Olin

P.O. BOX 248, 1186 LOWER RIVER ROAD, NW, CHARLESTON, TN 37310-0248
(423) 336-4000 FAX: (423) 336-4183

October 29, 1999

Mr. William Wertz
New York State Dept. of Environmental. Conservation
Division of Solid Waste Management
50 Wolf Road
Albany, New York 12233

re: Quarterly Report: Olin Chemicals
Buffalo Ave. Facility, Niagara Falls, NY

Dear Mr. Wertz:

This is the eighth Quarterly report, 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 July 1 through September 30, 1999.

Operation / Maintenance issues :

O&M Documentation: Details of the implementation of routine maintenance tasks and trouble shooting activities are included in the monthly memoranda from Olin's consultant, Law Engineering and Environmental Services, included as ***Attachment 1***. While the monthly O&M reports document details of all issues, the most significant O&M issues are described below:

Well cleaning: All RW wells have been mechanically cleaned during the third quarter of 1999. The work was performed by a commercial drilling contractor. The need for cleaning had been evident by examination of head losses, i.e. the comparison of the water level in the well and the water level in the piezometer built into the sand pack. Following the cleaning, the head losses were minimal, showing distinct improvement in well performance. Further, all wells showed increased pump rates following the cleaning. The cleaning is scheduled on an annual basis, and will be a routine part of annual maintenance.

DNAPL: The line from well RW-5 showed a pressure drop. Upon visual inspection, the pressure drop was attributed to the presence of DNAPL. DNAPL was identified at the bottom of RW-5 at a thickness of approximately one foot. The DNAPL was analyzed and determined to be predominantly composed of chlorinated benzene compounds with minor amounts of methylene choride and aliphatic organic compounds. No DNAPL was found in the clarifier tank. After the DNAPL was removed from RW-5, it did not recur. DNAPL presence did not impact the operation of the remedial system. Analysis is summarized in the monthly O&M reports in ***Attachment 1***, and included on the attached diskette with other monitoring data, in ***Attachment 2.***

Due to the observation of DNAPL at RW5, Olin will enhance the protocol for DNAPL checks, beyond the protocol currently included in the site O&M Plan. The following paragraph describes the enhanced protocol, and will be added as an addendum to the O&M Plan:

The presence /absence of DNAPL will be checked monthly at all RW wells, in addition to the routine observation for DNAPL in the clarifier tank, per current protocol. This check will be done by installing dedicated tubing to the bottom of the in the in-well piezometers adjacent to each RW well, and removing approximately one gallon of liquid per check per well. Each sample will be visually inspected for possible presence of DNAPL. Any DNAPL observed in the check sample will be removed. Should more than one gallon of DNAPL be observed, additional liquid will be extracted until all DNAPL is removed (to a practical degree). All removed DNAPL will be disposed appropriately. DNAPL check results will be included in O&M reports for the month of the check, and will be thus included in Olin's quarterly reports to NYSDEC.

This protocol is effective immediately, and will begin in fourth quarter, 1999.

Clarifier tank piping: Clarifier tank effluent piping was de-clogged, with the de-clogging activities consisting of cleaning out calcium carbonate encrustation. This clogging is believed to be caused by historic encrustation from buildup prior to acidification of the conveyance lines. A port was installed to acid-flush the line as necessary. As noted in the monthly O&M reports in ***Attachment 1***, recovery well down time was minimized, keeping it to approximately 1 day.

***Hydraulic capture*:**
Attachment 3 includes piezometric maps and supporting data for each hydraulic zone for July, august and September, 1999 and plus hydraulic cross sections and a summary of well construction and monitored zones.

- The piezometric plots indicate that we are achieving capture in the A-zone. This is demonstrated by monitoring the cones of depression around each of the five recovery wells, by the elevation of Gill Creek being above A-zone groundwater levels west of Gill Creek, and by a dry zone between the northern recovery wells (RW-1 and 2) and Buffalo Avenue.
- B-zone capture is being achieved at the northern end of Plant 2, as data from the new piezometers indicate a gradient toward the recovery wells (RW1 and 2) from Buffalo Avenue. B-zone capture is being achieved along Gill Creek, as evidenced by the piezometric contours. The Gill Creek stage measurements have added to the certainty of this conclusion, as it is consistently greater than B-zone wells west of Gill Creek. The Olin production well draws B-zone groundwater in the western portion of the facility.
- C and CD zone groundwater flow and capture is consistent with prior measurements, with flow being predominantly westward toward the Olin production well.

Groundwater sampling and analysis:
The first 1999 semiannual sampling was conducted in May, 1999. Results are tabulated and included on the diskette in ***Attachment 2***. Contaminant isograd contour maps for chlorinated benzene compounds are included in ***Attachment 4***. Contaminant levels are similar to those detected in prior semiannual samplings, for all parameters.

As noted and described above, during the third quarter, DNAPL was detected in RW5. DNAPL analysis indicated that it consists of chlorinated benzene compounds with minor amounts of methylene chloride and aliphatic organic compounds. Olin will continue to track and observe for any presence of DNAPL

Extracted groundwater volume and contaminant mass:
The volume of pumped groundwater for the third quarter of 1999 was approximately 5.2 million gallons, the greatest volume since system start-up. The total volume of groundwater extracted and treated since system startup is approximately 21.5 million gallons.

