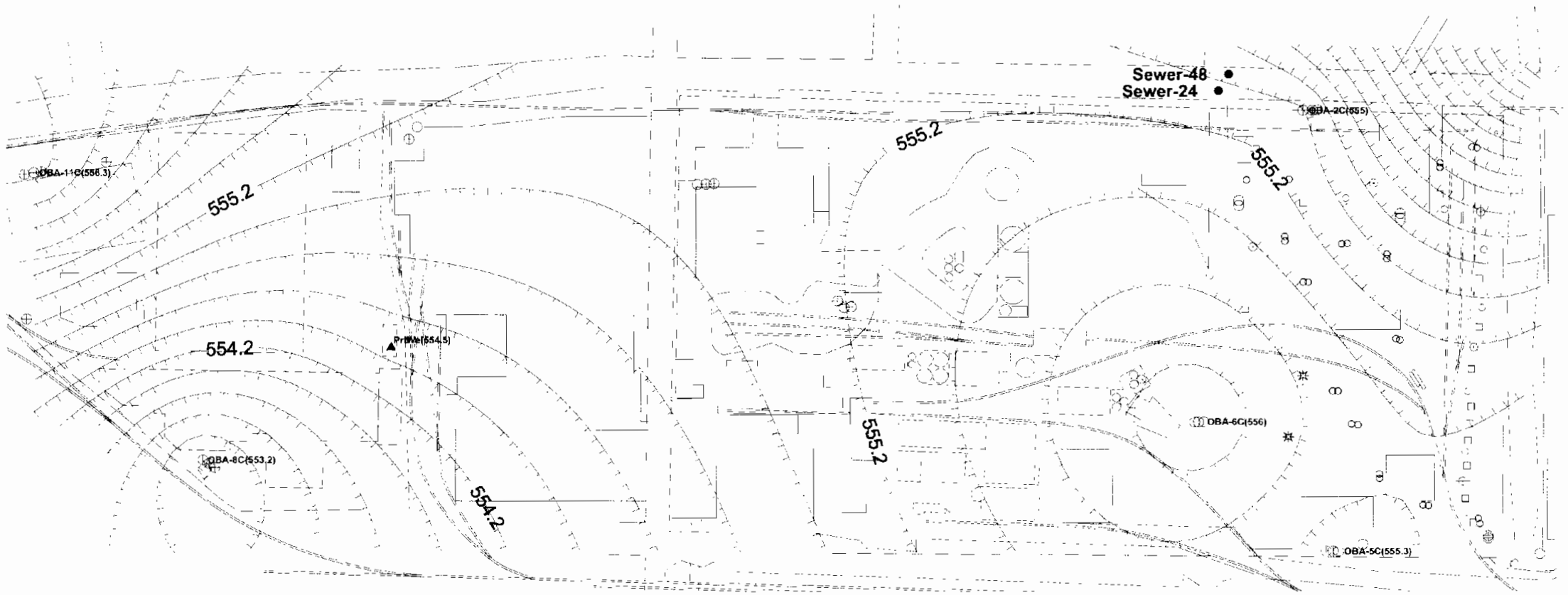
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

POTENTIOMETRIC SURFACE -- C ZONE
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 3



N

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ○ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ○ GROUNDWATER RECOVERY WELLS (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT

PROPERTY LINE

565 ESTIMATED GROUNDWATER CONTOUR LINES

Well	Average Flow Rate (gpm)
Olin Production Well	562

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

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

0 200 400
Scale 1 inch = 200 feet

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

Prepared By VUO 06/10/2008
Checked By: AWE 06/11/2008

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

POTENTIOMETRIC SURFACE -- CD ZONE
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 4

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ⓘ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ⊕ GROUNDWATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ✲ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE
- — 565 — ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)
- ——— EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION
- ESTIMATED DRY AREA IN ZONE A

Extraction Well	Average Flow Rate (gpm)***
RW-1	2.0
RW-2	28.6
RW-3	2.9
RW-4	9.7
RW-5	10.7
PR-4	9.0
PR-12	6.0
OBA-9AR	0.060

*** : Average daily flow rates for August 11, 2008.
: The water levels in RW-1, RW-3, RW-4, and PR-12 were below the bottom of the A-zone.

0 200 400

Scale 1 inch = 200 feet

NOTES

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

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well. The average diurnal elevation on August 12, 2008 (562.7 ft msl) was used in contouring the A zone.

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

Prepared By: VUO 09/05/2008
Checked By: AWE 09/05/2008

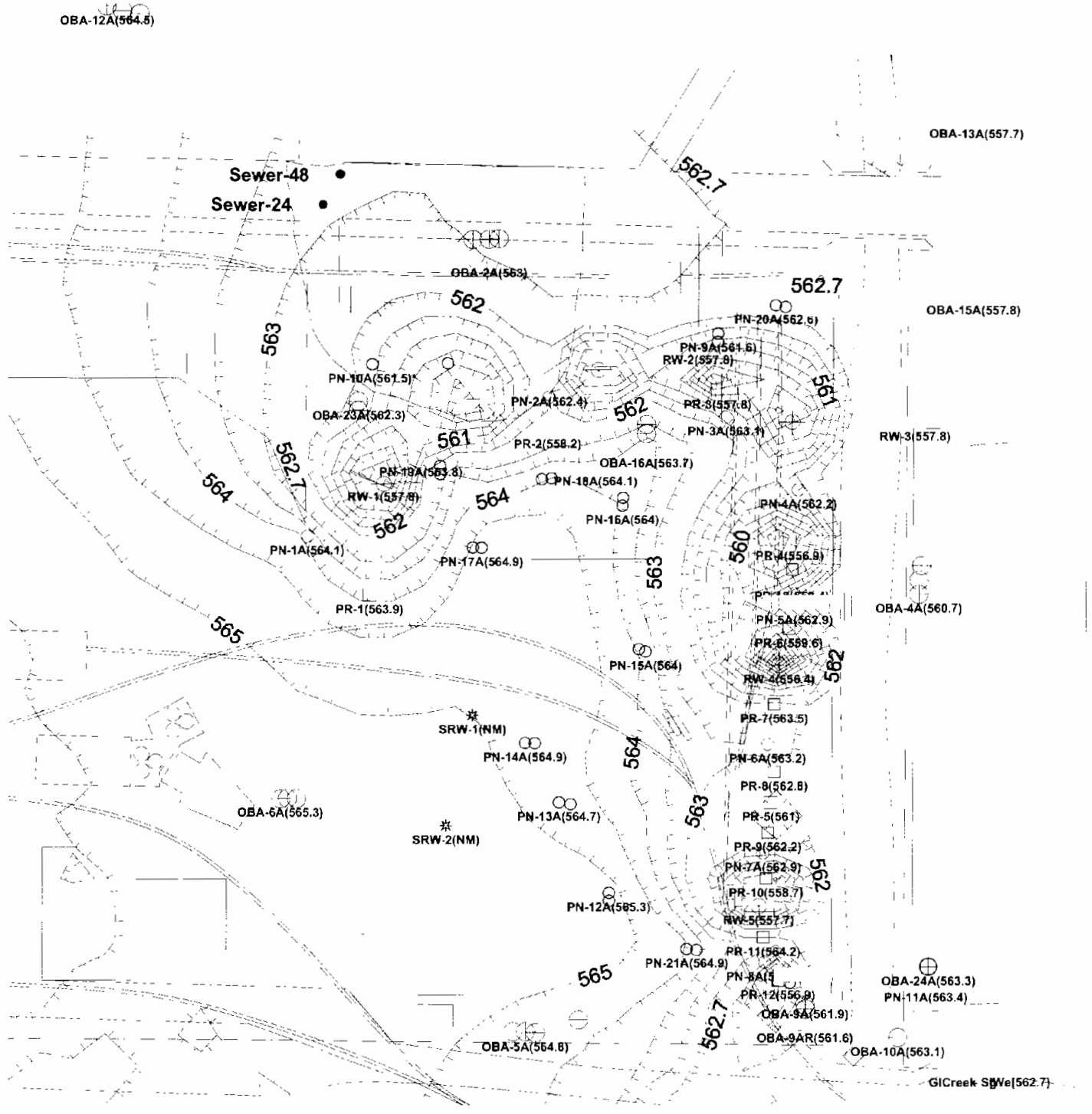
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

POTENTIOMETRIC SURFACE -- A ZONE (AUGUST 12, 2008)

Job No.: 6100-08-0001

Figure 5



Extraction Well	Average Flow Rate (gpm)*
RW-1	2.0
RW-2	28.6
RW-3	2.9
RW-4	9.7
RW-5	10.7
PR-4	9.0
PR-12	6.0
OBA-9AR	0.060

*: Average daily flow rates for August 11, 2008.
: The water levels in RW-1, RW-3, RW-4, and PR-12 were below the bottom of the A-zone.

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ⊙ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ○ GROUND WATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ✲ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE
- 565 ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0 5 FOOT)
- ——— EQUIPOTENTIAL CONTOUR EQUIVALENT TO GILL CREEK ELEVATION

ESTIMATED DRY AREA IN TH A-ZONE

0 120 240
Scale 1 inch = 120 feet

NOTES

* : Well dry, elevation of bottom of A-Zone used in contouring.
* : Procasing damaged/concrete collar cracked
● : 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 th e A-zone along Buffalo Avenue was estimated from borings OBA-1A OBA-2A, OBA-3A, and OBA -11A.

The Gill Creek elevation is continuously monitored (1 hr intervals), using a data logging transducer installed in the Gill Creek stilling well. The average diurnal elevation on August 12, 2008 (562.7 ft msl) was used in contouring the A zone.

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

Prepared By: VUO 09/05/2008
Checked By AWE 09/05/2008

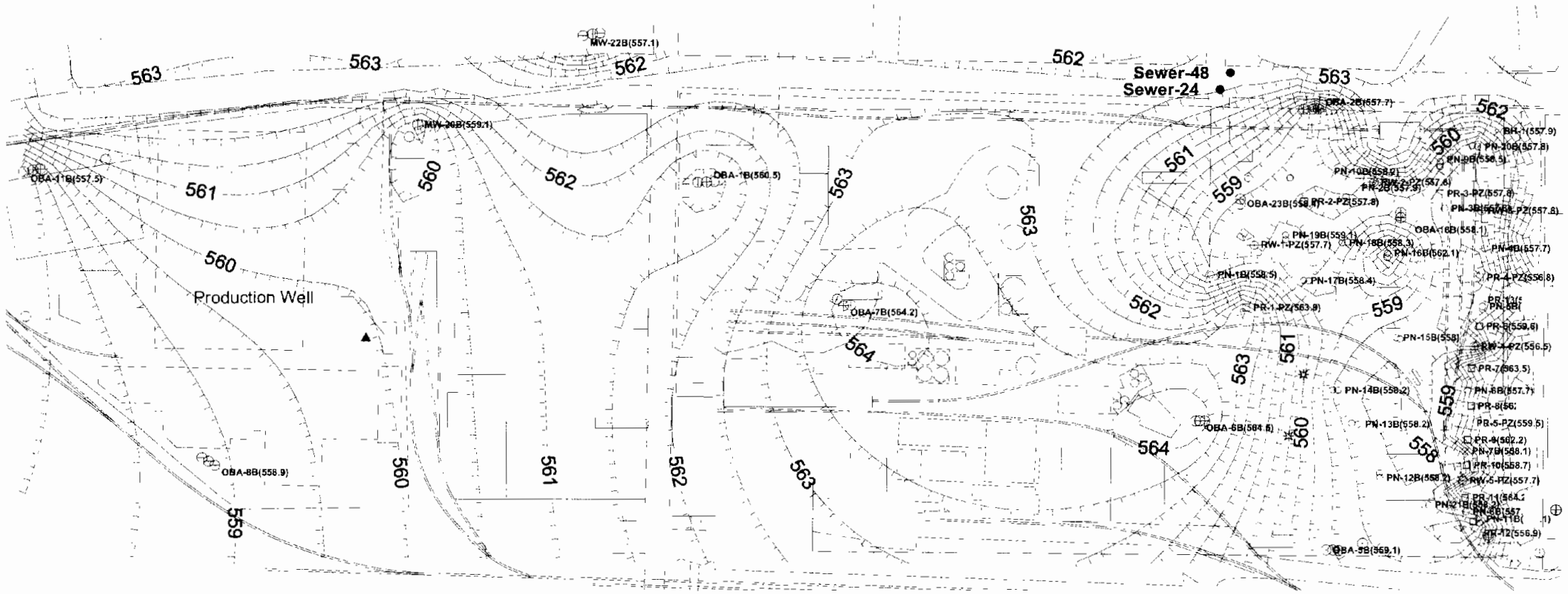
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

ARGC AREA
POTENTIOMETRIC SURFACE -- A ZONE
(AUGUST 12, 2008)

Job No.: 6100-08-0001

Figure 5A



0 200 400

Scale: 1 inch = 200 feet

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ⊖ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ○ GROUNDWATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ✲ SUPPLEMENTAL REMEDIATION WELL
- PROPERTY LINE
- 565 ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)

Extraction Well	Average Flow Rate (gpm)***
RW-1	2.0
RW-2	28.6
RW-3	2.9
RW-4	9.7
RW-5	10.7
PR-4	9.0
PR-12	6.0
OBA-9AR	0.060

*** : Average daily flow rates for August 11, 2008.
: The water levels in RW-1, RW-3, RW-4, and PR-12 were below the bottom of the A-zone.

NOTES

▲ . Olin Production Well.
● : Buffalo Avenue Sewer invert is assumed to be a groundwater 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
: Hypothetical data points (562.7 feet msl) added along southern portion of Gill Creek in area without monitoring wells to account for leakage.

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

Prepared By: VUO 09/05/2008
Checked By: AWE 09/05/2008

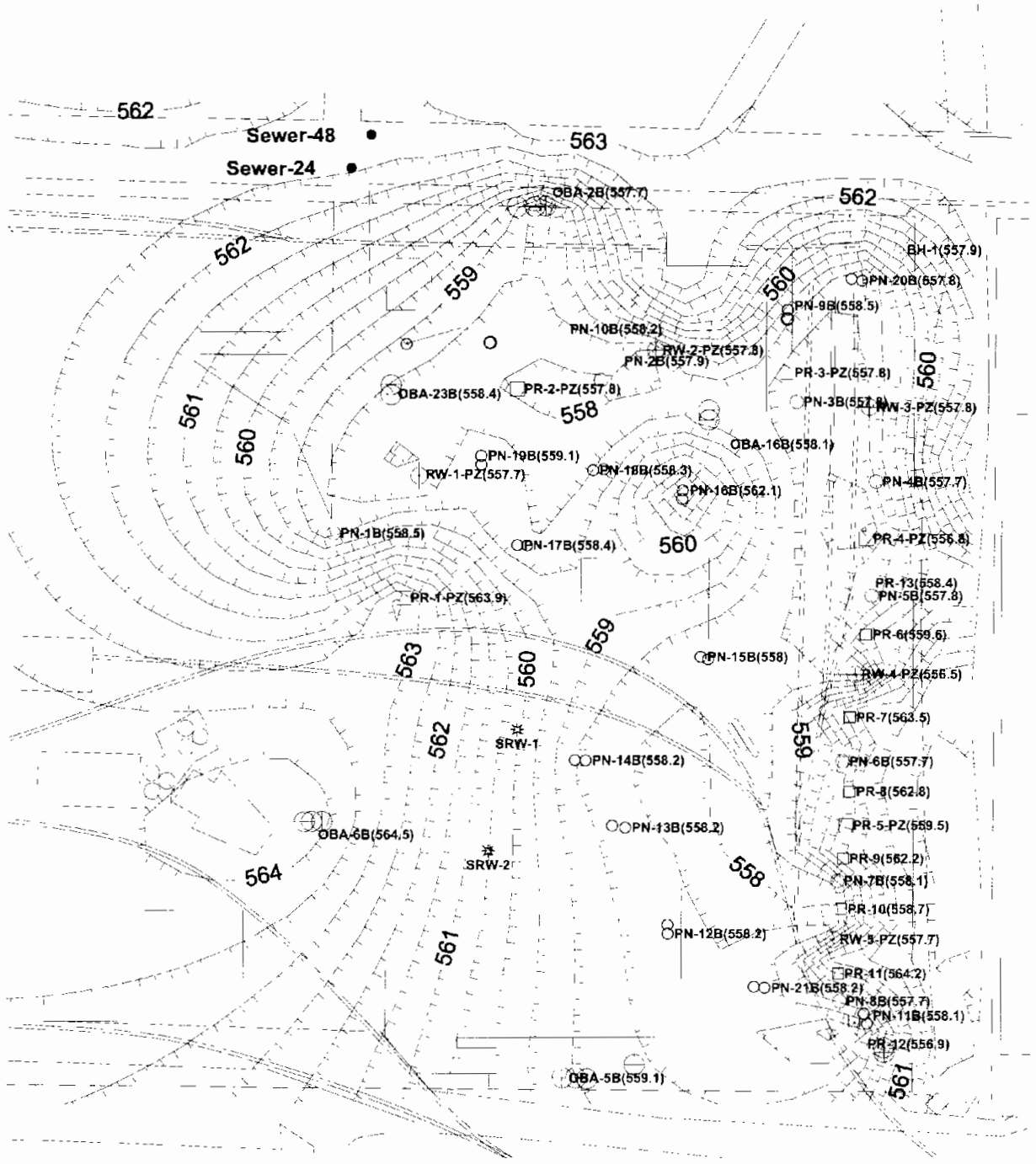
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

POTENTIOMETRIC SURFACE -- B ZONE
(AUGUST 12, 2008)

Job No.: 6100-08-0001

Figure 6



Extraction Well	Average Flow Rate (gpm)***
RW-1	2.0
RW-2	28.6
RW-3	2.9
RW-4	9.7
RW-5	10.7
PR-4	9.0
PR-12	6.0
OBA-9AR	0.060

*** : Average daily flow rates for August 11, 2008.
: The water levels in RW-1, RW-3, RW-4, and PR-12 were below the bottom of the A-zone.

N

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ○ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ○ GROUND WATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ✲ SUPPLEMENTAL REMEDIATION WELL
- ——— PROPERTY LINE
- 565 ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)

0 120 240

Scale: 1 inch = 120 feet

NOTES

* : Elevation not used in contouring.
▲ : Olin Production Well.
● : 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
: Hypothetical data points (562.7 feet msl) added along southern portion of Gill Creek in area without monitoring wells to account for leakage.