The Recovery Well flow data, recovery well header contaminant concentrations and estimated mass removed for the third quarter of 1999 are included in **Attachment 5**. A summary table of extracted groundwater and contaminant mass is presented below:

Summary: Groundwater and Mass extracted

Quarter	organics lb	mercury lb	pesticides lb	g.w. extracted gal
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
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
TOTAL	**5091**	**1**	**36**	**21,468,266**

Monitoring program:

New wells: As part of Olin's management of the Solvent Chemical site's remediation activities on our property east of Gill Creek, Olin has installed three well pairs at the southern end of that parcel. The well pairs screen the A and B-zones and are numbered OBA 24, 25 and 26, A and B. The locations are shown on the piezometric and contaminant isograd contour plots. These wells were measured hydraulically in July, August and September, 1999 and sampled one time for VOC's. The data are included in the piezometric and groundwater contaminant isograd plots contained in this report. Olin will sample these wells on an as-needed basis to support our management of the Solvent Chemical site, and will make hydraulic measurements according to the routine piezometric measurement schedule. These wells' as-built drawings are included in ***Attachment 6***, and their data are tabulated in ***Attachment 7***. The VOC analyses are also included electronically on the diskette in ***Attachment 2***.

Monitoring Program Modification:

The remedial system will have been online for two years during the upcoming quarter, the fourth quarter of 1999. In that time, we have reached a point at which we have the system running under control, and, while there are maintenance issues, there are no maintenance surprises. The system is being run on a routine basis with routine maintenance and occasional trouble-shooting. Hydraulic capture has been consistent. Our groundwater monitoring data have given us a good characterization of the groundwater quality.

Having achieved an operational status in which the system runs routinely and well, Olin believes that, at this time, it is appropriate to request a modification of some monitoring tasks, as performed over thee first two years of operation. Olin's official letter of request to NYSDEC is included in ***Attachment 8 .*** The request is summarized below.

- Olin requests that, beginning in the first quarter of yr2000, the frequency of piezometric monitoring be reduced from monthly to quarterly. If this request is granted, we will provide assurances of capture during the two months per quarter in which full piezometric data are not taken by closely monitoring the drawdown target level in each recovery well via our automated OMNX system. This will ensure that the head level in each recovery well is kept at a level which has historically provided hydraulic capture, as measured by sitewide piezometric readings. Of course, the quarterly piezometric readings and plots will serve as a direct indicator of groundwater capture.
- Olin requests that, beginning in the yr2000, the parameters barium, copper, cyanide, lead, zinc, methanol and the semivolatile compound trichlorophenol be removed from the analytical parameter list. This removal would be done with the understanding that, at such time as the remedial system approaches it's end point, these parameters may be re-instated to ensure full remediation compliance. Results to date for all of these parameters are included on the diskette in ***Attachment 2***. As the data show, none of these parameters represents a significant portion of the contamination onsite. Olin will continue to sample the contaminants of primary concern: mercury, pesticides and volatile organic compounds.

We believe that we have made significant progress since system startup in running the remediation system efficiently and effectively. 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
Data diskette: groundwater monitoring data.
Files:

- Olin_NF_GW_data.xls
- RW-5NAPL-results.xls
- OBA242526-9906.xls

Attachment 3:
Piezometric plots, hydraulic cross sections and supporting tables

Attachment 4:
Contaminant isograd contour maps

Attachment 5:
Recovery well flow, header contaminant concentration data and contaminant mass removed

Attachment 6
As-built drawings of new well pairs east of Gill Creek

Attachment 7
Data summary: new wells east of Gill Creek.

Attachment 8
Letter of request for monitoring program modification (Michael J. Bellotti of Olin to William Wertz of NYSDEC, October 4, 1999)

cc:
Stanley Radon - NYSDEC Buffalo
Kelly McIntosh: Conestoga-Rovers & Associates: Niagara Falls, NY
Vickie Ray: Olin Charleston
Armand Damesimo: Olin Niagara Falls, NY
Dale Carpenter: USEPA: Region II, New York, NY
Rick Marotte: Law Engineering: Kennesaw, GA
Monica L. Fries Esq.- Husch & Eppenberger: St. Louis, MO

LAW

LAWGIBB Group Member

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston; Don Greer, Karl Rasch, Ben Brayley, and Armand Damesimo @ Olin-Niagara; Andy Clark , and Rick Marotte @ LAW.

From: Anna Moomaw

Date: August 11, 1999

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System

In continuing efforts to keep everyone informed, this memo addresses the status of the O&M issues for the ground-water collection and treatment system. This memo follows from the monthly status update memo issued 7/12/99.

System Status

The following table presents general treatment system data obtained from OMNX and during field monitoring for the month of July.

Ground-Water Collection and Treatment System Status					
	RW-1	RW-2	RW-3	RW-4	RW-5
Pumping Systems (Data from 7/1/99-7/31/99)					
Average Flow Rate (gpm)	1.2	2.8	3.1	14.9	4.8
End of Month Flow Rate (gpm)	0	5.5	4.8	16.2	7.9
New Target Flow Rate (gpm)	**1-3**	**5-6**	**4-5**	**18-20**	**8-10**
Avg GW Elevation (ft above MSL)	(from table below)	547	557	547	552
End of Period GW Elevation (ft above MSL)	Transducer Off-line	Transducer Offf-line	559 (high)	546 (low)	555 (cycling)
Target GW Elevation (ft above MSL)	**552**	**549**	**551**	**550**	**550**
Comments	Mechanically clean well; Acid flush lines; Fix Transducer	Fix Transducer	None	None	None

With the exception of RW-1, the system is functioning well and target flow rates are being achieved.