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

Prepared By: VUO 09/10/2008
Checked By: AWE 09/11/2008

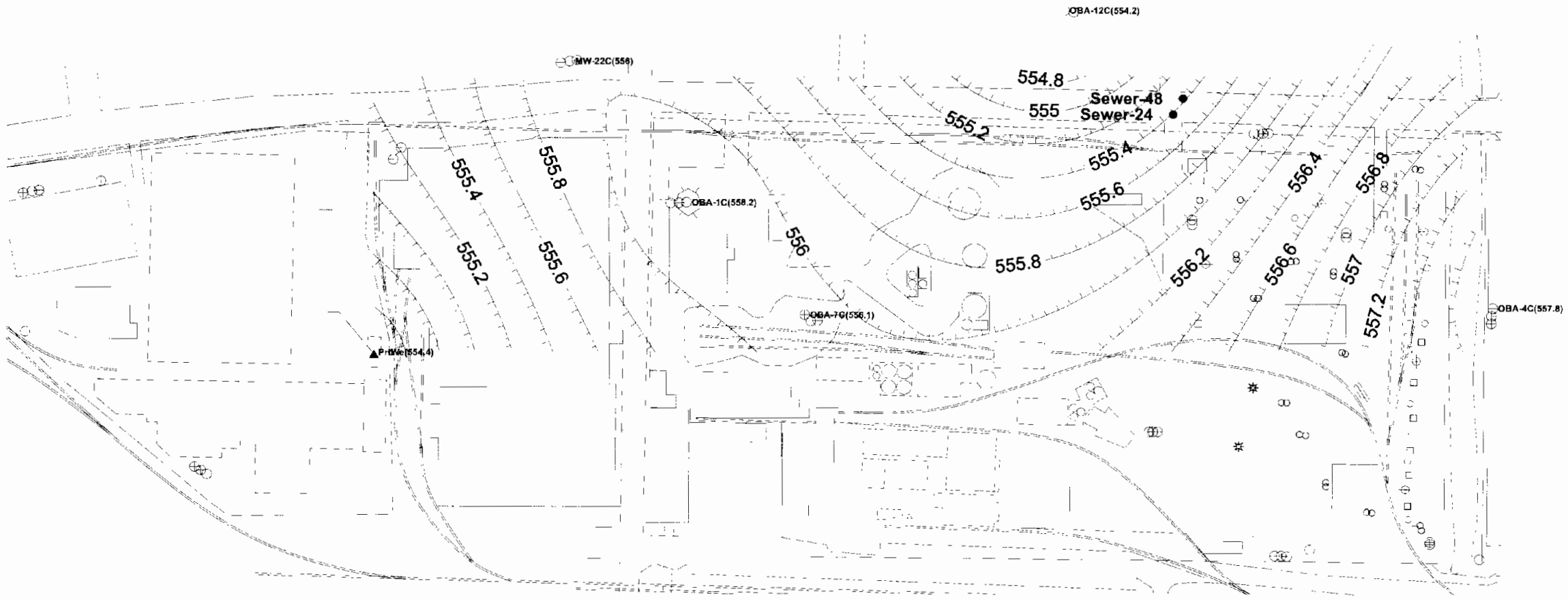
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

ARGC AREA
POTENTIOMETRIC SURFACE -- B ZONE
(AUGUST 12, 2008)

Job No.: 6100-08-0001

Figure 6A



LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ○ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ⊖ GROUNDWATER RECOVERY WELLS (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ——— PROPERTY LINE
- 565 ESTIMATED GROUNDWATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FOOT)

Well	Average Flow Rate (gpm)
Olin Production Well	575

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

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

0 200 400
Scale 1 inch = 200 feet

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

Prepared By: VUO 09/10/2008
Checked By: AWE 09/11/2008

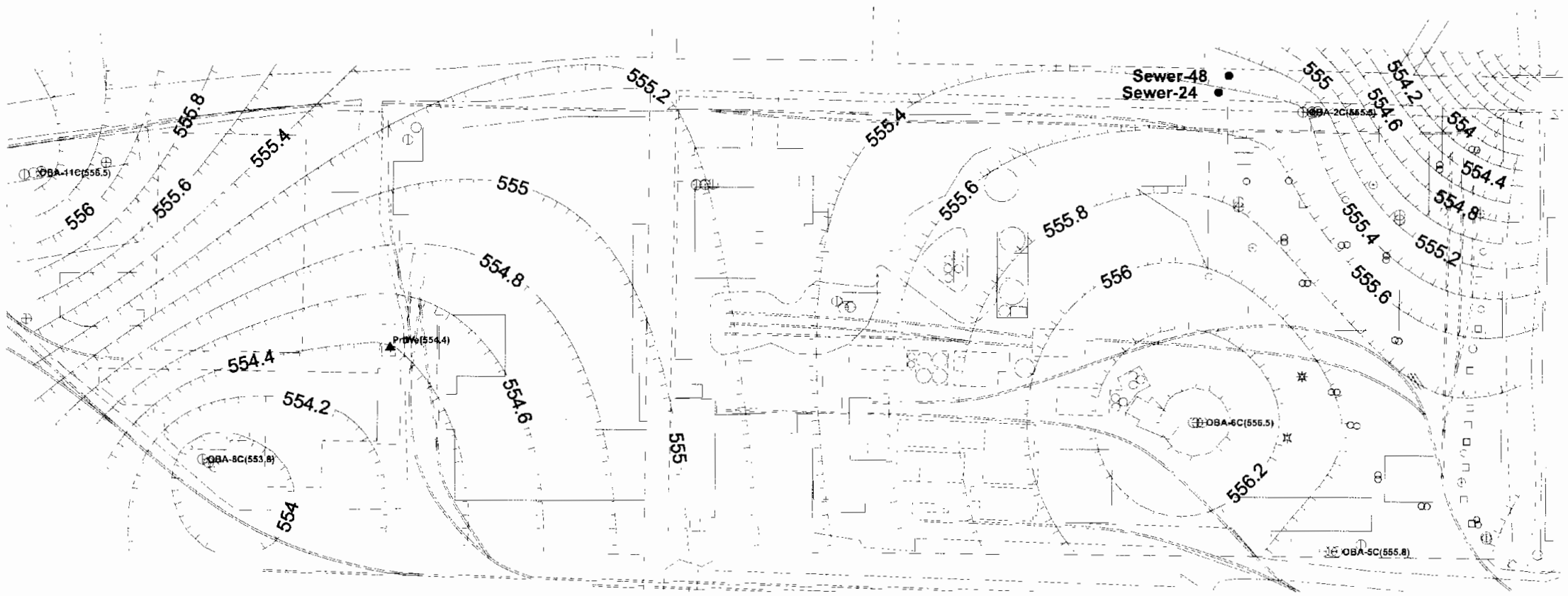
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

POTENTIOMETRIC SURFACE -- C ZONE
(AUGUST 12,, 2008)

Job No.: 6100-08-0001

Figure 7



N

LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL (FLOW RATE FROM DUPONT)
- ○ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ○ GROUNDWATER RECOVERY WELLS (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ——— PROPERTY LINE
- 565 ESTIMATED GROUNDWATER CONTOUR LINES

Well	Average Flow Rate (gpm)
Olin Production Well	575

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

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

0 200 400
Scale 1 inch = 200 feet

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

Prepared By VUO 09/10/2008
Checked By AWE 09/11/2008

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

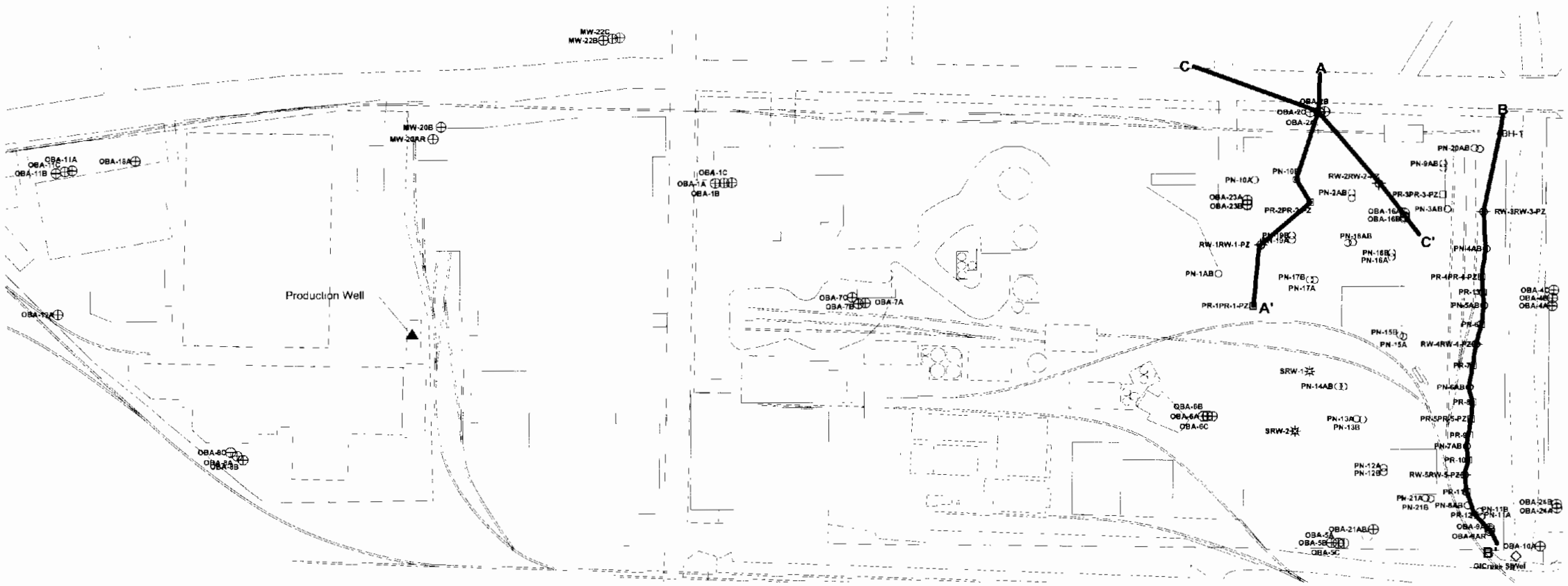
MACTEC

POTENTIOMETRIC SURFACE -- CD ZONE
(AUGUST 12, 2008)

Job No.: 6100-08-0001

Figure 8

CROSS SECTIONS



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: LMS 01/03/2007
Checked By: AWE 01/05/2007

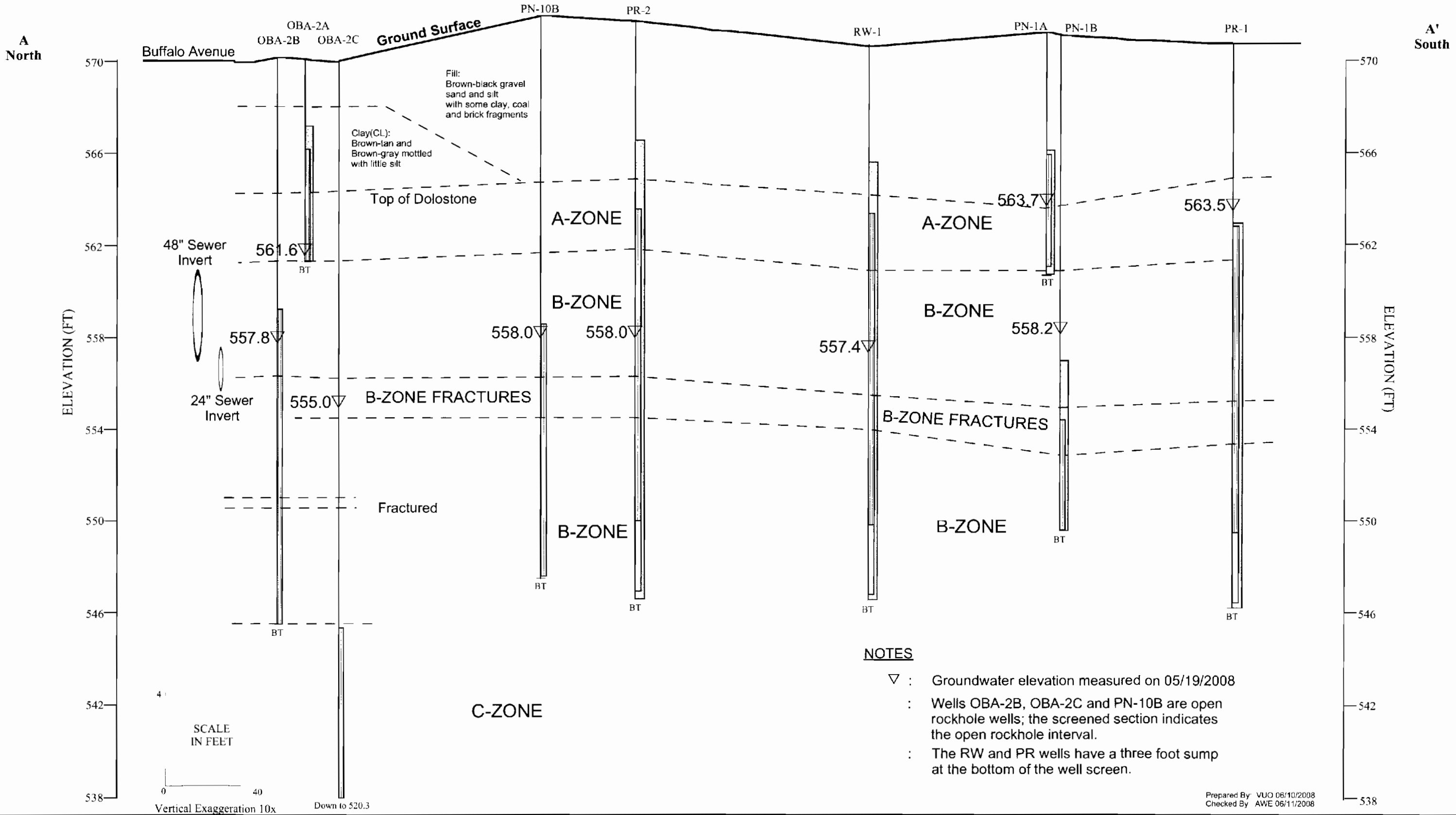
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

CROSS SECTION LOCATION MAP
(FEBRUARY 6, 2006)

Job No.: 6100-08-0001

Figure 9



NOTES

▽ : Groundwater elevation measured on 05/19/2008

: 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.

Prepared By: VUO 06/10/2008
Checked By: AWE 06/11/2008

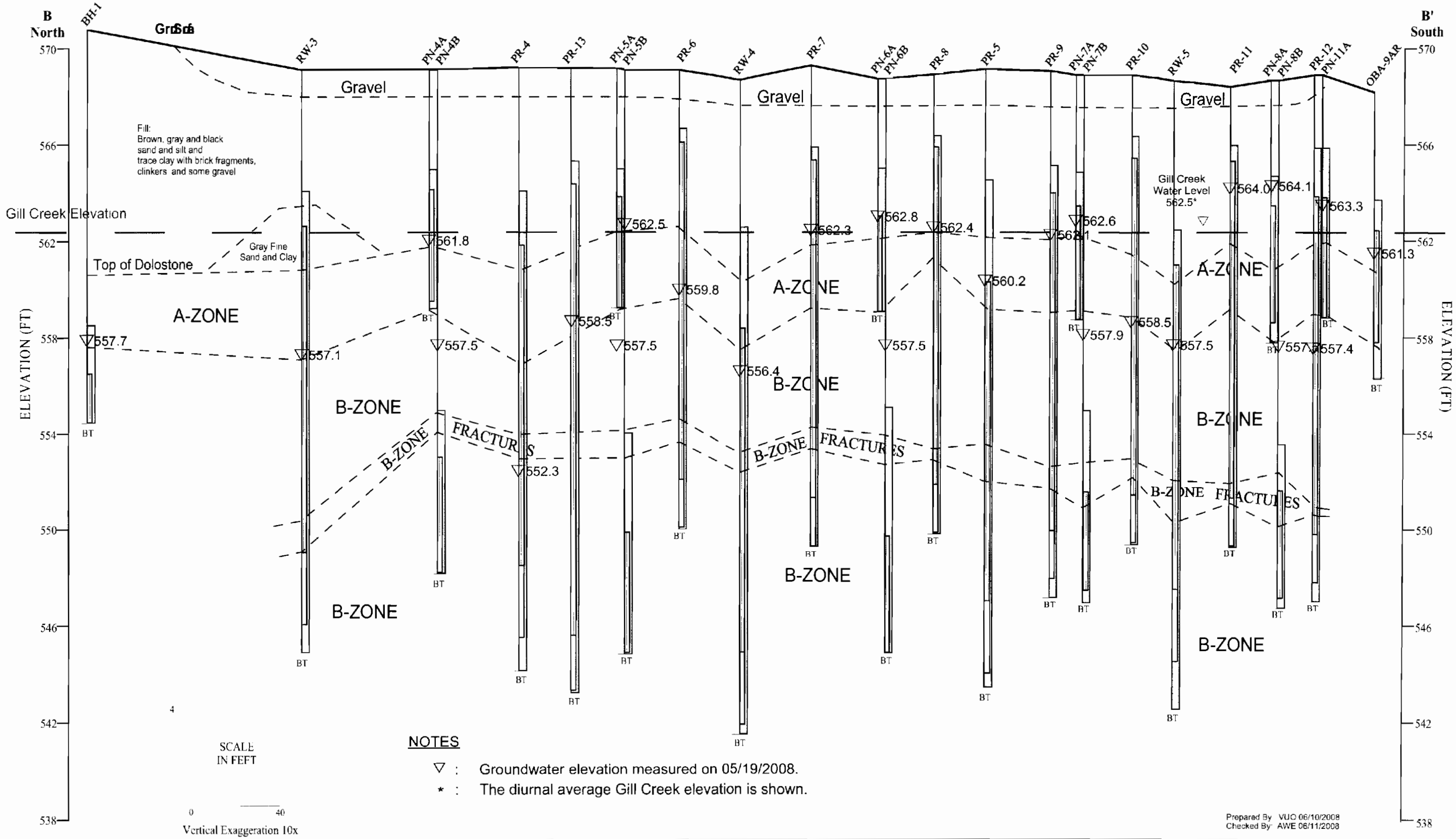
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

HYDROGEOLOGIC CROSS SECTION AA'
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 10



NOTES

▽ : Groundwater elevation measured on 05/19/2008.

* : The diurnal average Gill Creek elevation is shown.

Prepared By VUO 06/10/2008
Checked By AWE 06/11/2008

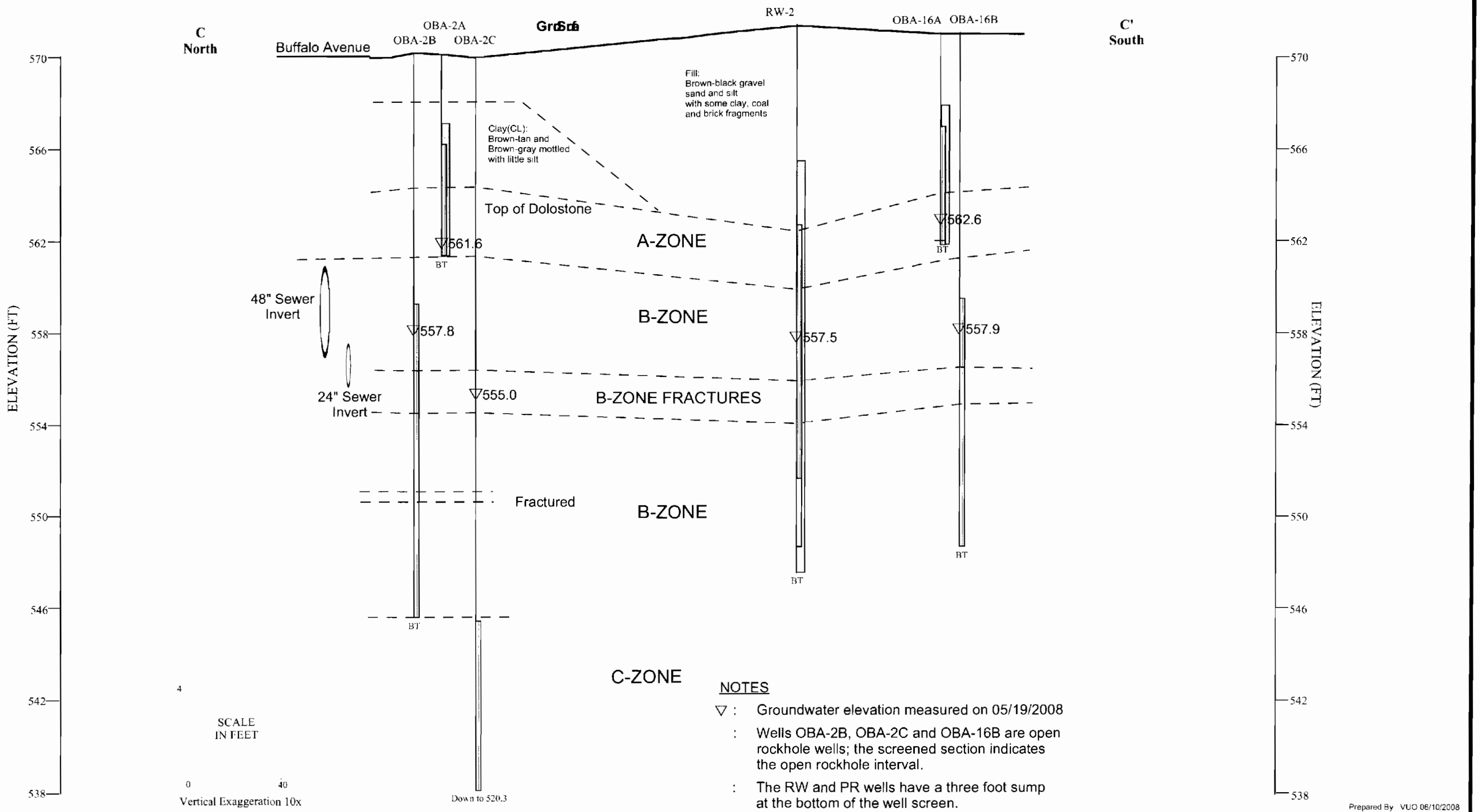
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

HYDROGEOLOGIC CROSS SECTION BB'
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 11



NOTES

▽ : Groundwater elevation measured on 05/19/2008

: 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.