Ground-Water Collection and Treatment System Status					
Well Screen Losses (The well screen loss is defined as the difference between the well piezometer outside the casing and the water level inside the casing)					
	RW-1	RW-2	RW-3	RW-4	RW-5
July 23, 1999 Data (AFTER mechanical well cleaning):					
GW Elevation at Piezometer (ft above MSL)	558.5	554.9	557.9	558.1	557.5
GW Elevation at RW (ft above MSL)	558.6	554.9	557.9	558.1	557.5
Difference (ft)	0.1	0	0	0	0
Comments	None	None	None	Level reading in OMNX on 7/23 was 545 ft.	None

Mechanical Well Cleanings

Based on the flow rate data showing decreasing flow rates over time, well screen losses appeared significant in wells RW-2, RW-3, RW-4, and RW-5. These wells were mechanically cleaned on July 6 to 9, 1999. Procedures followed those in Section 3.2 of the O&M Plan. RW-5 was out of service for approximately 5 days (July 2 through July 6) and RW-3 was out of service on July 8 due to the well cleaning activities. Since the mechanical well cleanings, flow rates from these wells have improved. The flow rate data for the two weeks immediately following well cleaning does not clearly reflect this flow rate improvement due to other operational issues which are described below. However, a comparison of the average flow rates for June as compared to the last eleven days of July (system stabilized) reveals the following:

Before and After Mechanical Well Cleaning Activities				
	RW-2	RW-3	RW-4	RW-5
June - Average Flow Rate (gpm)	1.6	2.0	17.3	3.6
July 21-31 – Average Flow Rate (gpm)	5.0	4.4	19.3	8.6

Sampling of Apparent DNAPL from RW-5

The last week of June, the plant noted the presence of a substance which is believed to be DNAPL in the line from RW-5. The plant noted increased pressure drop in the lines and visually noted an oily substance mixed with the water pumped from the well. When this substance was noted, the system was operating near the low-level setpoint for RW-5. CRA sampled this substance from RW-5 and took level measurements on July 6, 1999. DNAPL (mixed with sediment) thickness in RW-5 was approximately 1 foot. DNAPL sample was collected for the following analytical parameters: silica and organic priority pollutants. Samples were submitted to Quanterra for analysis on July 7. A sample was also given to Ben Brayley to submit to DuPont for analysis (to verify whether or not the substance is silicone oil). CRA checked the clarifier for

the presence of DNAPL, but observed only sediment in the clarifier drain, therefore no sample was collected from the clarifier. Analytical results for the DNAPL sample were received on August 10, 1999. Silicon was not detected in the sample (detection limit of 50 mg/kg). Semi-volatiles (with the exception of 1,2,4-trichlorobenzene) analyses were non-detect. Results for volatile organics detected above the detection limits are summarized below. Detection limits were elevated due to the high concentrations of organics in the sample.

RW-5 DNAPL Analytical Results		
Parameter	Result (ug/kg)	% of Sample
1,2,4-Trichlorobenzene	500,000,000	50%
1,2,3-Trichlorobenzene	150,000,000	15%
1,2-Dichlorobenzene	52,000,000	5.2%
1,4-Dichlorobenzene	35,000,000	3.5%
Methylene Chloride	27,000,000	2.7%
Tetrachloroethene	31,000,000	3.1%

Clarifier Draining and Cleaning

On July 12, 1999, overflow water began to exit the clarifier via the overflow pipe to the treatment area sump. Based on the configuration of the clarifier tank and effluent piping and observations by the plant, the problem was determined to be calcium carbonate encrustation on the effluent pipe, concentrated primarily around the 1-inch inlet holes in the collection pipe ring in the center of the tank. Water, at a reduced flow rate, was still flowing through the treatment system at the time of the overflow condition, therefore the effluent pipe from the clarifier was not completely blocked. Observations during maintenance activities confirmed encrustation around the inlet holes which had built up over time since the system was installed.

The following actions were implemented to alleviate the high pressure drop in the clarifier effluent piping:

1. The recovery well pumps were shut off on July 13 to allow the clarifier tank to gravity drain until the tank was no longer overflowing and the level had returned to normal.
2. The clarifier effluent line was isolated from the 1st stage neutralization tank by installing a blind at the flange connection inlet to the 1st stage neutralization tank.
3. The effluent flange at the bottom of the clarifier was cracked, allowing the water in the clarifier to drain on the floor, to the sump. Water from the sump was pumped directly to the 1st stage neutralization tank for treatment until the clarifier effluent piping could be cleaned.
4. Once the water was drained from the clarifier, fittings were installed in the line to facilitate acid flushing. The effluent line, including the pipe ring inside the clarifier were repeatedly flushed with dilute acid until the encrustation on the pipe ring inlet holes was no longer observed.
5. When acid flushing was complete, the acid was drained from the pipe, the line was flushed with clean water and placed back in service, and pumping from the wells to the clarifier was resumed.

To minimize system down-time due to these maintenance activities, the recovery wells were re-started on July 14 (after the clarifier had finished draining). Until the clarifier maintenance was completed, the flow from the wells was directed to a 55-gallon drum to allow solids and DNAPL to settle out if present. Water from the drum overflowed to the sump, and was pumped from the

sump directly to the 1st stage neutralization tank for treatment. Total recovery system down-time for the clarifier maintenance activities was approximately one and one-half days.

The system is now equipped with a permanent connection which can be used for acid flushing the clarifier line, without completely draining the clarifier. In the future, we recommend conducting clarifier effluent pipe flushing at the same time as mechanical well cleanings as a preventive maintenance measure.

OMNX Upgrades

OMNX upgrades were made to the system on July 12-13, 1999, which caused the system's flow totalizers to reset and the data loggers to stop. The plant re-started the data logger for the recovery system flow and level data on July 16, 1999. Therefore, the flow data reported for July 13 through July 16 is estimated based on the totalized flow data for July 16 and records of system down-time.

pH Control and RW-4 Transducer

The plant reports that the influent pH from RW-3 and RW-5 has been very high recently. The pH from RW-4 has been near neutral. The high pH from RW-3 and RW-5 began causing pH control difficulties when RW-4, operating in auto mode, shut off for a time due to low level readings from the well in mid-July. To reduce the overall influent pH and maintain optimum pH control for the system, the plant has been operating RW-4 in manual mode since mid-July. OMNX reports indicate that the level in RW-4 has stayed around the low-level setpoint since this time (approximately 545 ft AMSL). It should be safe to continue to operate RW-4 in manual mode as long as the water level does not decrease further to below the low-low level setpoint. Beyond the low-low level setpoint, there is potential for pump cavitation, which could reduce the life of the pump.

Based on the field data collected on July 23 (ground-water elevation = 558 ft AMSL at 15:28) versus OMNX data reported for July 23 (elevation = 545 ft AMSL at 20:00), the transducer reading for RW-4 appears to be inaccurate, possibly due to the removal and re-installation of the transducer for mechanical well cleaning. Law will have CRA check the actual ground-water level in the well versus the transducer reading in OMNX during the next round of elevation data collection, which is scheduled to occur next week. If there is still a significant difference between the two readings, the transducer in RW-4 will need to be checked by the plant, either for damage, re-installation to an elevation different than the original setting, or an out-of calibration error. If the discrepancy is due to re-installation of the transducer at a different elevation or the instrument is out of calibration, it will need to be re-calibrated.

RW-1

RW-1 has pumped very little water since mid-July, when the flow rate from RW-2 increased following mechanical well cleaning. On July 23, the plant reported that the well was pumping water with brown solids, which were likely calcium carbonate. Pumping from RW-1 was continued from July 23-26, but due to system plugging, the RW-1 pump has been shut off. The piping from the down-well piping to the treatment plant has plugged with solids. When the plant pulled the piping from the well, they noted encrustation within the well as well as in the pipe. The plant is acid cleaning the piping. Although not previously indicated, it appears that a mechanical well cleaning is needed for RW-1.

Air Stripper Removal Efficiency

Data from the latest round of air stripper sampling (sampled on June 18, 1999) was received on August 10, 1999. This data is attached. Removal efficiencies were similar to previous data with one exception. Methylene chloride removal efficiency appears to have improved since it was last detected and is similar to that predicted by modeling. Law contacted Carbonair to discuss analytical results from previous air stripper influent and effluent sampling events. Carbonair indicated that the removal efficiencies which are below those predicted by their modeling appear to be due to "weeping" in the air stripper. According to the supplier, weeping will occur in a tray-type air stripper when the following occurs within the stripper: 1) air flow or pressure is insufficient to hold up water on the trays, or 2) water chemistry is such that surface tension is reduced. Either problem will cause some water to short-circuit through the holes in the trays rather than flowing across the trays, thus reducing efficiency. The air flow of the blower exceeds the design air flow rate for the unit and no air leakage or excessive pressure drop have been noted by the plant. The presence of surfactants and/or DNAPL is a common cause of air stripper weeping. Because the clarifier will effectively remove DNAPLs, the most likely cause of the weeping is surfactants. These are believed to be the cause of reduced efficiency in the air stripper at Niagara Falls.

Transducers

Level transducers for RW-1 and RW-2 and spares have been ordered. When they are received, these items will be installed by plant personnel. The transducer in RW-5 now appears to be operational.

LAW

LAWGIBB Group Member

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston; Don Greer, Karl Rasch, Ben Brayley, and Armand Damesimo @ Olin-Niagara; Andy Clark , and Rick Marotte @ LAW.

From: Anna Moomaw

Date: September 8, 1999

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System

In continuing efforts to keep everyone informed, this memo addresses the status of the O&M issues for the ground-water collection and treatment system. This memo follows from the monthly status update memo issued 8/11/99.

System Status

The following table presents general treatment system data obtained from OMNX and during field monitoring for the month of August.

Ground-Water Collection and Treatment System Status					
	RW-1	RW-2	RW-3	RW-4	RW-5
Pumping Systems (Data from 8/1/99-8/31/99)					
Average Flow Rate (gpm)	0.0	5.0	6.2	20.3	9.8
End of Month Flow Rate (gpm)	0.0	4.9	5.9	20.6	9.9
New Target Flow Rate (gpm)	**1-3**	**5-6**	**6-20**	**18-20**	**8-20**
Avg GW Elev. (OMNX) (ft above MSL)	559 (from table below)	553 (from table below)	558	549	High-High
End of Period GW Elev. (OMNX) (ft above MSL)	Transducer Off-line	Transducer Offf-line	557	552	High-High (out of calibration range)
Target GW Elevation (ft above MSL)	**552**	**549**	**551**	**550**	**550**
Comments	Fix Transducer. Initiate pumping	Fix Transducer	Open valve all the way to increase flow as much as possible.	None	Open valve all the way to increase flow as much as possible.