Prepared By VUO 06/10/2008
Checked By AWE 06/11/2008

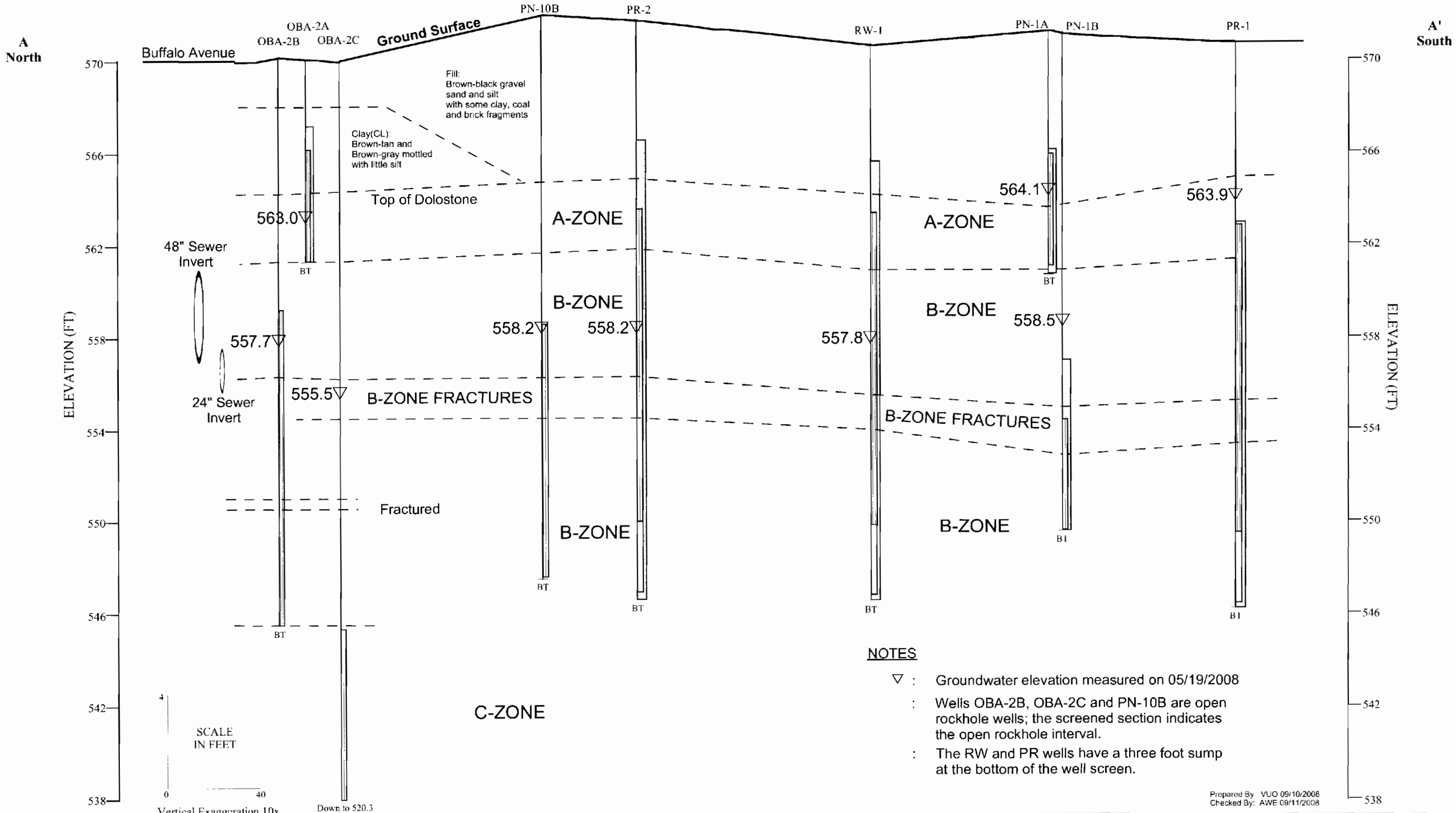
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

HYDROGEOLOGIC CROSS SECTION CC'
(MAY 19, 2008)

Job No.: 6100-08-0001

Figure 12



NOTES

▽ : Groundwater elevation measured on 05/19/2008

: 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.

Prepared By VUO 09/10/2008
Checked By: AWE 09/11/2008

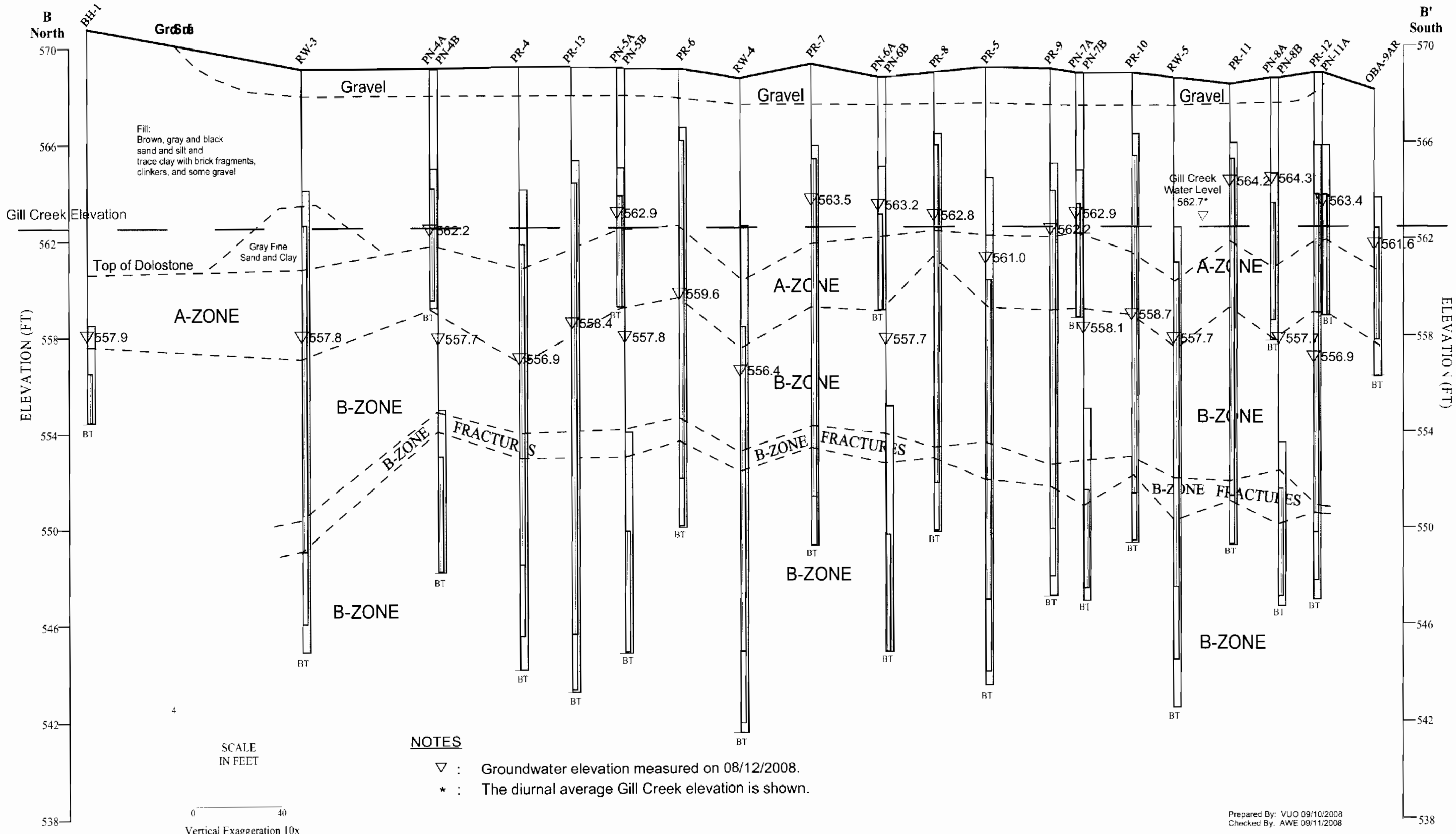
OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

HYDROGEOLOGIC CROSS SECTION AA'
(AUGUST 12, 2008)

Job No.: 6100-08-0001

Figure 13



SCALE
IN FEET

0 40

Vertical Exaggeration 10x

NOTES

▽ : Groundwater elevation measured on 08/12/2008.

* : The diurnal average Gill Creek elevation is shown.

Prepared By: VUO 09/10/2008
Checked By: AWE 09/11/2008

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

HYDROGEOLOGIC CROSS SECTION BB'
(AUGUST 12, 2008)

Job No.: 6100-08-0001

Figure 14

C
North

C'
South

Buffalo Avenue

OBA-2A
OBA-2B
OBA-2C
RW-2
OBA-16A
OBA-16B

Fill:
Brown-black gravel
sand and silt
with some clay, coal
and brick fragments

Clay(CL):
Brown-tan and
Brown-gray mottled
with little silt

Top of Dolostone

A-ZONE

B-ZONE

B-ZONE FRACTURES

Fractured

B-ZONE

C-ZONE

561.6
562.6
557.8
557.5
557.9
555.0

BT

48" Sewer
Invert

24" Sewer
Invert

ELEVATION (FT)

570
566
562
558
554
550
546
542
538

SCALE
IN FEET
0
40
4

Vertical Exaggeration 10x

Down to 520.3

NOTES

▽ : Groundwater elevation measured on 08/12/2008

: 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.

Prepared By: VUO 09/10/2008
Checked By: AWE 09/11/2008

OLIN CORPORATION
NIAGARA FALLS, NEW YORK

MACTEC

HYDROGEOLOGIC CROSS SECTION CC'
(AUGUST 12, 2008)

Job No.: 6100-08-0001

Figure 15

HYDROGRAPHS

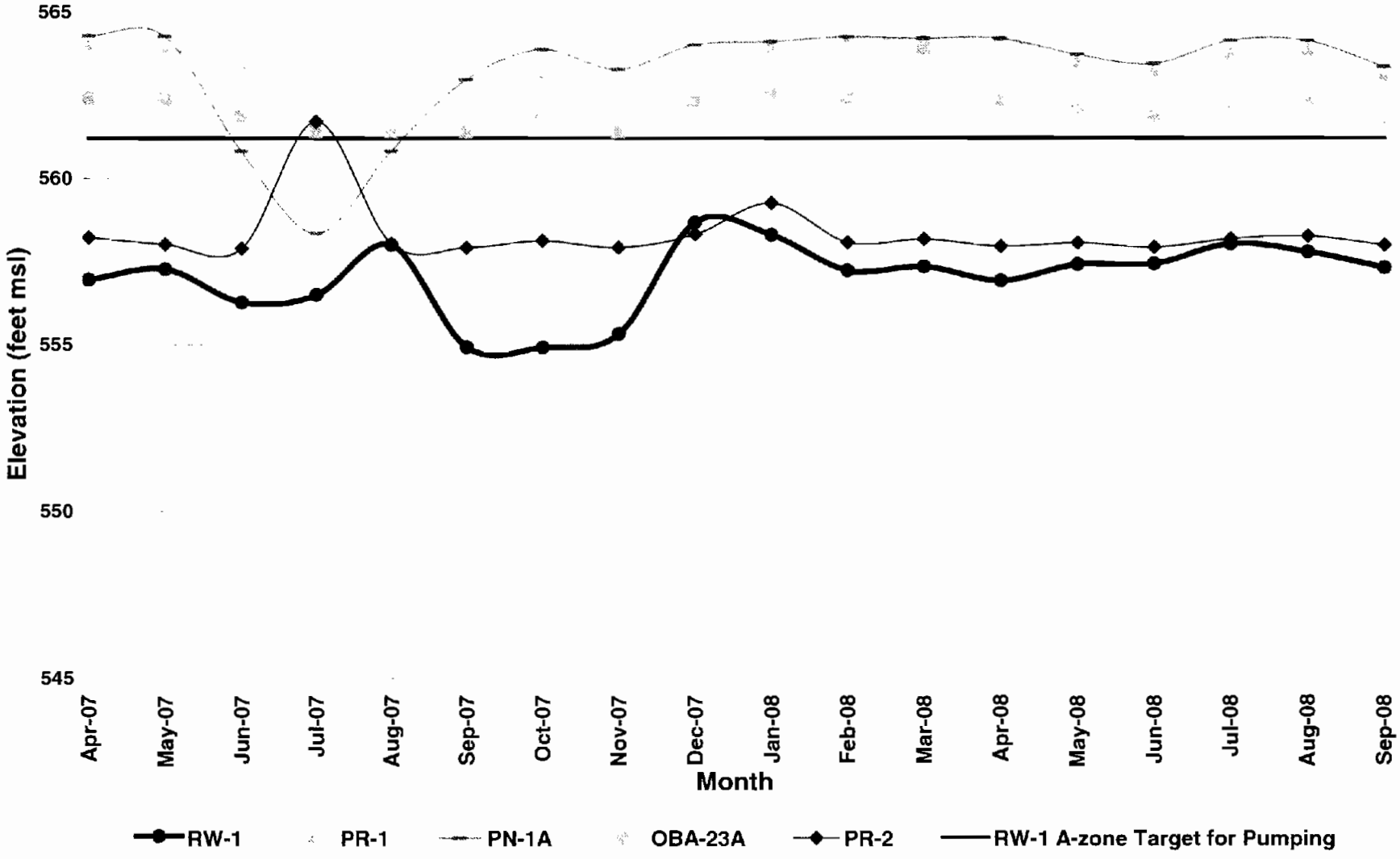
Table A-1
A-Zone
RW-1 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
PR-1	564.00	563.90	563.40	563.04	563.09	562.63	563.18	562.75	563.53	563.98	564.12	564.20	564.20	563.51	563.21	563.76	563.87	563.11
PN-1A	564.29	564.27	560.80	558.33	569.80	562.95	563.87	563.26	564.00	564.10	564.25	564.20	564.20	563.72	563.44	564.12	564.12	563.35
RW-1	556.95	557.26	556.26	556.48	557.99	554.91	554.90	555.30	558.66	558.28	557.21	557.33	556.91	557.40	557.41	558.01	557.77	557.30
OBA-23A	562.41	562.36	561.81	561.40	561.40	561.40	561.89	561.40	562.29	562.51	562.40	563.86	562.31	562.04	561.82	562.17	562.30	561.64
PR-2	558.21	558.00	557.88	561.70	558.02	557.90	558.11	557.90	558.30	559.24	558.06	558.16	557.94	558.04	557.91	558.16	558.24	557.97
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	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 : AWE 10/1/08
Checked by: CMB 10/1/2008

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



msl - mean sea level

Prepared by : AWE 10/1/2008
Checked by. CMB 10/1/2008

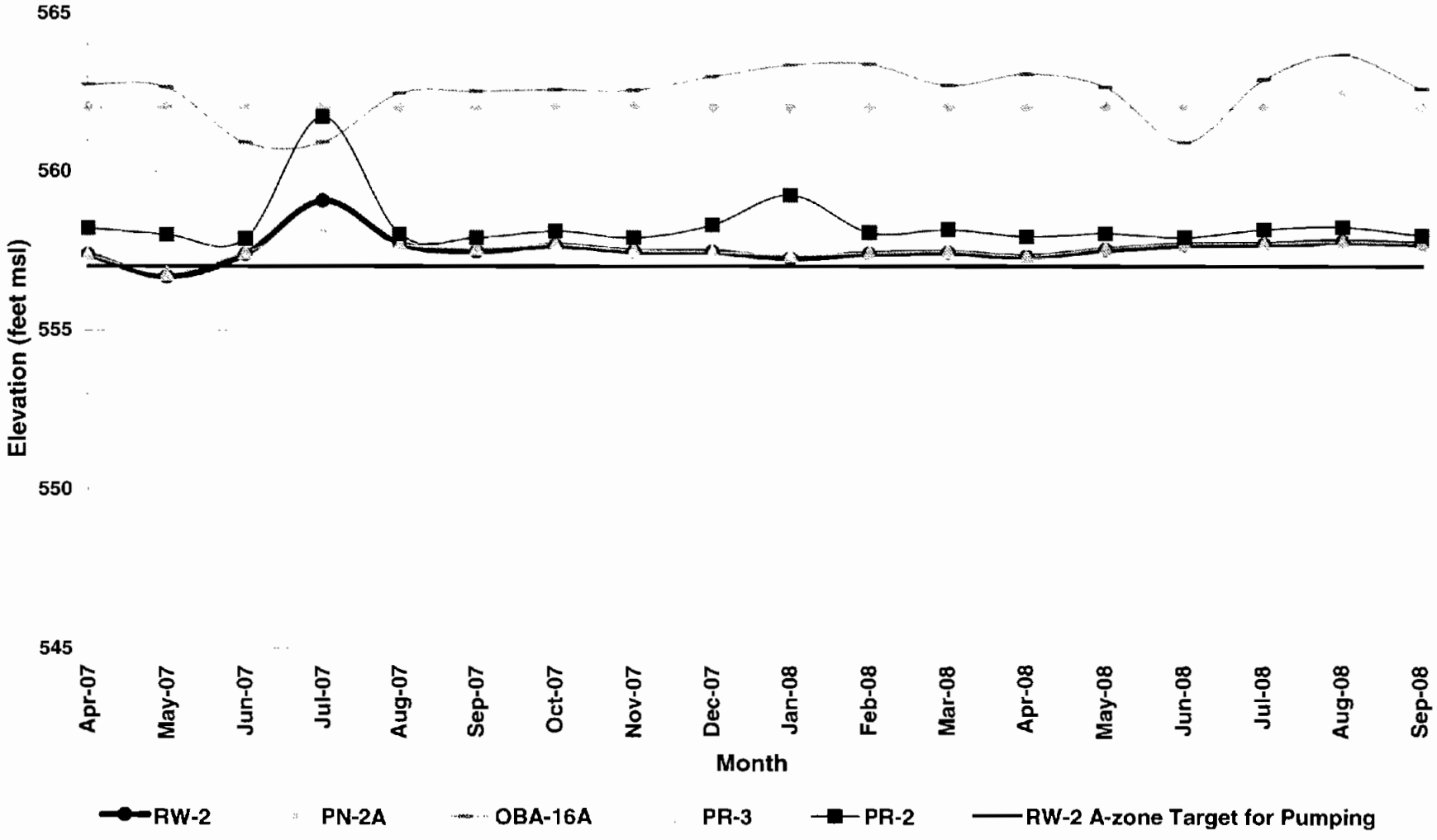
Table A-2
A-Zone
RW-2 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
PN-2A*	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.00	562.42	562.00
RW-2	557.38	556.68	557.39	559.07	557.72	557.47	557.65	557.47	557.46	557.25	557.40	557.44	557.31	557.53	557.68	557.70	557.79	557.71
OBA-16A	562.74	562.64	560.90	560.90	562.45	562.51	562.56	562.54	562.97	563.33	563.37	562.70	563.06	562.64	560.90	562.89	563.67	562.59
PR-3	557.38	556.78	557.45	558.20	557.70	557.58	557.69	557.50	557.45	557.35	557.42	557.48	557.34	557.57	557.71	557.72	557.79	557.73
PR-2	558.21	558.00	557.88	561.70	558.02	557.90	558.11	557.90	558.30	559.24	558.06	558.16	557.94	558.04	557.91	558.16	558.24	557.97
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	557.00	557.00