With the exception of RW-1, the system is functioning well and target flow rates are being achieved.

Ground-Water Collection and Treatment System Status					
Well Screen Losses (The well screen loss is defined as the difference between the well piezometer outside the casing and the water level inside the casing)					
	RW-1	RW-2	RW-3	RW-4	RW-5
August 30, 1999 Data					
GW Elevation at Piezometer (ft above MSL)	559	553	557.5	558	557
GW Elevation at RW (ft above MSL)	559	553	557.5	558	557
Difference (ft)	<0.1	<0.1	<0.1	<0.1	<0.1
Comments	None	None	Increase flow if possible to improve drawdown	Check Transducer	Increase flow if possible to improve drawdown

Mechanical Well Cleanings

Since the mechanical well cleanings, flow rates from RW-2, RW-3, RW-4, and RW-5 have improved. The system flow for the month of August is the highest to date. Mechanical well cleaning at RW-1 was completed the week of August 23, 1999. Pumping at RW-1 has not yet been initiated.

Transducers

Based on the field data collected on August 30, the transducer reading for RW-4 appears to be inaccurate (manual reading 558.0 ft compared to OMNX reading of 551.7 ft), possibly due to the removal and re-installation of the transducer for mechanical well cleaning. Because there is a significant difference between the manual data and OMNX readings, the transducer in RW-4 will need to be checked by the plant, either for damage, re-installation to an elevation different than the original setting, or an out-of calibration error. If the discrepancy is due to re-installation of the transducer at a different elevation or the instrument is out of calibration, it will need to be re-calibrated.

RW-5 also appears to need recalibration; it reads accurately at lower elevations, but as the elevation approaches the high to high-high range, the readings are off considerably. (manual reading of 557 ft compared to OMNX reading of 580 ft).

Level transducers for RW-1 and RW-2 and spares have been ordered. These items should be installed by plant personnel as soon as practical.

LAW

LAWGIBB Group Member

MEMORANDUM

To: Mike Bellotti @ Olin-Charleston; Don Greer, Karl Rasch, Ben Brayley, and Armand Damesimo @ Olin-Niagara; Andy Clark , and Rick Marotte @ LAW.

From: Anna Moomaw

Date: October 1, 1999

Subject: Monthly O&M Status Update for Ground-Water Collection and Treatment System

In continuing efforts to keep everyone informed, this memo addresses the status of the O&M issues for the ground-water collection and treatment system. This memo follows from the monthly status update memo issued 9/8/99.

System Status

The following table presents general treatment system data obtained from OMNX and during field monitoring for the month of September.

Ground-Water Collection and Treatment System Status					
	RW-1	RW-2	RW-3	RW-4	RW-5
Pumping Systems (Data from 9/1/99-9/30/99)					
Average Flow Rate (gpm)	1.4	3.6	7.3	20.2	17.8
End of Month Flow Rate (gpm)	0.0	3.9	5.9	20.5	22.4
New Target Flow Rate (gpm)	**1-3**	**5-6**	**6-20**	**18-20**	**8-20**
Avg GW Elev. (OMNX) (ft above MSL)	555		554	555	
End of Period GW Elev. (OMNX) (ft above MSL)	558	Transducer Off-line	557	558	555
Target GW Elevation (ft above MSL)	**552**	**549**	**551**	**550**	**550**
Comments	Repairs in progress	Transducer stuck in well. Replace when possible.	None	None	None

With the exception of RW-1, the system is functioning well and target flow rates are being achieved.

Ground-Water Collection and Treatment System Status					
Well Screen Losses (The well screen loss is defined as the difference between the well piezometer outside the casing and the water level inside the casing)					
	RW-1	RW-2	RW-3	RW-4	RW-5
August 30, 1999 Data					
GW Elevation at Piezometer (ft above MSL)	559	553	557.5	558	557
GW Elevation at RW (ft above MSL)	559	553	557.5	558	557
Difference (ft)	<0.1	<0.1	<0.1	<0.1	<0.1
Comments	None	None	None	None	None

Flow Rates

Since the mechanical well cleanings, flow rates from RW-2, RW-3, RW-4, and RW-5 have been consistently higher than in the months prior to cleaning. RW-5 is currently pumping at approximately twice its previous best flow rate. The system flow for the month of September is the highest to date. The system was to be shut down briefly during the week of September 20, 1999 to clean/inspect the 7S sewer and air stripper; no significant reduction in total daily flow rates was noted in association with these activities.

RW-1 and RW-2 Repairs

The natural rubber hoses on the two Watson/Marlow peristaltic pumps were replaced the week of September 20, 1999.

The tubing in RW-1 had been plugged at both ends and had apparently burst. After the tubing was repaired, plugging in the piping leading to the treatment system was noted; the line was cleared on September 23, 1999 and flow was temporarily restored. RW-1 is currently off-line and will be cleaned and/or repaired as needed.

The old tubing in RW-2 had developed some small cracks which was causing leakage. RW-2 was down for approximately 3 days and is now back in operation.