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

Prepared by : AWE 10/1/08
Checked by: CMB 10/1/2008

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



Prepared by AWE 10/1/2008
Checked by: CMB 10/1/2008

msl - mean sea level

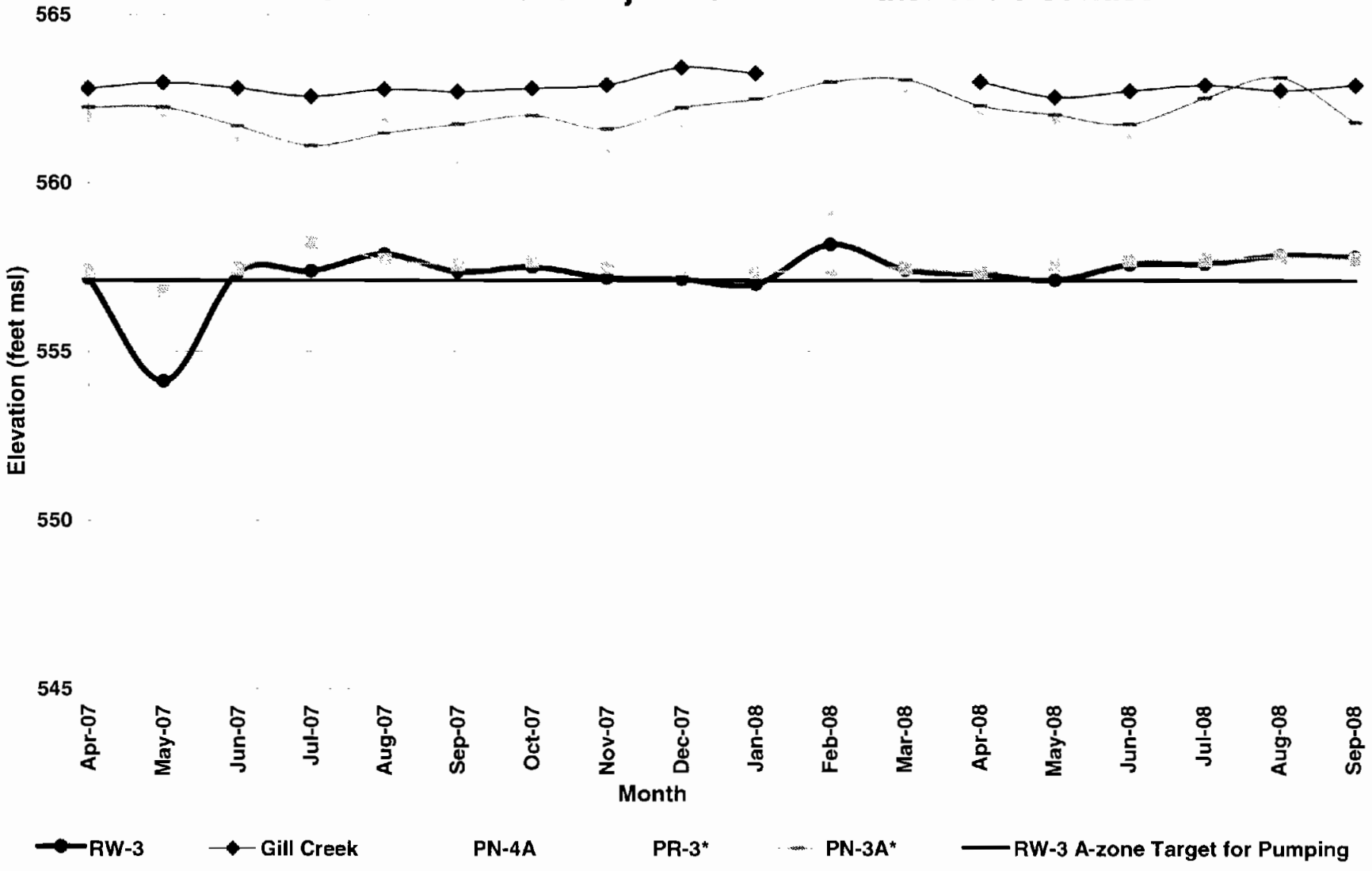
Table A-3
A-Zone
RW-3 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
Gill Creek - Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
PN-3A	562.23	562.23	561.67	561.09	561.45	561.72	561.97	561.58	562.21	562.47	562.98	563.06	562.28	562.01	561.74	562.51	563.12	561.79
RW-3	557.17	554.11	557.33	557.38	557.88	557.36	557.49	557.17	557.13	556.98	558.17	557.42	557.29	**557.11**	557.57	557.59	557.84	557.80
PN-4A	561.96	561.98	561.26	560.87	561.87	560.57	561.29	560.90	561.69	561.77	559.10	562.69	562.05	561.84	561.36	561.93	562.24	561.16
PR-3	557.38	556.78	557.45	558.20	557.70	557.58	557.69	557.50	557.45	557.35	557.42	557.48	557.34	557.57	557.71	557.72	557.79	557.73
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	557.10	557.10	557.10

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

Prepared by : AWE 10/1/08
Checked by: CMB 10/1/2008

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



Prepared by AWE 10/1/2008
Checked by CMB 10/1/2008

msl - mean sea level

Table A-4

A-Zone

RW-4 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
Gill Creek -Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
PN-5A	562.50	562.58	562.20	561.91	559.10	562.00	562.28	562.08	562.41	562.63	562.93	562.81	562.53	557.49	562.26	562.67	562.93	562.31
PR-13**	559.17	558.80	561.82	558.66	558.76	558.15	558.54	558.21	558.36	558.58	558.55	558.70	558.80	558.50	558.42	558.58	558.38	558.08
RW-4	556.79	555.02	557.54	557.46	557.66	557.45	557.55	557.25	557.36	557.16	557.29	557.00	556.78	556.42	557.61	557.55	556.39	556.66
PN-6A	563.30	563.27	562.69	562.43	559.20	562.17	562.66	562.36	562.96	562.99	563.35	563.29	563.06	562.82	562.56	563.02	563.23	562.43
PR-6*	562.53	560.11	559.99	559.70	559.47	559.09	559.44	559.28	559.48	559.82	559.85	559.99	560.07	559.80	559.56	559.74	559.58	559.19
PR-7*	562.53	562.53	562.31	562.05	561.87	561.54	562.02	561.77	562.22	562.40	562.51	563.94	562.38	562.26	562.07	562.37	563.45	562.06
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	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

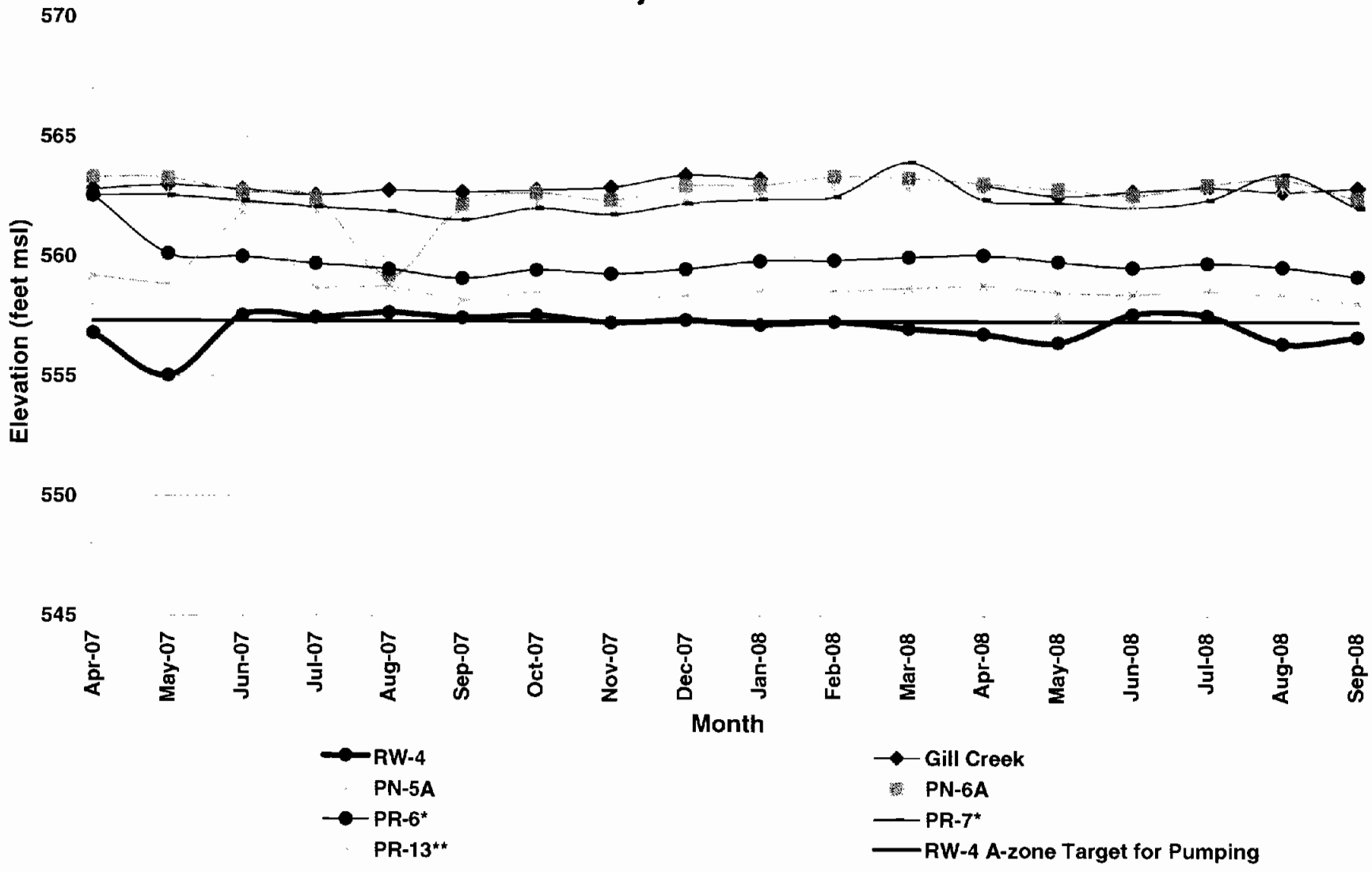
** Passive relief well installed June 2003

NI - Not Installed

Prepared by ; AWE 10/1/08

Checked by: CMB 10/1/2008

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



msl - mean sea level

Prepared by : AWE 10/1/2008
Checked by: CMB 10/1/2008

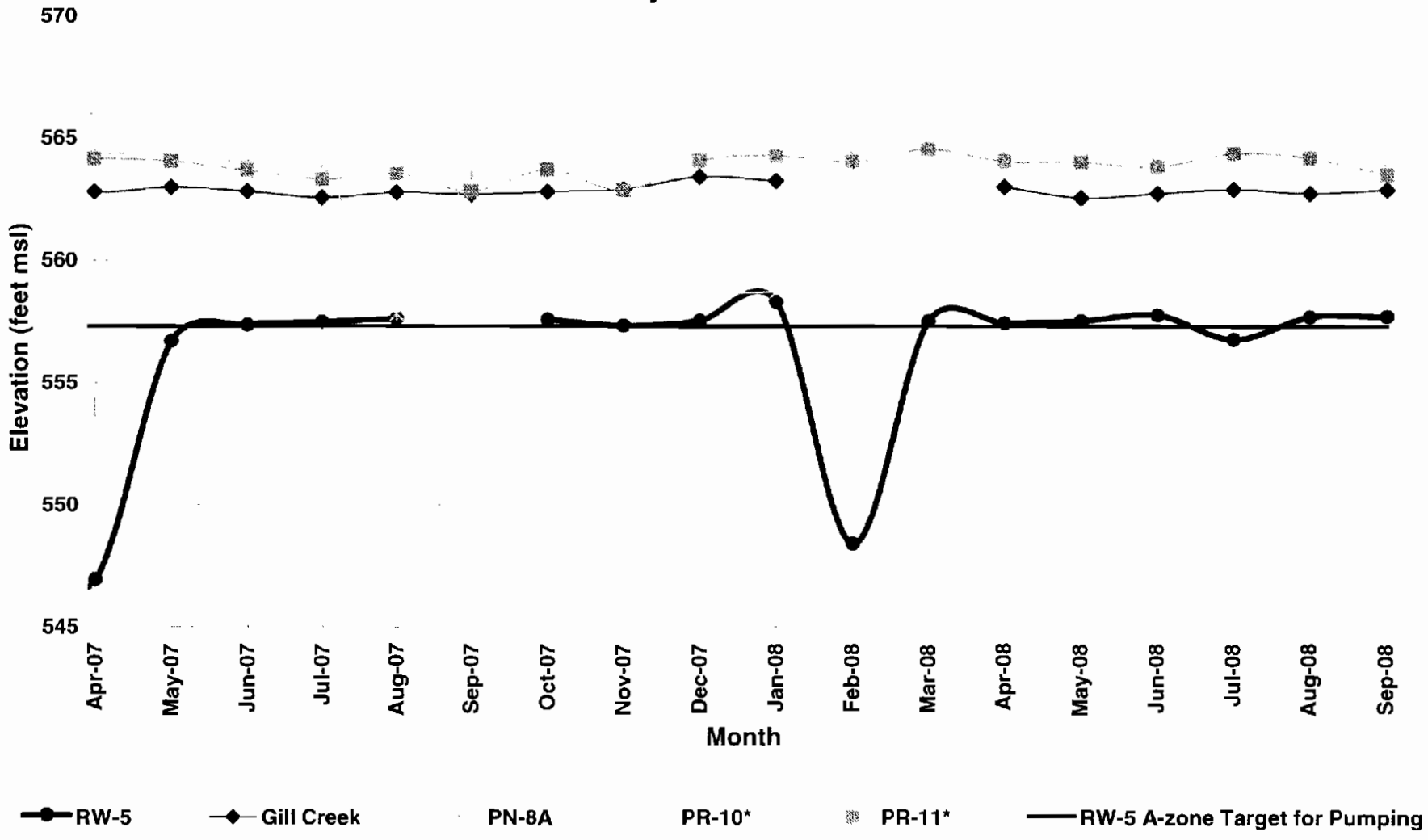
Table A-5
A-Zone
RW-5 and Adjacent Monitoring Point Water Elevations

Location ID	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
Gill Creek - Stilling Well	563.48	562.79	562.97	562.80	562.55	562 76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
RW-5	547.47	546.92	556.68	557.35	557.47	557 61	NM	557.56	557.31	557 52	558.28	548.40	557.51	557.43	557.51	557.75	556.76	557.68	557.71
PN-8A	564.26	564.33	564.33	563 98	563.88	557.80	563.52	563.92	563.74	564 34	564.30	564.40	564.57	564 33	564.09	563.96	564.30	564.30	563 82
PR-10*	NM	558.72	558.52	558 97	558.53	558 63	558.42	558.53	561.35	558.61	558.70	558.45	558 30	558 36	558.46	558.36	558.50	558.68	558.52
PR-11*	563.90	564.13	564.03	563 66	563.29	563 52	562.81	563.69	562.84	564.05	564.25	564.01	564 53	564 02	563.99	563.81	564.37	564.18	563.50
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	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 AWE 10/1/08
Checked by: CMB 10/1/2008

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



msl - mean sea level

Prepared by AWE 10/1/2008
Checked by: CMB 10/1/2008

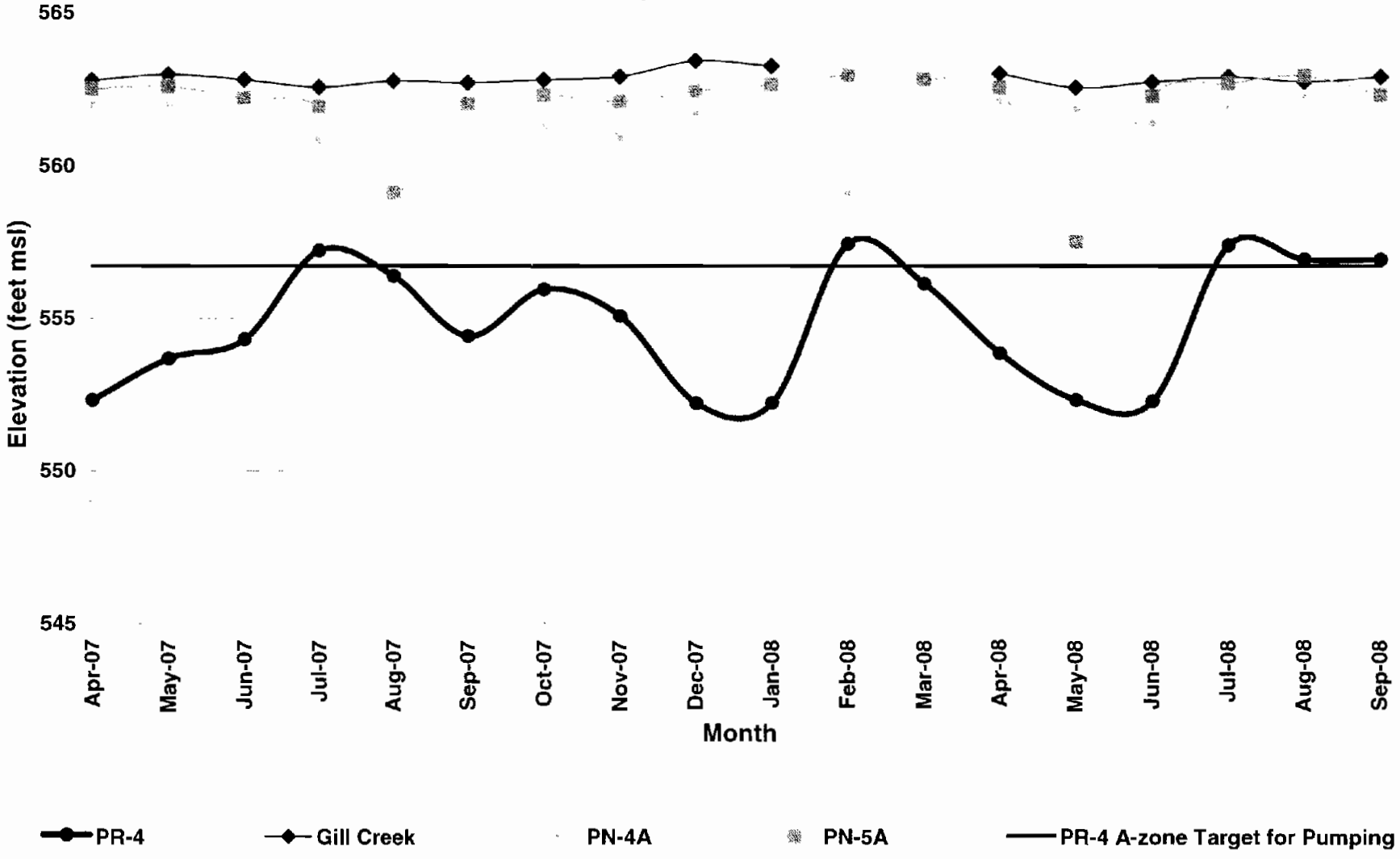
Table A-6
A-Zone
PR-4 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
Gill Creek - Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
PR-4	552.30	553.66	554.30	557.21	556.37	554.40	555.93	555.05	552.19	552.20	557.43	556.12	553.83	552.29	552.26	557.38	556.91	556.91
PN-4A	561.96	561.98	561.26	560.87	561.87	560.57	561.29	560.90	561.69	561.77	559.10	562.69	562.05	561.84	561.36	561.93	562.24	561.16
PN-5A	562.50	562.58	562.20	561.91	559.10	562.00	562.28	562.08	562.41	562.63	562.93	562.81	562.53	557.49	562.26	562.67	562.93	562.31
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	556.70	556.70	556.70

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

Prepared by : AWE 10/1/08
Checked by: CMB 10/1/2008

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



Prepared by : AWE 10/1/2008
Checked by: CMB 10/1/2008

msl - mean sea level

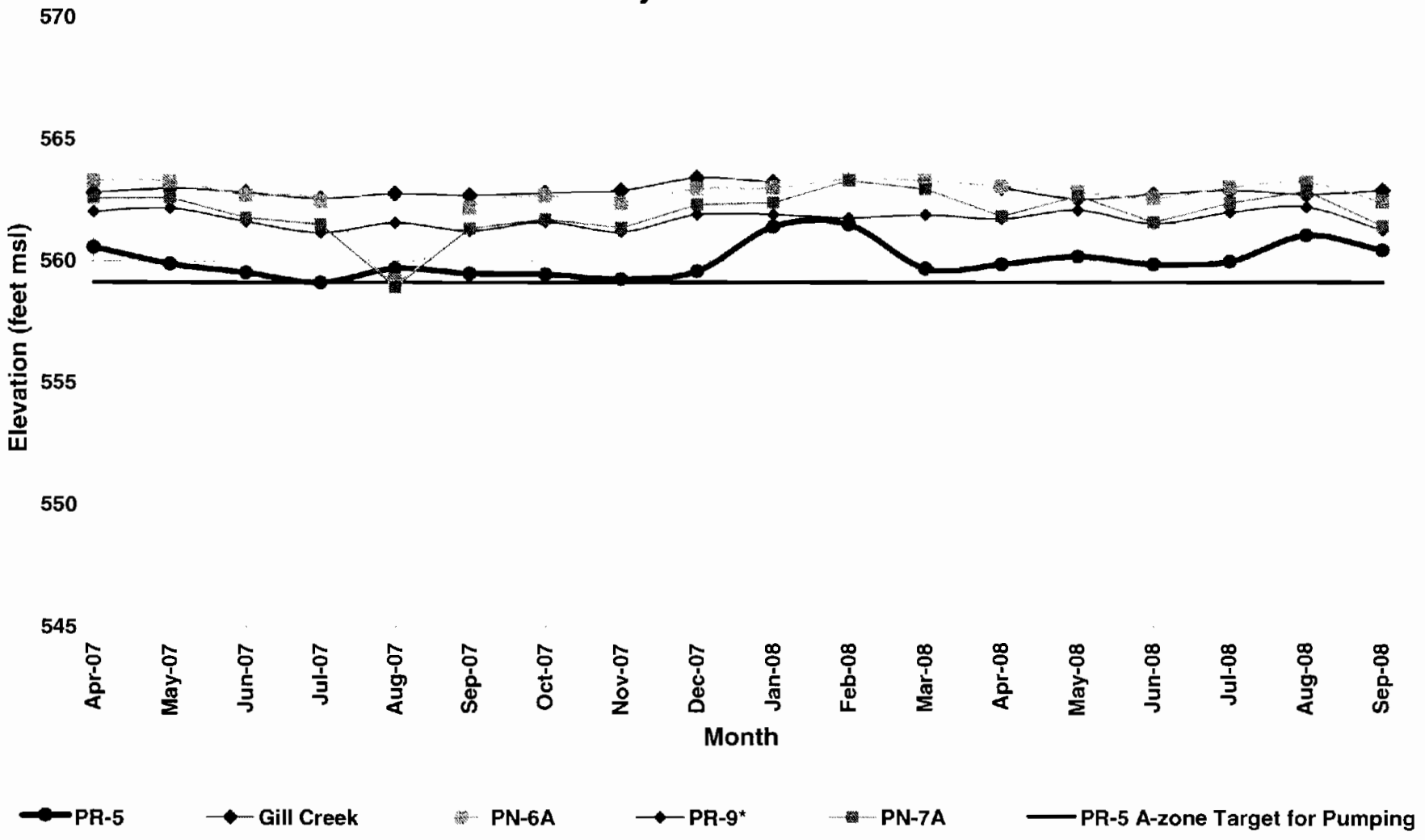
Table A-7
A-Zone
PR-5 and Adjacent Monitoring Point Water Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
Gill Creek - Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
PR-5	560.56	559.87	559.51	559.10	559.68	559.47	559.44	559.24	559.57	561.40	561.49	559.67	559.85	560.17	559.84	559.96	561.04	560.43
PN-7A	562.57	562.58	561.76	561.49	558.90	561.33	561.71	561.35	562.31	562.39	563.30	562.94	561.83	562.65	561.57	562.37	562.86	561.43
PR-9*	562.02	562.16	561.60	561.15	561.56	561.23	561.59	561.19	561.91	561.90	561.76	561.89	561.72	562.07	561.52	561.99	562.20	561.25
PN-6A	563.30	563.27	562.69	562.43	559.20	562.17	562.66	562.36	562.96	562.99	563.35	563.29	563.06	562.82	562.56	563.02	563.23	562.43
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	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 : AWE 10/1/08
Checked by: CMB 10/1/2008

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



msl - mean sea level

Prepared by : AWE 10/1/2008
Checked by: CMB 10/1/2008

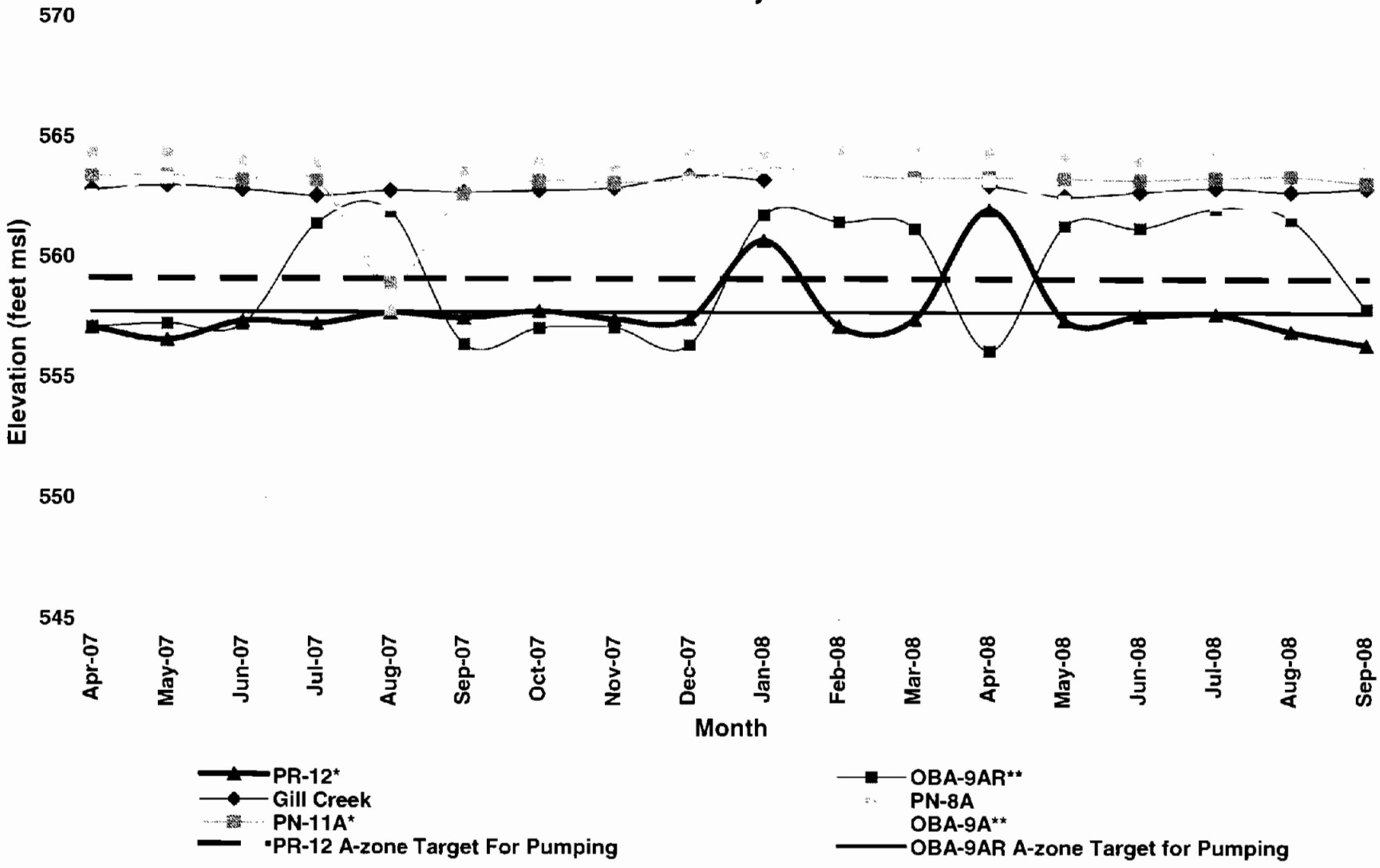
Table A-8
A-Zone
PR-12 and OBA-9AR and Adjacent Monitoring Point Water Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
Gill Creek -Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
PN-8A	564.33	564.33	563.98	563.88	557.80	563.52	563.92	563.74	564.34	564.30	564.40	564.57	564.33	564.09	563.96	564.30	564.30	563.82
PR-12*	557.07	556.55	557.33	557.22	557.68	557.46	557.75	557.42	557.44	560.70	557.13	557.44	561.98	557.38	557.56	557.64	556.92	556.37
PN-11A*	563.36	563.39	563.20	563.16	558.90	562.61	563.18	563.11	563.27	563.77	563.43	563.32	563.33	563.28	563.21	563.31	563.37	563.11
OBA-9A**	562.53	563.26	561.84	561.94	562.14	NM	561.31	561.14	563.13	563.76	563.44	563.09	563.17	562.34	562.01	562.22	561.93	NM
OBA-9AR**	557.08	557.22	557.19	561.39	561.89	556.38	557.04	557.07	556.35	561.77	561.49	561.20	556.11	561.31	561.21	562.03	561.58	557.87
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	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	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 : AWE 10/1/08
Checked by: CMB 10/1/2008

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



msl - mean sea level

Prepared by : AWE 10/1/2008
Checked by: CMB 10/1/2008

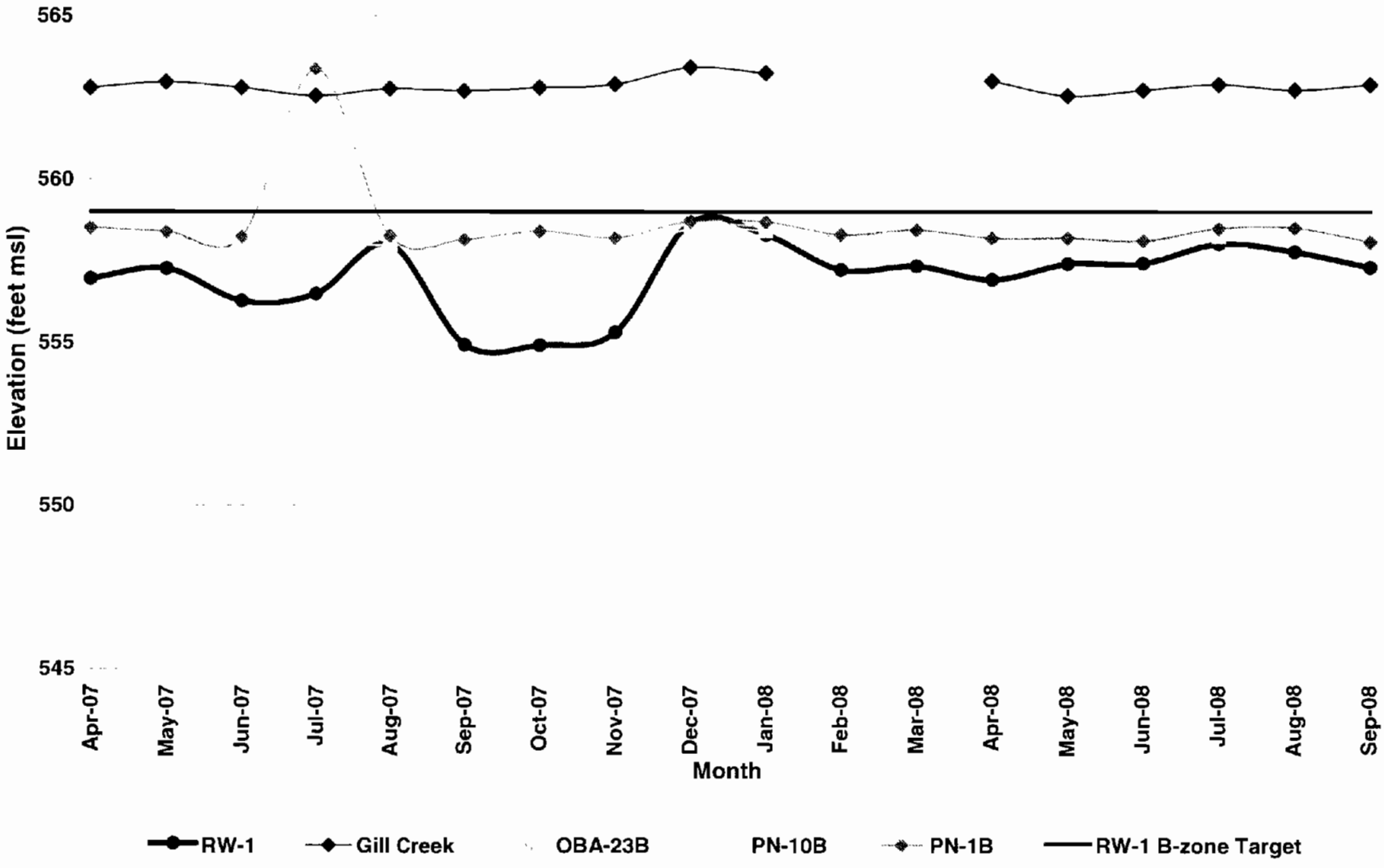
Table B-1
B-Zone
RW-1 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
RW-1	556.95	557.26	556.26	556.48	557.99	554.91	554.90	555.30	558.66	558.28	557.21	557.33	556.91	557.40	557.41	558.01	557.77	557.30
Gill Creek -Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
OBA-23B	558.37	558.23	557.99	558.01	558.12	557.99	558.29	558.03	558.62	558.52	558.24	558.35	558.08	558.17	558.06	558.41	558.35	557.95
PN-10B	558.21	558.07	557.89	557.91	557.98	557.91	558.15	557.97	558.45	558.41	558.06	558.22	557.93	558.03	557.92	558.24	558.24	557.92
PN-1B	558.52	558.39	558.23	563.36	558.26	558.15	558.40	558.20	558.70	558.68	558.30	558.44	558.19	558.20	558.11	558.49	558.50	558.09
RW-1 B-zone Target	559	559	559	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 : AWE 10/1/08
Checked by: CMB 10/1/08

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



msl - mean sea level

Prepared by: AWE 10/1/2008
Checked by: CMB 10/1/2008

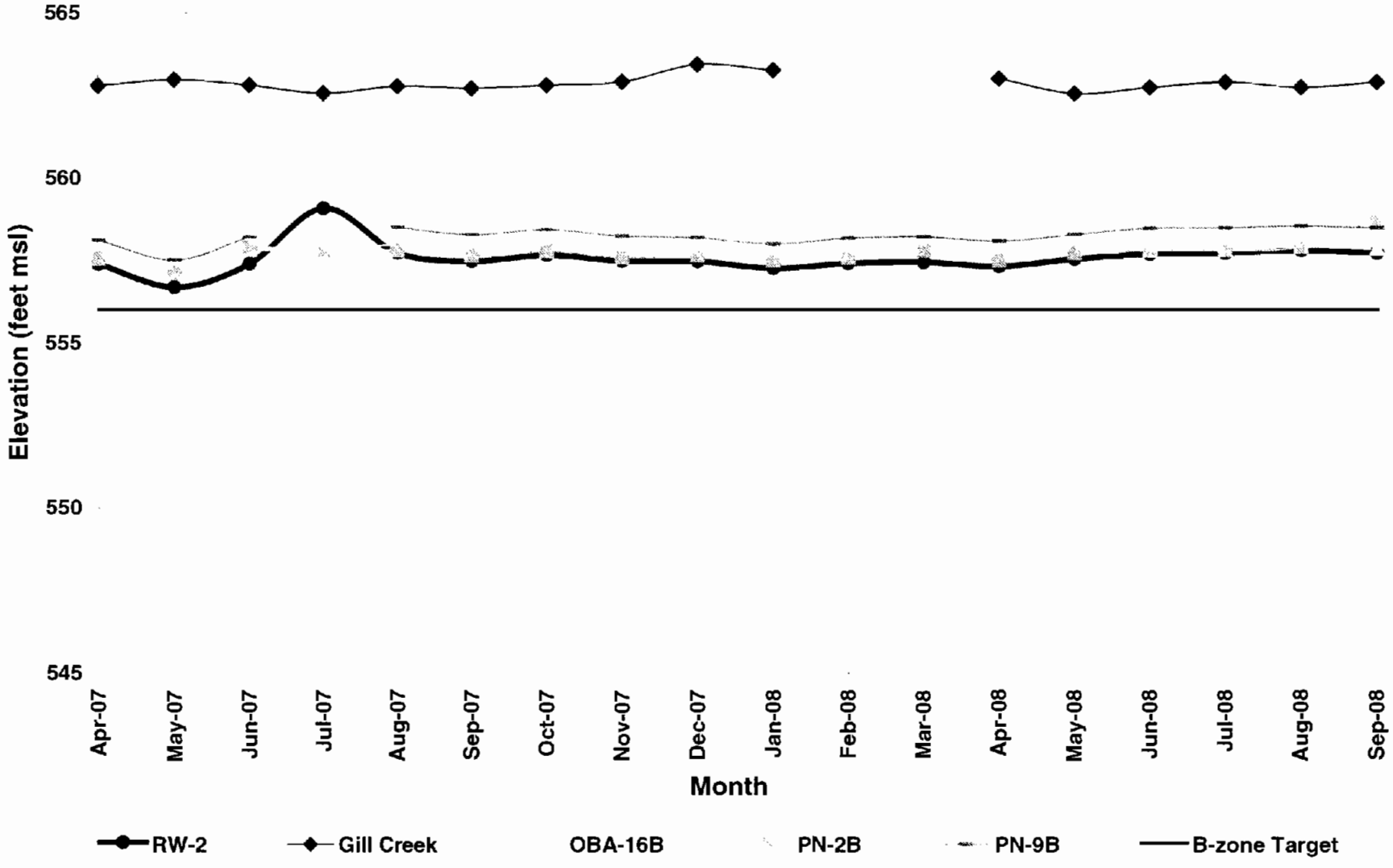
Table B-2
B-Zone
RW-2 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
RW-2	557.38	556.68	557.39	559.07	557.72	557.47	557.65	557.47	557.46	557.25	557.40	557.44	557.31	557.53	557.68	557.70	557.79	557.71
Gill Creek -Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
OBA-16B	557.97	557.71	557.82	557.76	557.97	557.77	557.96	557.75	557.90	557.83	557.80	557.86	557.69	557.89	557.89	557.95	558.06	557.86
PN-2B	557.55	557.11	557.87	557.71	557.80	557.64	557.77	557.58	557.65	557.49	557.57	557.79	557.49	557.71	557.79	557.80	557.90	558.75
PN-9B	558.11	557.50	558.20	NM	558.49	558.27	558.42	558.23	558.18	557.99	558.16	558.21	558.08	558.27	558.46	558.47	558.53	558.48
RW-2 B-zone Target	556	556	556	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 : AWF 10/1/08
Checked by: CMB 10/1/08

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



msl - mean sea level

Prepared by : AWE 10/1/2008
Checked by. CMB 10/1/2008

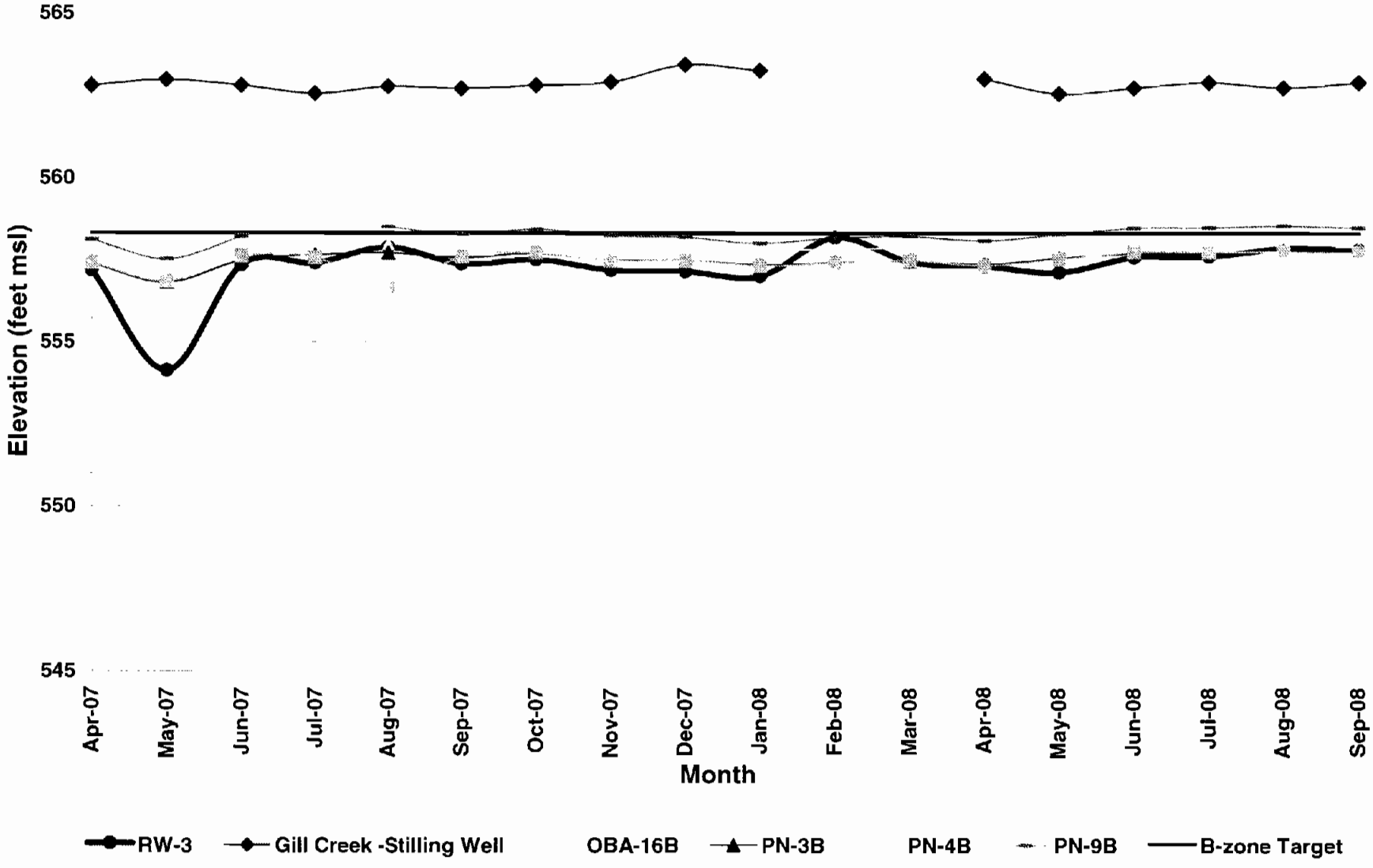
Table B-3
B-Zone
RW-3 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
RW-3	557.17	554.11	557.33	557.38	557.88	557.36	557.49	557.17	557.13	556.98	558.17	557.42	557.29	557.11	557.57	557.59	557.84	557.80
Gill Creek - Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
OBA-16B	557.97	557.71	557.82	557.76	557.97	557.77	557.96	557.75	557.90	557.83	557.80	557.86	557.69	557.89	557.89	557.95	558.06	557.86
PN-3B	557.36	556.78	557.46	557.63	557.69	557.55	557.68	557.47	557.47	557.33	557.40	557.45	557.35	557.54	557.69	557.71	557.77	557.75
PN-4B	557.39	556.83	557.59	557.55	556.64	557.57	557.70	557.46	557.46	557.31	557.38	557.47	557.32	557.51	557.72	557.72	557.74	557.71
PN-9B	558.11	557.50	558.20	NM	558.49	558.27	558.42	558.23	558.18	557.99	558.16	558.21	558.08	558.27	558.46	558.47	558.53	558.48
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	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 : AWE 10/1/08
Checked by: CMB 10/1/08