Transducers

The transducers in RW-1, RW-3, RW-4, and RW-5 have been replaced and are operating properly. The transducer in RW-2 has not been replaced as the existing transducer is stuck in the well due to excessive build-up. The current strategy is to try to dissolve the build-up with acid and remove the transducer when possible to avoid having it permanently stuck in the well.

TABLES

Table 1
Summary of A-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	10/20/1997		11/06/1997	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
			BACKGROUND		BACKGROUND	
Gill Creek -Stilling Well	NM	571.22	4.23*	562.54	4.32*	562.45
MW-20AR	NM	570.51	NM	NM	NM	NM
OBA-01A	562.8	571.02	NM	NM	NM	NM
OBA-02A	561.6	572.93	NM	NM	NM	NM
OBA-03A	552.6	572.5	NM	NM	NM	NM
OBA-04A	558.7	572.88	NM	NM	NM	NM
OBA-05A	558.2	572.21	NM	NM	NM	NM
OBA-06A	561.4	569	NM	NM	NM	NM
OBA-07A	563	573.97	NM	NM	NM	NM
OBA-08A	560.2	572.95	NM	NM	NM	NM
OBA-09A	558.3	569.88	NM	NM	NM	NM
OBA-09AR	557.7	569.88	NM	NM	NM	NM
OBA-10A	552.5	568.92	NM	NM	NM	NM
OBA-11A	559.2	573.22	NM	NM	NM	NM
OBA-12A	563.9	573.89	NM	NM	NM	NM
OBA-13A	553.6	573.98	NM	NM	NM	NM
OBA-14A	552.5	571.1	NM	NM	NM	NM
OBA-15A	551	573.08	NM	NM	NM	NM
OBA-16A	560.9	573.55	NM	NM	NM	NM
OBA-18A	559.9	573.85	NM	NM	NM	NM
OBA-19A	558.6	574.34	NM	NM	NM	NM
OBA-23A	561.4	570.72	DRY	561.4	NM	NM
OBA-24A	558.23	569.35	NI	NI	NI	NI
OBA-25A	558.44	569.47	NI	NI	NI	NI
OBA-26A	556.2	570.04	NI	NI	NI	NI
PN-1A	560.8	571.01	8.32	562.69	7.69	563.32
PN-2A	562.1	571.20	DRY	562.10	DRY	562.10
PN-3A	559.7	571.43	9.60	561.83	9.45	561.98
PN-4A	559.1	568.78	7.02	561.76	6.50	562.28
PN-5A	559.1	569.10	6.55	562.55	6.21	562.89
PN-6A	559.2	568.93	6.11	562.82	5.46	563.47
PN-7A	558.9	568.70	5.98	562.72	5.92	562.78
PN-8A	557.8	568.83	5.31	563.52	4.30	564.53

NOTES:

* - From 1997 performance monitoring test.

** Buffalo Avenue Measurement

NM - Not measured.

NI - Not Installed

DRY - Water elevation not applicable.

Bottom of screened interval used in contouring.

Table 1
Summary of A-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	01/29/1998		02/20/1998		03/27/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
Gill Creek -Stilling Well	NM	571.22	10.40	562.38	9.76	563.02	10.15	562.63
MW-20AR	NM	570.51	DRY	565.61	NM	NM	NM	NM
OBA-01A	562.8	571.02	4.00	567.02	3.02	568.00	2.65	568.37
OBA-02A	561.6	572.93	DRY	561.60	10.03	562.90	9.93	563.00
OBA-03A	552.6	572.5	14.33	558.17	14.21	558.29	14.14	558.36
OBA-04A	558.7	572.88	12.06	560.82	11.34	561.54	9.55	563.33
OBA-05A	558.2	572.21	7.55	564.66	7.48	564.73	7.42	564.79
OBA-06A	561.4	569	3.58	565.42	3.28	565.72	NM	NM
OBA-07A	563	573.97	7.40	566.57	7.30	566.67	7.11	566.86
OBA-08A	560.2	572.95	10.55	562.40	9.92	563.03	9.42	563.53
OBA-09A	558.3	569.88	6.10	563.78	5.73	564.15	5.61	564.27
OBA-09AR	557.7	569.88	6.33	563.55	5.94	563.94	5.86	564.02
OBA-10A	552.5	568.92	5.38	563.54	5.02	563.90	4.93	563.99
OBA-11A	559.2	573.22	12.97	560.25	12.98	560.24	12.98	560.24
OBA-12A	563.9	573.89	9.35	564.54	8.50	565.39	7.52	566.37
OBA-13A	553.6	573.98	16.24	557.65	16.08	557.81	15.95	557.94
OBA-14A	552.5	571.1	12.67	558.43	12.58	558.52	12.60	558.50
OBA-15A	551	573.08	14.87	558.21	14.73	558.35	14.50	558.58
OBA-16A	560.9	573.55	10.08	563.47	9.40	564.15	8.48	565.07
OBA-18A	559.9	573.85	13.21	560.64	12.48	561.37	12.61	561.24
OBA-19A	558.6	574.34	11.57	562.77	10.69	563.65	10.25	564.09
OBA-23A	561.4	570.72	8.59	562.13	7.83	562.89	6.71	564.01
OBA-24A	558.23	569.35	NI	NI	NI	NI	NI	NI
OBA-25A	558.44	569.47	NI	NI	NI	NI	NI	NI
OBA-26A	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1A	560.8	571.01	7.02	563.99	6.79	564.22	6.12	564.89
PN-2A	562.1	571.20	NM	NM	8.13	563.07	7.28	563.92
PN-3A	559.7	571.43	9.16	562.27	8.25	563.18	7.34	564.09
PN-4A	559.1	568.78	6.85	561.93	6.09	562.69	5.73	563.05
PN-5A	559.1	569.10	6.31	562.79	5.28	563.82	5.65	563.45
PN-6A	559.2	568.93	5.50	563.43	5.06	563.87	4.93	564.00
PN-7A	558.9	568.70	5.71	562.99	5.56	563.14	5.57	563.13
PN-8A	557.8	568.83	4.73	564.10	4.26	564.57	4.00	564.83