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



msl - mean sea level

Prepared by : AWE 10/1/2008
Checked by: CMB 10/1/2008

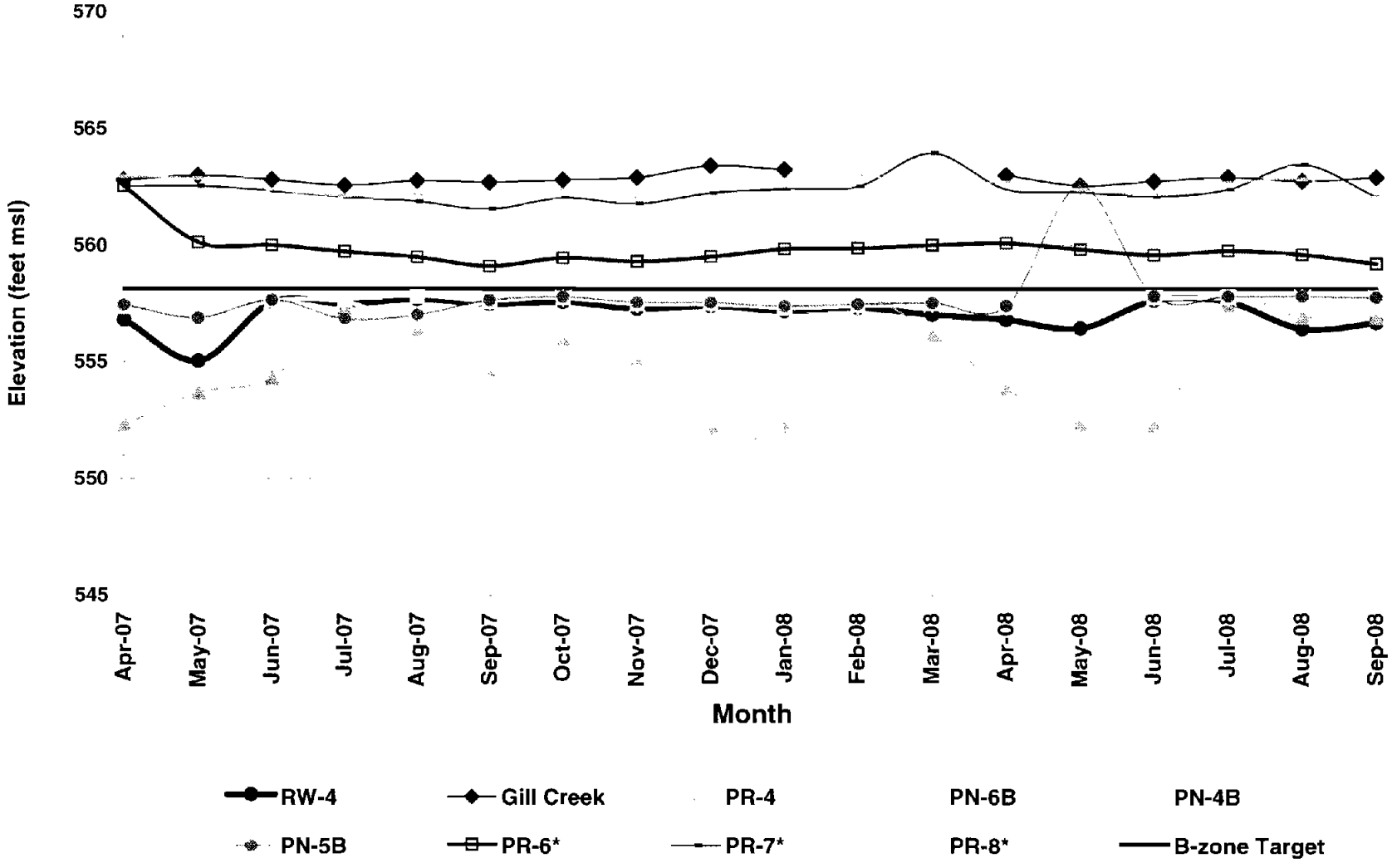
Table B-4
B-Zone
RW-4, PR-4 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
RW-4	556.79	555.02	557.54	557.46	557.66	557.45	557.55	557.25	557.36	557.16	557.29	557.00	556.78	556.42	557.61	557.55	556.39	556.66
Gill Creek - Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
PR-4	552.30	553.66	554.30	557.21	556.37	554.40	555.93	555.05	552.19	552.20	557.43	556.12	553.83	552.29	552.26	557.38	556.91	556.91
PN-6B	557.34	556.75	557.59	557.63	557.77	557.56	557.72	557.46	557.48	557.29	557.41	557.48	557.32	557.49	557.74	557.76	557.68	557.73
PN-4B	557.39	556.83	557.59	557.55	556.64	557.57	557.70	557.46	557.46	557.31	557.38	557.47	557.32	557.51	557.72	557.72	557.74	557.71
PN-5B	557.43	556.87	557.64	556.82	557.00	557.61	557.76	557.52	557.51	557.36	557.45	557.50	557.37	562.51	557.78	557.78	557.79	557.74
PR-6*	562.53	560.11	559.99	559.70	559.47	559.09	559.44	559.28	559.48	559.82	559.85	559.99	560.07	559.80	559.56	559.74	559.58	559.19
PR-7*	562.53	562.53	562.31	562.05	561.87	561.54	562.02	561.77	562.22	562.40	562.51	563.94	562.38	562.26	562.07	562.37	563.45	562.06
PR-8*	562.94	562.85	562.37	562.11	562.14	561.95	562.38	562.05	562.55	562.54	562.96	562.65	562.68	562.37	562.19	562.64	562.80	562.04
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	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 : AWE 10/1/08
Checked by: CMB 10/1/08

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



msl - mean sea level

Prepared by : AWE 10/1/2008
Checked by. CMB 10/1/2008

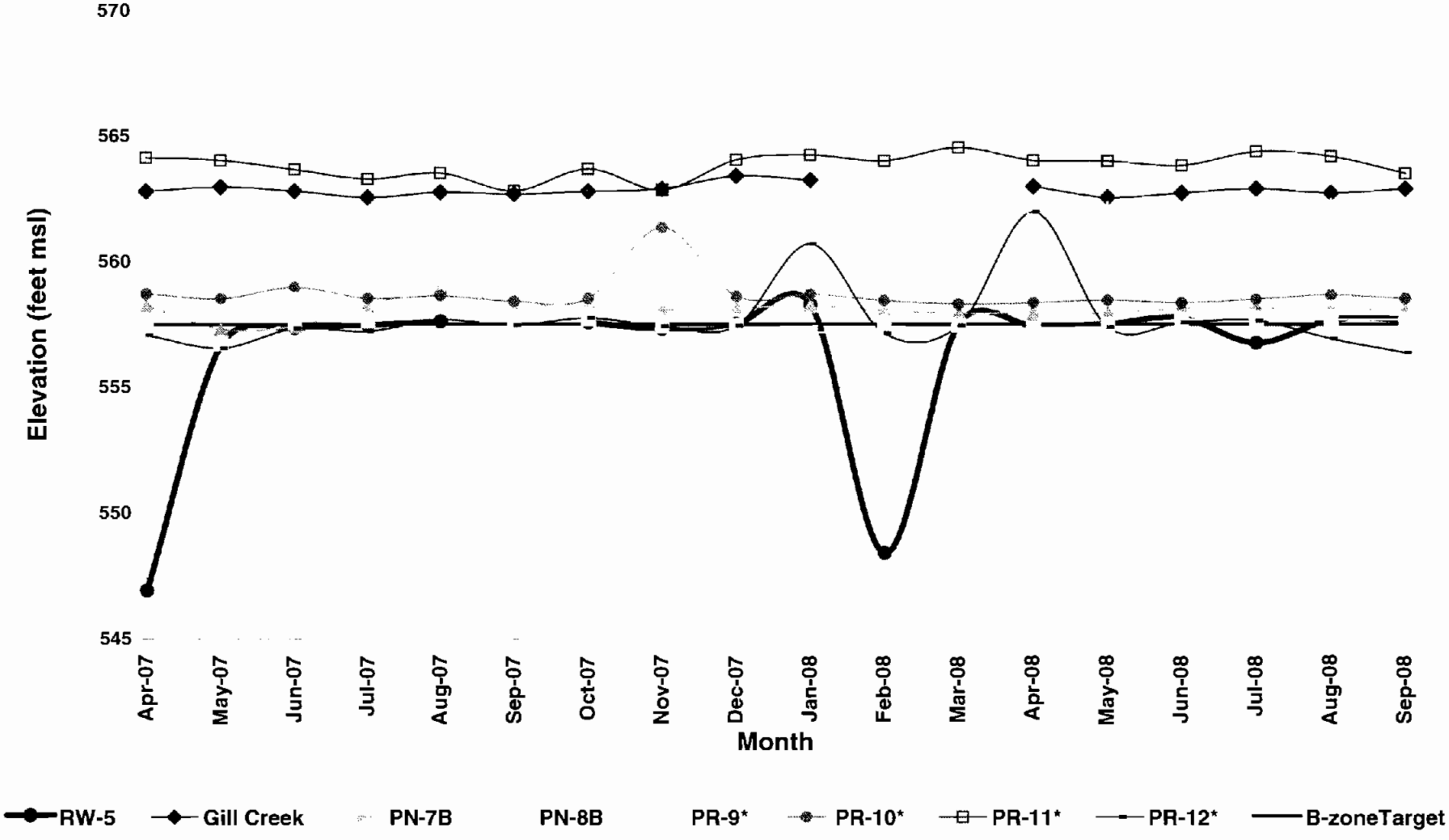
Table B-5
B-Zone
RW-5 and Adjacent Monitoring Point Peizometric Elevations

Location ID	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
RW-5	546.92	556.68	557.35	557.47	557.61	NM	557.56	557.31	557.52	558.28	548.40	557.51	557.43	557.51	557.75	556.76	557.68	557.71
Gill Creek - Stilling Well	562.79	562.97	562.80	562.55	562.76	562.69	562.79	562.89	563.41	563.24	ICE	NM	562.99	562.54	562.72	562.89	562.73	562.89
PN-7B	558.25	557.30	557.43	558.22	558.93	558.23	558.35	558.09	558.15	558.23	558.04	557.93	557.96	557.93	558.13	558.14	558.12	558.11
PN-8B	557.50	556.73	557.57	557.61	552.47	557.51	557.70	557.42	557.44	557.17	557.35	557.45	557.33	557.45	557.68	557.72	557.68	557.68
PR-9*	562.02	562.16	561.60	561.15	561.56	561.23	561.59	561.19	561.91	561.90	561.76	561.89	561.72	562.07	561.52	561.99	562.20	561.25
PR-10*	558.72	558.52	558.97	558.53	558.63	558.42	558.53	561.35	558.61	558.70	558.45	558.30	558.36	558.46	558.36	558.50	558.68	558.52
PR-11*	564.13	564.03	563.66	563.29	563.52	562.81	563.69	562.84	564.05	564.25	564.01	564.53	564.02	563.99	563.81	564.37	564.18	563.50
PR-12*	557.07	556.55	557.33	557.22	557.68	557.46	557.75	557.42	557.44	560.70	557.13	557.44	561.98	557.38	557.56	557.64	556.92	556.37
B-zone Target	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	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 : AWE 10/1/08
Checked by: CMB 10/1/08

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



msl - mean sea level

Prepared by : AWE 10/1/2008
Checked by: CMB 10/1/2008

ATTACHMENT 4

Olin Niagara Falls
Plant 2 Area Remediation

Summary: Contaminant Mass and Groundwater Extracted
Since system start-up: December - 1997

Quarter	organics lb	Ann. Tot.	mercury lb	Ann. Tot.	pesticides lb	Ann. Tot.	g.w. extracted 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		28,103,838
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								
		3,887		0.07		14		21,304,559
TOTAL		**55,645**		**3**		**256**		**266,276,504**

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

Olin Niagara Falls Plant Site: Plant 2 Area Remediation
Groundwater Contaminant Mass Removed
Q3-08

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	24.260	3.8	2.20E-06	0.00020281	1190476.19	269,932	55
RW2	0.364	3.8	2.20E-06	0.00000304	1190476.19	3,530,613	11
RW3	0.337	3.8	2.20E-06	0.00000282	1190476.19	539,002	2
RW4	1.464	3.8	2.20E-06	0.00001224	1190476.19	549,641	7
PR4	3.339	3.8	2.20E-06	0.00002791	1190476.19	1,377,575	38
RW5	140.500	3.8	2.20E-06	0.00117458	1190476.19	1,131,074	1329
PR12	39.370	3.8	2.20E-06	0.00032913	1190476.19	740,535	244
OBA9AR	11.050	3.8	2.20E-06	0.00009238	1190476.19	21,265	1.96
TOTAL							**1,686**

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	0.0026	3.8	2.20E-06	0.00000002	1190476.19	269,932	0.006
RW2	0.0000	3.8	2.20E-06	0.00000000	1190476.19	3,530,613	0.000
RW3	0.0000	3.8	2.20E-06	0.00000000	1190476.19	539,002	0.000
RW4	0.0003	3.8	2.20E-06	0.00000000	1190476.19	549,641	0.001
PR4	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,377,575	0.000
RW5	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,131,074	0.000
PR12	0.0002	3.8	2.20E-06	0.00000000	1190476.19	740,535	0.001
OBA9AR	0.0000	3.8	2.20E-06	0.00000000	1190476.19	21,265	0.000
TOTAL							**0.008**

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	0.0279	3.8	2.20E-06	0.00000023	1190476.19	269,932	0.06
RW2	0.0008	3.8	2.20E-06	0.00000001	1190476.19	3,530,613	0.02
RW3	0.0302	3.8	2.20E-06	0.00000025	1190476.19	539,002	0.14
RW4	0.0395	3.8	2.20E-06	0.00000033	1190476.19	549,641	0.18
PR4	0.1690	3.8	2.20E-06	0.00000141	1190476.19	1,377,575	1.95
RW5	0.3540	3.8	2.20E-06	0.00000296	1190476.19	1,131,074	3.35
PR12	0.1559	3.8	2.20E-06	0.00000130	1190476.19	740,535	0.97
OBA9AR	0.3690	3.8	2.20E-06	0.00000308	1190476.19	21,265	0.066
TOTAL							**6.73**

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

8,159,637
total flow (gal)

Pesticides Loading
Header Sampling August - 2008

LocationID	Analytical Method	Parameter Name	Result	LabFlag	Detect Flag	Detection Limit	Sample Date	SampleType	Units	Total or Dissolved	result	total
PR-12	SW8081A	alpha-BHC	77		Y	10	8/13/2008	Normal	ug/l	N	77	
PR-12	SW8081A	beta-BHC	9.6	J	Y	10	8/13/2008	Normal	ug/l	N	9.6	
PR-12	SW8081A	delta-BHC	8.3	J	Y	10	8/13/2008	Normal	ug/l	N	8.3	
PR-12	SW8081A	gamma-BHC	61		Y	10	8/13/2008	Normal	ug/l	N	61	**155.9**
PR-4	SW8081A	alpha-BHC	84		Y	10	8/12/2008	Normal	ug/l	N	84	
PR-4	SW8081A	beta-BHC	9.0	J	Y	10	8/12/2008	Normal	ug/l	N	9	
PR-4	SW8081A	delta-BHC	10		Y	10	8/12/2008	Normal	ug/l	N	10	
PR-4	SW8081A	gamma-BHC	66		Y	10	8/12/2008	Normal	ug/l	N	66	**169**
RW-1	SW8081A	alpha-BHC	22		Y	2.5	8/12/2008	Normal	ug/l	N	22	
RW-1	SW8081A	beta-BHC	4.9		Y	2.5	8/12/2008	Normal	ug/l	N	4.9	
RW-1	SW8081A	delta-BHC		U	N	2.5	8/12/2008	Normal	ug/l	N	0	
RW-1	SW8081A	gamma-BHC	1.0	J	Y	2.5	8/12/2008	Normal	ug/l	N	1	**27.9**
RW-2	SW8081A	alpha-BHC	0.35		Y	0.050	8/12/2008	Normal	ug/l	N	0.35	
RW-2	SW8081A	beta-BHC	0.20		Y	0.050	8/12/2008	Normal	ug/l	N	0.2	
RW-2	SW8081A	delta-BHC	0.035	J	Y	0.050	8/12/2008	Normal	ug/l	N	0.035	
RW-2	SW8081A	gamma-BHC	0.17		Y	0.050	8/12/2008	Normal	ug/l	N	0.17	**0.755**
RW-3	SW8081A	alpha-BHC	7.5		Y	2.5	8/12/2008	Normal	ug/l	N	7.5	
RW-3	SW8081A	beta-BHC	2.0	J	Y	2.5	8/12/2008	Normal	ug/l	N	2	
RW-3	SW8081A	delta-BHC	7.7		Y	2.5	8/12/2008	Normal	ug/l	N	7.7	
RW-3	SW8081A	gamma-BHC	13		Y	2.5	8/12/2008	Normal	ug/l	N	13	**30.2**
RW-4	SW8081A	alpha-BHC	21		Y	2.5	8/12/2008	Normal	ug/l	N	21	
RW-4	SW8081A	beta-BHC	2.8		Y	2.5	8/12/2008	Normal	ug/l	N	2.8	
RW-4	SW8081A	delta-BHC	2.7		Y	2.5	8/12/2008	Normal	ug/l	N	2.7	
RW-4	SW8081A	gamma-BHC	13		Y	2.5	8/12/2008	Normal	ug/l	N	13	**39.5**
RW-5	SW8081A	alpha-BHC	180		Y	25	8/12/2008	Normal	ug/l	N	180	
RW-5	SW8081A	beta-BHC	24	J	Y	25	8/12/2008	Normal	ug/l	N	24	
RW-5	SW8081A	delta-BHC	20	J	Y	25	8/12/2008	Normal	ug/l	N	20	
RW-5	SW8081A	gamma-BHC	130		Y	25	8/12/2008	Normal	ug/l	N	130	**354**
RW-5	SW8081A	alpha-BHC	160		Y	25	8/12/2008	Duplicate	ug/l	N	160	
RW-5	SW8081A	beta-BHC	21	J	Y	25	8/12/2008	Duplicate	ug/l	N	21	
RW-5	SW8081A	delta-BHC	17	J	Y	25	8/12/2008	Duplicate	ug/l	N	17	
RW-5	SW8081A	gamma-BHC	110		Y	25	8/12/2008	Duplicate	ug/l	N	110	**308**

Mercury Loadings
Header Sampling August - 2008

LocationID	Analytical Method	Parameter Name	Result	LabFlag	Detect Flag	Detection Limit	Sample Date	SampleType	Units	Total or Dissolved	result
PR-12	SW7470	Mercury	0.00021		Y	0.00020	8/13/2008	Normal	mg/l	T	0.00021
PR-4	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	T	0
RW-1	SW7470	Mercury	0.0026		Y	0.00020	8/12/2008	Normal	mg/l	T	0.0026
RW-2	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	T	0
RW-3	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	T	0
RW-4	SW7470	Mercury	0.00025		Y	0.00020	8/12/2008	Normal	mg/l	T	0.00025
RW-5	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	T	0
RW-5	SW7470	Mercury		U	N	0.00020	8/12/2008	Duplicate	mg/l	T	0
PR-12	SW7470	Mercury		U	N	0.00020	8/13/2008	Normal	mg/l	D	0
PR-4	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	D	0
RW-1	SW7470	Mercury	0.0018		Y	0.00020	8/12/2008	Normal	mg/l	D	0.0018
RW-2	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	D	0
RW-3	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	D	0
RW-4	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	D	0
RW-5	SW7470	Mercury		U	N	0.00020	8/12/2008	Normal	mg/l	D	0
RW-5	SW7470	Mercury		U	N	0.00020	8/12/2008	Duplicate	mg/l	D	0

Organic Compounds Loading
Header Sampling August - 2008

LocationID	Analytical Method	Parameter Name	Result	LabFlag	Detect Flag	Detection Limit	Sample Date	SampleType	Units	Total or Dissolved	result	total ppb	total ppm
PR-12	SW8260B	1,1,1-Trichloroethane		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	1,1,2,2-Tetrachloroethane	3500		Y	300	8/13/2008	Normal	ug/l	N	3500		
PR-12	SW8260B	1,1,2-Trichloroethane		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	1,1-Dichloroethene		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	1,2,4-Trichlorobenzene	1400		Y	300	8/13/2008	Normal	ug/l	N	1400		
PR-12	SW8260B	1,2-Dichlorobenzene	660		Y	300	8/13/2008	Normal	ug/l	N	660		
PR-12	SW8260B	1,3-Dichlorobenzene		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	1,4-Dichlorobenzene	680		Y	300	8/13/2008	Normal	ug/l	N	680		
PR-12	SW8260B	Benzene		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	Carbon tetrachloride		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	Chlorobenzene		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	Chloromethane (Methyl chloride)		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	cis-1,2-Dichloroethene	2600		Y	300	8/13/2008	Normal	ug/l	N	2600		
PR-12	SW8260B	Methylene chloride (Dichloromethane)		U	N	1500	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	Tetrachloroethene (PCE)	9200		Y	300	8/13/2008	Normal	ug/l	N	9200		
PR-12	SW8260B	trans-1,2-Dichloroethene		U	N	300	8/13/2008	Normal	ug/l	N	0		
PR-12	SW8260B	Trichloroethene (TCE)	21000		Y	300	8/13/2008	Normal	ug/l	N	21000		
PR-12	SW8260B	Vinyl Chloride	330		Y	300	8/13/2008	Normal	ug/l	N	330	**39,370**	**39.37**
PR-4	SW8260B	1,1,1-Trichloroethane		U	N	40	8/12/2008	Normal	ug/l	N	0		
PR-4	SW8260B	1,1,2,2-Tetrachloroethane		U	N	40	8/12/2008	Normal	ug/l	N	0		
PR-4	SW8260B	1,1,2-Trichloroethane		U	N	40	8/12/2008	Normal	ug/l	N	0		
PR-4	SW8260B	1,1-Dichloroethene		U	N	40	8/12/2008	Normal	ug/l	N	0		
PR-4	SW8260B	1,2,4-Trichlorobenzene	1200		Y	40	8/12/2008	Normal	ug/l	N	1200		
PR-4	SW8260B	1,2-Dichlorobenzene	110		Y	40	8/12/2008	Normal	ug/l	N	110		
PR-4	SW8260B	1,3-Dichlorobenzene	230		Y	40	8/12/2008	Normal	ug/l	N	230		
PR-4	SW8260B	1,4-Dichlorobenzene	230		Y	40	8/12/2008	Normal	ug/l	N	230		
PR-4	SW8260B	Benzene	49		Y	40	8/12/2008	Normal	ug/l	N	49		
PR-4	SW8260B	Carbon tetrachloride		U	N	40	8/12/2008	Normal	ug/l	N	0		
PR-4	SW8260B	Chlorobenzene	210		Y	40	8/12/2008	Normal	ug/l	N	210		
PR-4	SW8260B	Chloromethane (Methyl chloride)		U	N	40	8/12/2008	Normal	ug/l	N	0		
PR-4	SW8260B	cis-1,2-Dichloroethene	580		Y	40	8/12/2008	Normal	ug/l	N	580		
PR-4	SW8260B	Methylene chloride (Dichloromethane)		U	N	200	8/12/2008	Normal	ug/l	N	0		
PR-4	SW8260B	Tetrachloroethene (PCE)	170		Y	40	8/12/2008	Normal	ug/l	N	170		
PR-4	SW8260B	trans-1,2-Dichloroethene		U	N	40	8/12/2008	Normal	ug/l	N	0		
PR-4	SW8260B	Trichloroethene (TCE)	360		Y	40	8/12/2008	Normal	ug/l	N	360		
PR-4	SW8260B	Vinyl Chloride	200		Y	40	8/12/2008	Normal	ug/l	N	200	**3,339**	**3.339**
RW-1	SW8260B	1,1,1-Trichloroethane		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	1,1,2,2-Tetrachloroethane		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	1,1,2-Trichloroethane		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	1,1-Dichloroethene		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	1,2,4-Trichlorobenzene	5300		Y	200	8/12/2008	Normal	ug/l	N	5300		
RW-1	SW8260B	1,2-Dichlorobenzene	230		Y	200	8/12/2008	Normal	ug/l	N	230		
RW-1	SW8260B	1,3-Dichlorobenzene	330		Y	200	8/12/2008	Normal	ug/l	N	330		
RW-1	SW8260B	1,4-Dichlorobenzene		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	Benzene		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	Carbon tetrachloride		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	Chlorobenzene		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	Chloromethane (Methyl chloride)		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	cis-1,2-Dichloroethene	2200		Y	200	8/12/2008	Normal	ug/l	N	2200		

Organic Compounds Loading
Header Sampling August - 2008

LocationID	Analytical Method	Parameter Name	Result	LabFlag	Detect Flag	Detection Limit	Sample Date	SampleType	Units	Total or Dissolved	result	total ppb	total ppm
RW-1	SW8260B	Methylene chloride (Dichloromethane)		U	N	1000	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	Tetrachloroethene (PCE)	3200		Y	200	8/12/2008	Normal	ug/l	N	3200		
RW-1	SW8260B	trans-1,2-Dichloroethene		U	N	200	8/12/2008	Normal	ug/l	N	0		
RW-1	SW8260B	Trichloroethene (TCE)	13000		Y	200	8/12/2008	Normal	ug/l	N	13000		
RW-1	SW8260B	Vinyl Chloride		U	N	200	8/12/2008	Normal	ug/l	N	0	**24,260**	**24.26**
RW-2	SW8260B	1,1,1-Trichloroethane		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	1,1,2,2-Tetrachloroethane	11		Y	2.0	8/12/2008	Normal	ug/l	N	11		
RW-2	SW8260B	1,1,2-Trichloroethane		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	1,1-Dichloroethene		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	1,2,4-Trichlorobenzene	29		Y	2.0	8/12/2008	Normal	ug/l	N	29		
RW-2	SW8260B	1,2-Dichlorobenzene		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	1,3-Dichlorobenzene	4.0		Y	2.0	8/12/2008	Normal	ug/l	N	4		
RW-2	SW8260B	1,4-Dichlorobenzene	2.1		Y	2.0	8/12/2008	Normal	ug/l	N	2.1		
RW-2	SW8260B	Benzene		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	Carbon tetrachloride		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	Chlorobenzene		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	Chloromethane (Methyl chloride)		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	cis-1,2-Dichloroethene	48		Y	2.0	8/12/2008	Normal	ug/l	N	48		
RW-2	SW8260B	Methylene chloride (Dichloromethane)		U	N	10	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	Tetrachloroethene (PCE)	120		Y	2.0	8/12/2008	Normal	ug/l	N	120		
RW-2	SW8260B	trans-1,2-Dichloroethene		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-2	SW8260B	Trichloroethene (TCE)	150		Y	2.0	8/12/2008	Normal	ug/l	N	150		
RW-2	SW8260B	Vinyl Chloride		U	N	2.0	8/12/2008	Normal	ug/l	N	0	**364**	**0.3641**
RW-3	SW8260B	1,1,1-Trichloroethane		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-3	SW8260B	1,1,2,2-Tetrachloroethane	4.9		Y	2.0	8/12/2008	Normal	ug/l	N	4.9		
RW-3	SW8260B	1,1,2-Trichloroethane		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-3	SW8260B	1,1-Dichloroethene		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-3	SW8260B	1,2,4-Trichlorobenzene	91		Y	2.0	8/12/2008	Normal	ug/l	N	91		
RW-3	SW8260B	1,2-Dichlorobenzene	8.9		Y	2.0	8/12/2008	Normal	ug/l	N	8.9		
RW-3	SW8260B	1,3-Dichlorobenzene	34		Y	2.0	8/12/2008	Normal	ug/l	N	34		
RW-3	SW8260B	1,4-Dichlorobenzene	36		Y	2.0	8/12/2008	Normal	ug/l	N	36		
RW-3	SW8260B	Benzene	2.9		Y	2.0	8/12/2008	Normal	ug/l	N	2.9		
RW-3	SW8260B	Carbon tetrachloride		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-3	SW8260B	Chlorobenzene	13		Y	2.0	8/12/2008	Normal	ug/l	N	13		
RW-3	SW8260B	Chloromethane (Methyl chloride)		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-3	SW8260B	cis-1,2-Dichloroethene	39		Y	2.0	8/12/2008	Normal	ug/l	N	39		
RW-3	SW8260B	Methylene chloride (Dichloromethane)		U	N	10	8/12/2008	Normal	ug/l	N	0		
RW-3	SW8260B	Tetrachloroethene (PCE)	44		Y	2.0	8/12/2008	Normal	ug/l	N	44		
RW-3	SW8260B	trans-1,2-Dichloroethene		U	N	2.0	8/12/2008	Normal	ug/l	N	0		
RW-3	SW8260B	Trichloroethene (TCE)	57		Y	2.0	8/12/2008	Normal	ug/l	N	57		
RW-3	SW8260B	Vinyl Chloride	6.5		Y	2.0	8/12/2008	Normal	ug/l	N	6.5	**337**	**0.3372**
RW-4	SW8260B	1,1,1-Trichloroethane		U	N	10	8/12/2008	Normal	ug/l	N	0		
RW-4	SW8260B	1,1,2,2-Tetrachloroethane	19		Y	10	8/12/2008	Normal	ug/l	N	19		
RW-4	SW8260B	1,1,2-Trichloroethane		U	N	10	8/12/2008	Normal	ug/l	N	0		
RW-4	SW8260B	1,1-Dichloroethene		U	N	10	8/12/2008	Normal	ug/l	N	0		
RW-4	SW8260B	1,2,4-Trichlorobenzene	250		Y	10	8/12/2008	Normal	ug/l	N	250		
RW-4	SW8260B	1,2-Dichlorobenzene	32		Y	10	8/12/2008	Normal	ug/l	N	32		
RW-4	SW8260B	1,3-Dichlorobenzene	77		Y	10	8/12/2008	Normal	ug/l	N	77		
RW-4	SW8260B	1,4-Dichlorobenzene	59		Y	10	8/12/2008	Normal	ug/l	N	59		

Organic Compounds Loading
Header Sampling August - 2008

LocationID	Analytical Method	Parameter Name	Result	LabFlag	Detect Flag	Detection Limit	Sample Date	SampleType	Units	Total or Dissolved	result	total ppb	total ppm
RW-4	SW8260B	Benzene	17		Y	10	8/12/2008	Normal	ug/l	N	17		
RW-4	SW8260B	Carbon tetrachloride		U	N	10	8/12/2008	Normal	ug/l	N	0		
RW-4	SW8260B	Chlorobenzene	67		Y	10	8/12/2008	Normal	ug/l	N	67		
RW-4	SW8260B	Chloromethane (Methyl chloride)		U	N	10	8/12/2008	Normal	ug/l	N	0		
RW-4	SW8260B	cis-1,2-Dichloroethene	240		Y	10	8/12/2008	Normal	ug/l	N	240		
RW-4	SW8260B	Methylene chloride (Dichloromethane)		U	N	50	8/12/2008	Normal	ug/l	N	0		
RW-4	SW8260B	Tetrachloroethene (PCE)	220		Y	10	8/12/2008	Normal	ug/l	N	220		
RW-4	SW8260B	trans-1,2-Dichloroethene		U	N	10	8/12/2008	Normal	ug/l	N	0		
RW-4	SW8260B	Trichloroethene (TCE)	420		Y	10	8/12/2008	Normal	ug/l	N	420		
RW-4	SW8260B	Vinyl Chloride	63		Y	10	8/12/2008	Normal	ug/l	N	63	**1,464**	**1.464**
RW-5	SW8260B	1,1,1-Trichloroethane		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	9500		Y	1800	8/12/2008	Normal	ug/l	N	9500		
RW-5	SW8260B	1,1,2-Trichloroethane		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	3200		Y	1800	8/12/2008	Normal	ug/l	N	3200		
RW-5	SW8260B	1,2-Dichlorobenzene		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	1,4-Dichlorobenzene		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	Benzene		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	Carbon tetrachloride		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	Chlorobenzene		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	7800		Y	1800	8/12/2008	Normal	ug/l	N	7800		
RW-5	SW8260B	Methylene chloride (Dichloromethane)		U	N	8900	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	Tetrachloroethene (PCE)	35000		Y	1800	8/12/2008	Normal	ug/l	N	35000		
RW-5	SW8260B	trans-1,2-Dichloroethene		U	N	1800	8/12/2008	Normal	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	85000		Y	1800	8/12/2008	Normal	ug/l	N	85000		
RW-5	SW8260B	Vinyl Chloride		U	N	1800	8/12/2008	Normal	ug/l	N	0	**140,500**	**140.5**
RW-5	SW8260B	1,1,1-Trichloroethane		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	1,1,2,2-Tetrachloroethane	9200		Y	1800	8/12/2008	Duplicate	ug/l	N	9200		
RW-5	SW8260B	1,1,2-Trichloroethane		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	1,1-Dichloroethene		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	1,2,4-Trichlorobenzene	4300		Y	1800	8/12/2008	Duplicate	ug/l	N	4300		
RW-5	SW8260B	1,2-Dichlorobenzene		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	1,3-Dichlorobenzene		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	1,4-Dichlorobenzene		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	Benzene		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	Carbon tetrachloride		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	Chlorobenzene		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	Chloromethane (Methyl chloride)		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	cis-1,2-Dichloroethene	6300		Y	1800	8/12/2008	Duplicate	ug/l	N	6300		
RW-5	SW8260B	Methylene chloride (Dichloromethane)		U	N	8900	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	Tetrachloroethene (PCE)	30000		Y	1800	8/12/2008	Duplicate	ug/l	N	30000		
RW-5	SW8260B	trans-1,2-Dichloroethene		U	N	1800	8/12/2008	Duplicate	ug/l	N	0		
RW-5	SW8260B	Trichloroethene (TCE)	65000		Y	1800	8/12/2008	Duplicate	ug/l	N	65000		
RW-5	SW8260B	Vinyl Chloride		U	N	1800	8/12/2008	Duplicate	ug/l	N	0	**114,800**	**114.8**

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

Q2-08

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	28.710	3.8	2.20E-06	0.00024002	1190476.19	313,388	75
RW2	0.257	3.8	2.20E-06	0.00000215	1190476.19	3,751,247	8
RW3	1.103	3.8	2.20E-06	0.00000922	1190476.19	1,248,741	12
RW4	5.095	3.8	2.20E-06	0.00004259	1190476.19	289,931	12
PR4	6.973	3.8	2.20E-06	0.00005829	1190476.19	166,490	10
RW5	146.500	3.8	2.20E-06	0.00122474	1190476.19	639,398	783
PR12	129.200	3.8	2.20E-06	0.00108011	1190476.19	340,603	368
OBA9AR	33.060	3.8	2.20E-06	0.00027638	1190476.19	652	0.18
TOTAL							**1,268**

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	0.0028	3.8	2.20E-06	0.00000002	1190476.19	313,388	0.007
RW2	0.0000	3.8	2.20E-06	0.00000000	1190476.19	3,751,247	0.000
RW3	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,248,741	0.000
RW4	0.0003	3.8	2.20E-06	0.00000000	1190476.19	289,931	0.001
PR4	0.0011	3.8	2.20E-06	0.00000001	1190476.19	166,490	0.002
RW5	0.0000	3.8	2.20E-06	0.00000000	1190476.19	639,398	0.000
PR12	0.0000	3.8	2.20E-06	0.00000000	1190476.19	340,603	0.000
OBA9AR	0.0000	3.8	2.20E-06	0.00000000	1190476.19	652	0.000
TOTAL							**0.010**

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	0.0234	3.8	2.20E-06	0.00000020	1190476.19	313,388	0.06
RW2	0.0003	3.8	2.20E-06	0.00000000	1190476.19	3,751,247	0.01
RW3	0.0500	3.8	2.20E-06	0.00000042	1190476.19	1,248,741	0.52
RW4	0.0845	3.8	2.20E-06	0.00000071	1190476.19	289,931	0.20
PR4	0.3650	3.8	2.20E-06	0.00000305	1190476.19	166,490	0.51
RW5	0.3810	3.8	2.20E-06	0.00000319	1190476.19	639,398	2.04
PR12	0.3180	3.8	2.20E-06	0.00000266	1190476.19	340,603	0.91
OBA9AR	0.9560	3.8	2.20E-06	0.00000799	1190476.19	652	0.01
TOTAL							**4.3**

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

6,750,450
total flow (gal)

ATTACHMENT 5

Olin

FILE COPY

3855 NORTH OCOEE STREET SUITE 200, CLEVELAND, TN 37312
OFFICE: (423) 336-4000 FAX: (423) 336-4166

September 3, 2008

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

re: Groundwater Monitoring / Corrective Action Inspection
Olin Chemical, Buffalo Avenue Facility, Niagara Falls, NY

Dear Mr. Czuhanich:

This is in response to your letter of June 11, 2008, and a follow up to my letter of July 2, 2008, addressing your groundwater Monitoring / Corrective Action Inspection at Olin's Buffalo Avenue facility in Niagara Falls, NY. In your letter of June 11, 2008 you noted some issues with the condition of monitoring wells. My letter of July 2, 2008 presented a plan of action and schedule for addressing your inspection issues. This letter documents the completion of our inspection and documentation of all wells' corrective actions.

The issues, as detailed in your letter, consisted of well covers having unsecured bolts for flush mounted wells, non-labeled wells and uncovered tops of several piezometers. All monitor wells, piezometers and recovery wells were inspected, issues identified, and corrective actions completed. The attached spreadsheet documents the well-by-well actions taken. All corrective actions were completed by August 31, 2008, as projected.

Please direct any follow up questions or comments to me at 423/336-4587. I will be glad to accompany you on a follow up inspection, should you require one.