NOTES:

* - From 1997 performance monitoring test.

** Buffalo Avenue Measurement

NM - Not measured.

NI - Not Installed

DRY - Water elevation not applicable.

Bottom of screened interval used in contouring.

Table 1
Summary of A-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	04/17/1998		05/26/1998		06/11/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
Gill Creek -Stilling Well	NM	571.22	10.37	562.41	10.91	561.87	9.82	562.96
MW-20AR	NM	570.51	NM	NM	NM	NM	NM	NM
OBA-01A	562.8	571.02	3.15	567.87	3.91	567.11	4.49	566.53
OBA-02A	561.6	572.93	9.55	563.38	DRY	561.60	10.4	562.53
OBA-03A	552.6	572.5	14.22	558.28	14.30	558.20	14.27	558.23
OBA-04A	558.7	572.88	11.41	561.47	12.51	560.37	12.81	560.07
OBA-05A	558.2	572.21	7.51	564.70	7.74	564.47	7.73	564.48
OBA-06A	561.4	569	3.60	565.40	3.82	565.18	3.87	565.13
OBA-07A	563	573.97	7.35	566.62	7.97	566.00	8.15	565.82
OBA-08A	560.2	572.95	10.31	562.64	11.13	561.82	11.14	561.81
OBA-09A	558.3	569.88	6.09	563.79	6.34	563.54	6.22	563.66
OBA-09AR	557.7	569.88	6.17	563.71	6.85	563.03	6.72	563.16
OBA-10A	552.5	568.92	5.08	563.84	5.98	562.94	5.91	563.01
OBA-11A	559.2	573.22	12.98	560.24	12.99	560.23	13.65	559.57
OBA-12A	563.9	573.89	9.36	564.53	9.37	564.52	9.77	564.12
OBA-13A	553.6	573.98	16.31	557.58	11.74	562.15	16.2	557.78
OBA-14A	552.5	571.1	12.62	558.48	12.61	558.49	13.05	558.05
OBA-15A	551	573.08	14.82	558.26	14.85	558.23	14.83	558.25
OBA-16A	560.9	573.55	9.28	564.27	10.90	562.65	10.97	562.58
OBA-18A	559.9	573.85	11.22	562.63	13.17	560.68	13.18	560.67
OBA-19A	558.6	574.34	11.06	563.28	12.70	561.64	12.87	561.47
OBA-23A	561.4	570.72	7.62	563.10	9.15	561.57	9.24	561.48
OBA-24A	558.23	569.35	NI	NI	NI	NI	NI	NI
OBA-25A	558.44	569.47	NI	NI	NI	NI	NI	NI
OBA-26A	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1A	560.8	571.01	7.20	563.81	8.20	562.81	8.38	562.63
PN-2A	562.1	571.20	8.26	562.94	6.09	565.11	DRY	562.1
PN-3A	559.7	571.43	8.14	563.29	9.61	561.82	9.68	561.75
PN-4A	559.1	568.78	6.61	562.17	7.15	561.63	7	561.78
PN-5A	559.1	569.10	6.26	562.84	6.69	562.41	6.41	562.69
PN-6A	559.2	568.93	5.48	563.45	5.95	562.98	5.94	562.99
PN-7A	558.9	568.70	5.61	563.09	6.28	562.42	5.89	562.81
PN-8A	557.8	568.83	4.09	564.74	4.78	564.05	4.75	564.08

NOTES:

* - From 1997 performance monitoring test.

** Buffalo Avenue Measurement

NM - Not measured.

NI - Not Installed

DRY - Water elevation not applicable.

Bottom of screened interval used in contouring.