Sincerely,

Michael J. Bellotti
OLIN CORPORATION

cc:
Pat Concannon - NYSDEC Buffalo, NY
Gina Senia: Olin Niagara Falls, NY
Ellen Stein: USEPA: Region II, New York, NY
Rick Marotte: Mactec Engineering: Kennesaw, GA

8/28/2008	OLIN NIAGARA PLANT - GROUNDWATER WELL SURVEY			
Well I.D.	*Remarks*	*Suggested Repair*	*Repair Status*	*Labeled*
OBA-1A	OK		Complete	Y
OBA-1B	Needs Bolts		Complete	Y
OBA-1C	Needs Bolts		Complete	Y
OBA-2A	Concrete collar cracked	Bust out old concrete and repour	Complete	Y
OBA-2B	Concrete collar cracked	Bust out old concrete and repour	Complete	Y
OBA-2C	Concrete collar cracked	Bust out old concrete and repour	Complete	Y
OBA-3A	OK		Complete	Y
OBA-3B	OK		Complete	Y
OBA-3C	OK		Complete	Y
OBA-4A	Concrete collar cracked	Bust out old concrete and repour	Complete	Y
OBA-4B	Concrete collar cracked	Caulk or grout the cracks	Complete	Y
OBA-4C	Concrete collar cracked	Caulk or grout the cracks	Complete	Y
OBA-5A	Concrete collar cracked	Caulk or grout the cracks	Complete	Y
OBA-5B	Concrete collar cracked	Caulk or grout the cracks	Complete	Y
OBA-5C	Concrete collar cracked	Caulk or grout the cracks	Complete	Y
OBA-6A	OK		Complete	Y
OBA-6B	OK		Complete	Y
OBA-6C	OK		Complete	Y
OBA-7A	OK		Complete	Y
OBA-7B	OK		Complete	Y
OBA-7C	OK		Complete	Y
OBA-8A	OK		Complete	Y
OBA-8B	OK		Complete	Y
OBA-8C	OK		Complete	Y
OBA-9A	Procasing damaged	Weld or bolt on a new locking tab.	Complete	Y
OBA-9AR	OK		Complete	Y
OBA-10A	OK		Complete	Y
OBA-11A	Hinge sprung off procasing/concrete collar damaged	Caulk Cracks	Complete	Y
OBA-11B	Procasing damaged, Bolt on tab, install new lock	New lock (3323) and tab	Complete	Y
OBA-11C	OK		Complete	Y
OBA-12A	OK		Complete	Y
OBA-12B	Procasing damaged	6" lid needed,New Lock (2269)	Complete	Y
OBA-12C	Concrete collar cracked	Bust out old concrete and repour	Complete	Y
OBA-13A	OK		Complete	Y
OBA-13B	Concrete collar cracked	Caulk or grout the cracks	Complete	Y
OBA-13C	Procasing damaged/concrete collar cracked, New Lock (2269)	Grout cracks, weld on new top.	Complete	Y
OBA-13AOB	OK		Complete	Y
OBA-14A	OK		Complete	Y
OBA-14B	Concrete collar cracked	Caulk or grout the cracks	Complete	Y
OBA-14C	OK		Complete	Y
OBA15A	OK		Complete	Y
OBA-15B	OK		Complete	Y
OBA-16A	OK		Complete	Y
OBA-16B	OK		Complete	Y
OBA-18A	OK		Complete	Y
OBA-19A	Procasing damaged	bend and re-straighten top lid.	Complete	Y
OBA-21AB	New lock	completed, by CRA	Complete	Y
OBA-23A	Needs Bolts		Complete	Y
OBA-23B	Needs Bolts		Complete	Y

8/28/2008	OLIN NIAGARA PLANT - GROUNDWATER WELL SURVEY			
Well I.D.	*Remarks*	*Suggested Repair*	*Repair Status*	*Labeled*
OBA-24A	Needs new roadbox	completed.	Complete	Y
OBA-24B	Roadbox destroyed	completed.	Complete	Y
OBA-25A	Needs new roadbox	Bust out /re-pour, Set new 10" box	Complete	Y
OBA-26A	Installed new J plug	completed.	Complete	Y
OBA-26B	Needs new roadbox	Bust out /re-pour, Set new 8" box	Complete	Y
PR-1	OK		Complete	Y
PR-2	OK		Complete	Y
PR-3	OK		Complete	Y
PR-4	OK	OK	Complete	Y
PR-5	OK		Complete	Y
PR-6	Needs Bolts		Complete	Y
PR-7	Needs Bolts		Complete	Y
PR-8	Needs Bolts		Complete	Y
PR-9	Needs Bolts		Complete	Y
PR-10	Needs 8" lid (ordered)		Complete	Y
PR-11	Needs Bolts		Complete	Y
PR-12	OK		Complete	Y
PR-13	Needs Bolts		Complete	Y
RW-1	OK	OK	Complete	Y
RW-2	OK	OK	Complete	Y
RW-3	OK	OK	Complete	Y
RW-4	OK	OK	Complete	Y
RW-5	OK	OK	Complete	Y
PN-1 A+B	Needs Bolts		Complete	Y
PN-2 A+B	Needs Bolts		Complete	Y
PN-3 A+B	Needs Bolts		Complete	Y
PN-4 A+B	Needs Bolts		Complete	Y
PN-5 A+B	Needs Bolts		Complete	Y
PN-6 A+B	Needs Bolts		Complete	Y
PN-7 A+B	Needs Bolts		Complete	Y
PN-8 A+B	Needs Bolts		Complete	Y
PN-9A	OK		Complete	Y
PN-9B	OK (concrete marked 27B)		Complete	Y
PN-10 A+B	OK		Complete	Y
PN-11A	Needs Bolts		Complete	Y
PN-11B	OK		Complete	Y
PN-12A	Needs Bolts		Complete	Y
PN-12B	Needs 12" lid		Complete	Y
PN-13A	OK		Complete	Y
PN-13B	OK		Complete	Y
PN-14A	OK		Complete	Y
PN-14B	OK		Complete	Y

8/28/2008	OLIN NIAGARA PLANT - GROUNDWATER WELL SURVEY			
Well I.D.	*Remarks*	*Suggested Repair*	*Repair Status*	*Labeled*
PN-15A	OK		Complete	Y
PN-15B	OK		Complete	Y
PN-16A	OK		Complete	Y
PN-16B	OK		Complete	Y
PN-17A	Needs 6" roadbox lid		Complete	Y
PN-17B	OK		Complete	Y
PN-18A	OK		Complete	Y
PN-18B	OK		Complete	Y
PN-19A	OK		Complete	Y
PN-19B	Needs 12" roadbox lid		Complete	Y
PN-20A	OK		Complete	Y
PN-20B	OK		Complete	Y
PN-21A	Needs Bolts		Complete	Y
PN-21B	Needs Bolts		Complete	Y
PN-22B	OK		Complete	Y
PN-23B	Needs Bolts		Complete	Y
PZ-1A	OK		Complete	Y
PZ-2A	OK		Complete	Y
PZ-3A	Road box smashed by plow	Grout Over	Complete	Y
PZ-4A	lost: not located			Y
PZ-5A	Road box smashed by plow	Grout Over	Complete	Y
PZ-6A	Casing raised above grade	Cut & Resurvey or Grout Over	Complete	Y
PZ-7A	lost: not located			
PZ-8A	Road Box Destroyed	Grout Over	Complete	Y
PZ-9A	Road box smashed by plow	Grout Over	Complete	Y
PZ-10A	OK		Complete	Y
PZ-11A	lost: not located			
PZ-12A	OK		Complete	Y
PZ-13A	lost: not located			
PZ-14A	Road Box Destroyed	Grout Over	Complete	Y
MW-2AR	OK		Complete	Y
MW-20B	OK		Complete	Y
MW-22B	lost: not located			
MW-22C	Needs Bolts/ concrete cracked	Caulk cracks	Complete	Y
MW-22D	Road box smashed by plow	bust out and repour w/ new box	Complete	Y
MW-22F	OK		Complete	Y
OW-22A	OK		Complete	Y
OW-22B	OK		Complete	Y
ORC-1	OK		Complete	Y
ORC-2	OK		Complete	Y
ORC-3	OK		Complete	Y
ORC-4	OK		Complete	Y
ORC-5	OK		Complete	Y
ORC-6	OK		Complete	Y
SRW-1	OK		Complete	Y
SRW-2	OK		Complete	Y

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
Bureau of Hazardous Waste and Radiation Management, 9th Floor
625 Broadway, Albany, New York 12233-7258
Phone: (518) 402-8594 • **FAX:** (518) 402-9024
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

MEMORANDUM

TO: Denise Radtke, Chief, Engineering Geology Section

FROM: Alex Czuhanich, Engineering Geologist /s/

SUBJECT: Olin Chemicals, Buffalo Ave. Facility, Niagara Falls, New York
EPA ID No. NYD002123461
RCRA Facility Operation and Maintenance
Groundwater Monitoring/Corrective Action Inspection Report

DATE: June 2, 2008

Inspection Date: May 21, 2008

Personnel: Gina Senia and Mike Sebring (Olin)
Dave Tyran and Sean Gardner (Conestoga-Rovers & Associates, consultant)
Alex Czuhanich (NYSDEC)

Olin Chemicals' Buffalo Avenue facility operates a remedial program under Consent Order #R9-4171-94-08. This memo documents the findings of an inspection of the operation and maintenance of that remedial program.

Report of Field Activities

Groundwater Monitoring

I arrived on site at approximately 9:00 am on the day of the inspection. Field personnel from Conestoga-Rovers & Associates (CRA) were temporarily off site so Olin representatives accompanied me on a tour of the facility's groundwater treatment plant and an inspection of the monitoring well and extraction well network (see discussions in subsequent sections below).

Upon their return, CRA personnel set up purging and sampling equipment on monitoring wells PN-15A and PN-15B. CRA measured depth to water with an electronic water-level meter and then used low-flow techniques to purge both wells until field parameters stabilized. A Horiba Water Quality Monitor with in-line flow cell was used to measure field parameters including pH,

temperature, conductivity, turbidity, oxidation-reduction potential, and dissolved oxygen. Both wells stabilized fairly quickly and samples were collected by disconnecting the discharge tube from the in-line cell and redirecting flow to the sample containers [Figure 1]. Well purging and sampling protocols were satisfactory.

Monitoring Wells

Several maintenance issues were noted regarding monitoring wells. First, a number of wells located along Gill Creek (e.g., PR-6 and PR-13, among others) had well covers that were missing bolts and were thus not properly secured. Second, several wells lacked legible identification labels. And third, two piezometers had their tops sheared off and were effectively open conduits from the surface to the aquifer. Both of these damaged piezometers were unlabeled but one is located next to well PR-8 and is believed to be PN-6A [Figure 2]. The second is located next to well PR-9 and is believed to be PN-7A.

Other aspects of well maintenance were satisfactory. Concrete aprons were in good repair, inner and outer casing materials were in good condition, and inner casings were securely capped.

Groundwater Treatment Facility

Following an exceedance of contaminant loading in their permitted sewer discharges, Olin installed a new carbon polisher [Figure 3] to their groundwater treatment system to prevent a recurrence. Mr. Sebring discussed operation of the polisher and I inspected the daily log sheet for operation of the treatment system. The daily log was up-to-date and complete.

Asphalt Paving

Olin maintains asphalt paving over most of the site to prevent erosion and fugitive dust emission. During the site tour and inspection most of the area of Plant 2 was covered on foot. A visual inspection was made of the paving materials and the pavement was found to be well maintained and in overall good condition.

Conclusions and Recommendations

As indicated above, several maintenance problems were noted for monitoring wells and piezometers. The following recommendations are provided to address these issues:

1. All the monitoring wells and piezometers in the remedial program should be inspected to ensure they are properly secured. Missing cap bolts, damaged caps, etc. should be replaced or repaired as needed.

temperature, conductivity, turbidity, oxidation-reduction potential, and dissolved oxygen. Both wells stabilized fairly quickly and samples were collected by disconnecting the discharge tube from the in-line cell and redirecting flow to the sample containers [Figure 1]. Well purging and sampling protocols were satisfactory.

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Conclusions and Recommendations

As indicated above, several maintenance problems were noted for monitoring wells and piezometers. The following recommendations are provided to address these issues:

1. All the monitoring wells and piezometers in the remedial program should be inspected to ensure they are properly secured. Missing cap bolts, damaged caps, etc. should be replaced or repaired as needed.

2. All wells and piezometers should have permanent, legible identification labels. A stamped or engraved dog tag affixed to the well cap or an ID number engraved or written with a weld bead on the cap are effective, permanent labels.

3. Temporary plugs should be installed as soon as possible to prevent contaminant infiltration in the two sheared off piezometers until more permanent repairs can be implemented [Note: an email regarding this issue was sent to Mike Bellotti, Olin's project manager for this site, so that the piezometers could be plugged in a timely manner].

The remaining aspects of the remedial program were satisfactory. Well sampling protocols were thorough and effective, the groundwater treatment facility operates effectively and is regularly monitored, and soil capping materials are adequately maintained to prevent exposure to contaminated soils. Overall, and with implementation of the recommendations above, the remedial program at this facility is being adequately operated and maintained for protection of human health and the environment.

Attachment (Figures)

cc: J. Strickland, Region 9

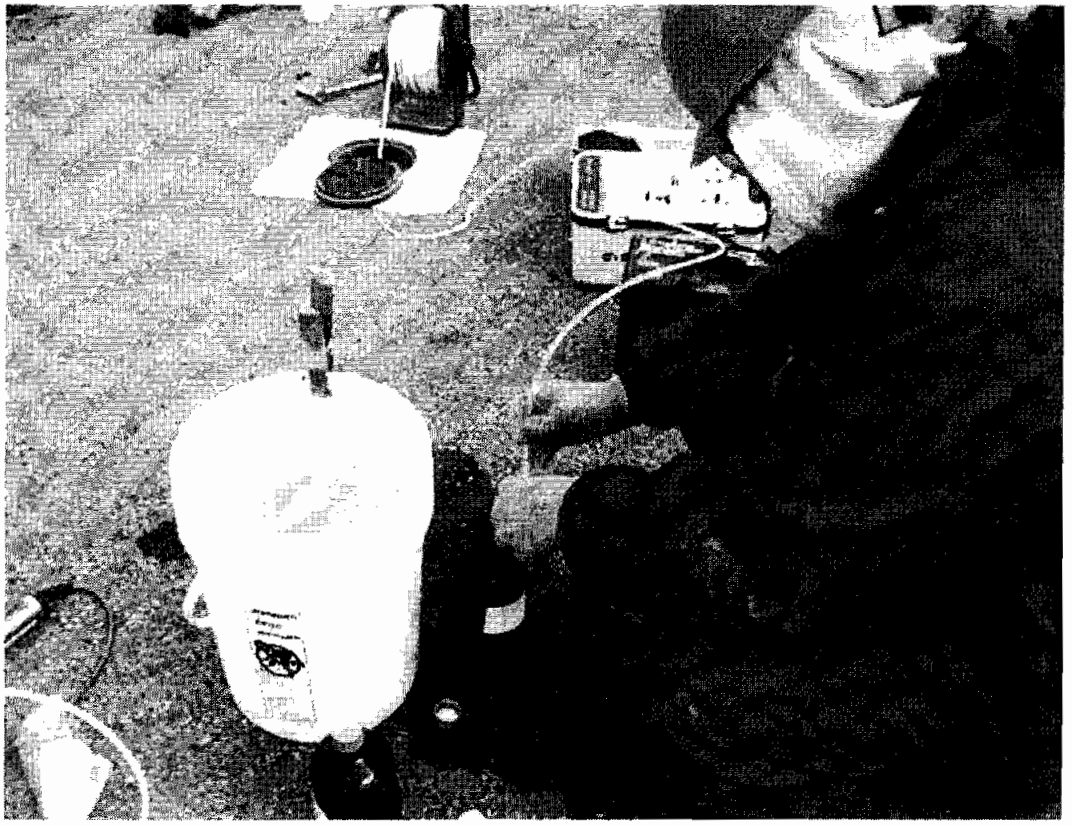

Figure 1

Figure 1

Bellotti, Mike CERG

From: Bellotti, Mike CERG
Sent: Tuesday, April 29, 2008 10:03 AM
To: NYSDEC Czuhanich, Alex
Cc: Bellotti, Mike; Senia, Gina
Subject: Olin Niagara Falls plant site

Alex:
This is to notify you that our Niagara Falls plant will implement a one day maintenance shutdown for portions of the facility on May 17, 2008. This shutdown will affect the production well at the west end of our plant, which serves to pump deeper groundwater and treat it via the DuPont carbon units. Should the timing or duration of the shutdown change, I will provide you with further information.

Mike Bellotti
Principal Scientist
Olin Corporation
Environmental Remediation Group
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312
423/336-4587
MJBellotti@Olin.com

Bellotti, Mike CERG

From: Alex Czuhanich [agczuhan@gw.dec.state.ny.us]
Sent: Wednesday, July 16, 2008 9:36 AM
To: Bellotti, Mike CERG
Cc: Senia, Gina L NIAG
Subject: RE: Olin Niagara Falls Plant

Thank you, Mike.

Alex Czuhanich
Engineering Geologist
NYS Dept. of Environmental Conservation
Division of Solid and Hazardous Materials
625 Broadway, 9th Floor
Albany, New York 12233-7258
518-402-8594
agczuhan@gw.dec.state.ny.us

>>> "Bellotti, Mike CERG" <MJBellotti@olin.com> 7/16/2008 9:33 AM >>>

Alex:

The groundwater treatment system at the Olin Niagara Falls plant site went back online this morning (7/16/08) at 6AM. Thesystem was down for approximately two days, as predicted.

The cause of the system down time was leakage in a seal between two of the air stripper trays. The area of leakage has been re-sealed and reinforced by a bolted bracket support.

Mike Bellotti
Principal Scientist
Olin Corporation
Environmental Remediation Group
3855 North Ocoee Street
Suite 200
Cleveland, TN 37312
423/336-4587
MJBellotti@Olin.com

From: Alex Czuhanich [mailto:agczuhan@gw.dec.state.ny.us]
Sent: Tuesday, July 15, 2008 8:05 AM
To: Bellotti, Mike CERG
Subject: Re: Olin Niagara Falls Plant

Thank you, Mike.

Alex Czuhanich
Engineering Geologist
NYS Dept. of Environmental Conservation
Division of Solid and Hazardous Materials
625 Broadway, 9th Floor
Albany, New York 12233-7258
518-402-8594
agczuhan@gw.dec.state.ny.us

>>> "Bellotti, Mike CERG" <MJBellotti@olin.com> 7/14/2008 3:54 PM >>>

Alex:

This is to inform you that our Niagara Falls Treatment plant is currently down due to a leak in the air stripper. We expect that the duration of repairs will be 24 to 48 hours. I'll keep you apprised of our progress.

Mike Bellotti

Principal Scientist

Olin Corporation

Environmental Remediation Group

3855 North Ocoee Street

Suite 200

Cleveland, TN 37312

423/336-4587

MJBellotti@Olin.com

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Bellotti, Mike CERG

From: Alex Czuhanich [agczuhan@gw.dec.state.ny.us]
Sent: Wednesday, July 23, 2008 9:58 AM
To: Bellotti, Mike CERG
Subject: Re: Olin Niagara Falls Plant site

Thanks, Mike. Glad to see improvements to the system.

Alex Czuhanich
Engineering Geologist
NYS Dept. of Environmental Conservation
Division of Solid and Hazardous Materials
625 Broadway, 9th Floor
Albany, New York 12233-7258
518-402-8594
agczuhan@gw.dec.state.ny.us

>>> "Bellotti, Mike CERG" <MJBellotti@olin.com> 7/23/2008 9:37 AM >>>

Alex:

This is to give you notice of a planned maintenance shutdown of the groundwater remediation system at Olin's Niagara Falls Plant site.

We are in the process of converting from the OMNX to the APACS process control software at our facility. The process control software helps us to adjust system parameters such as pump rates, on-off levels, acid addition rates etc. It also lets us manage the system by storing data and sending alarm signals for system problems. The new software will allow us to improve the overall system management and to have less overall down time in the future.

We anticipate going online with the new software during the week of August 4. As we convert and test the various system functions, the system will be down for approximately 3 to 5 days. I will keep you apprised of any change in schedule and will let you know when the system has been re-activated. If you have any questions or concerns, please let me know. Thanks.

Mike Bellotti

Principal Scientist

Olin Corporation

Environmental Remediation Group

3855 North Ocoee Street

Suite 200

Cleveland, TN 37312

423/336-4587

Bellotti, Mike CERG

From: Alex Czuhanich [agczuhan@gw.dec.state.ny.us]
Sent: Friday, August 29, 2008 8:55 AM
To: Bellotti, Mike CERG
Subject: Re: Olin Niagara Falls Plant site Operation and Maintenance Manual

Mike,

This notification is sufficient. It will be included in the O&M Plan as an amendment. Thanks.

Alex Czuhanich
Engineering Geologist
NYS Dept. of Environmental Conservation
Division of Solid and Hazardous Materials
625 Broadway, 9th Floor
Albany, New York 12233-7258
518-402-8594
agczuhan@gw.dec.state.ny.us

>>> "Bellotti, Mike CERG" <MJBellotti@olin.com> 8/28/2008 11:15 AM >>>

Alex:

As you know, as of August, 2008, Olin changed the automated process control system at our Niagara Falls Plant. The change was from the OMNX Controller to a Siemens Apacs Controller. This was accomplished by transferring all of the field input/output devices from the OMNX cabinet to the Apacs control cabinet. The software was then converted, maintaining all of the existing logic.

Olin's current version of the Remediation System's Operation and Maintenance Manual refers to OMNX in the context of the automated control system. This is to notify you of the change, and request that this change be documented by the addition of this notification as an amendment to the O&M Plan, rather than the re-issue of the plan with multiple name-change edits.

Please let me know if you concur with this approach. Thanks very much.

Mike Bellotti, P.G.

Principal Scientist

Olin Corporation

Environmental Remediation Group

3855 North Ocoee Street Suite 200

Cleveland, TN 37312

423/336-4587