Table 1
Summary of A-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	07/23/1998		09/01/1998		09/29/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
Gill Creek -Stilling Well	NM	571.22	9.46	563.32	10.99	561.79	10.02	562.76
MW-20AR	NM	570.51	NM	NM	NM	NM	NM	NM
OBA-01A	562.8	571.02	3.98	567.04	4.51	566.51	5.01	566.01
OBA-02A	561.6	572.93	10.16	562.77	DRY	561.60	DRY	561.60
OBA-03A	552.6	572.5	14.26	558.24	14.47	558.03	14.42	558.08
OBA-04A	558.7	572.88	10.96	561.92	13.10	559.78	12.28	560.60
OBA-05A	558.2	572.21	7.56	564.65	7.69	564.52	7.51	564.70
OBA-06A	561.4	569	3.12	565.88	3.90	565.10	3.63	565.37
OBA-07A	563	573.97	7.78	566.19	7.78	566.19	7.85	566.12
OBA-08A	560.2	572.95	10.77	562.18	11.09	561.86	10.48	562.47
OBA-09A	558.3	569.88	6.08	563.80	6.26	563.62	5.92	563.96
OBA-09AR	557.7	569.88	6.16	563.72	6.69	563.19	6.21	563.67
OBA-10A	552.5	568.92	5.22	563.70	5.73	563.19	5.29	563.63
OBA-11A	559.2	573.22	13.04	560.18	13.08	560.14	13.03	560.19
OBA-12A	563.9	573.89	9.38	564.51	9.41	564.48	9.30	564.59
OBA-13A	553.6	573.98	16.12	557.86	16.10	557.88	16.13	557.85
OBA-14A	552.5	571.1	12.59	558.51	12.73	558.37	12.75	558.35
OBA-15A	551	573.08	14.80	558.28	15.00	558.08	14.93	558.15
OBA-16A	560.9	573.55	10.52	563.03	10.89	562.66	10.50	563.05
OBA-18A	559.9	573.85	11.30	562.55	13.23	560.62	12.00	561.85
OBA-19A	558.6	574.34	12.31	562.03	12.92	561.42	11.96	562.38
OBA-23A	561.4	570.72	8.36	562.36	8.96	561.76	8.70	562.02
OBA-24A	558.23	569.35	NI	NI	NI	NI	NI	NI
OBA-25A	558.44	569.47	NI	NI	NI	NI	NI	NI
OBA-26A	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1A	560.8	571.01	7.94	563.07	8.16	562.85	7.20	563.81
PN-2A	562.1	571.20	DRY	562.10	DRY	562.10	DRY	562.10
PN-3A	559.7	571.43	9.01	562.42	9.41	562.02	8.86	562.57
PN-4A	559.1	568.78	6.61	562.17	7.20	561.58	6.85	561.93
PN-5A	559.1	569.10	6.03	563.07	6.60	562.50	6.32	562.78
PN-6A	559.2	568.93	5.60	563.33	6.03	562.90	5.70	563.23
PN-7A	558.9	568.70	5.22	563.48	6.09	562.61	5.76	562.94
PN-8A	557.8	568.83	4.23	564.60	4.56	564.27	4.21	564.62

NOTES:

* - From 1997 performance monitoring test.

** Buffalo Avenue Measurement

NM - Not measured.

NI - Not Installed

DRY - Water elevation not applicable.

Bottom of screened interval used in contouring.

Table 1
Summary of A-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	10/30/1998		11/23/1998		12/22/1998	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
Gill Creek -Stilling Well	NM	571.22	10.02	562.76	10.12	562.66	9.78	563.00
MW-20AR	NM	570.51	NM	NM	NM	NM	NM	NM
OBA-01A	562.8	571.02	6.00	565.02	6.21	564.81	4.51	566.51
OBA-02A	561.6	572.93	DRY	561.60	DRY	561.60	9.44	563.49
OBA-03A	552.6	572.5	14.51	557.99	14.52	557.98	14.61	557.89
OBA-04A	558.7	572.88	13.28	559.60	13.37	559.51	11.00	561.88
OBA-05A	558.2	572.21	7.70	564.51	7.67	564.54	7.47	564.74
OBA-06A	561.4	569	4.30	564.70	4.28	564.72	2.91	566.09
OBA-07A	563	573.97	8.84	565.13	9.07	564.90	7.57	566.40
OBA-08A	560.2	572.95	11.40	561.55	11.58	561.37	10.97	561.98
OBA-09A	558.3	569.88	6.35	563.53	6.35	563.53	6.06	563.82
OBA-09AR	557.7	569.88	6.85	563.03	6.95	562.93	6.20	563.68
OBA-10A	552.5	568.92	6.03	562.89	6.20	562.72	5.24	563.68
OBA-11A	559.2	573.22	13.04	560.18	DRY	559.20	DRY	559.20
OBA-12A	563.9	573.89	9.41	564.48	DRY	563.90	9.32	564.57
OBA-13A	553.6	573.98	15.26	558.72	16.35	557.63	16.41	557.57
OBA-14A	552.5	571.1	12.81	558.29	13.72	557.38	12.98	558.12
OBA-15A	551	573.08	15.02	558.06	15.07	558.01	15.12	557.96
OBA-16A	560.9	573.55	10.99	562.56	10.89	562.66	10.21	563.34
OBA-18A	559.9	573.85	13.21	560.64	DRY	559.90	12.21	561.64
OBA-19A	558.6	574.34	13.15	561.19	13.17	561.17	12.32	562.02
OBA-23A	561.4	570.72	DRY	561.40	DRY	561.40	8.06	562.66
OBA-24A	558.23	569.35	NI	NI	NI	NI	NI	NI
OBA-25A	558.44	569.47	NI	NI	NI	NI	NI	NI
OBA-26A	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1A	560.8	571.01	8.65	562.36	8.66	562.35	8.33	562.68
PN-2A	562.1	571.20	DRY	562.10	DRY	562.10	DRY	562.10
PN-3A	559.7	571.43	9.95	561.48	9.95	561.48	8.55	562.88
PN-4A	559.1	568.78	7.39	561.39	7.62	561.16	7.21	561.57
PN-5A	559.1	569.10	6.79	562.31	6.94	562.16	6.52	562.58
PN-6A	559.2	568.93	6.21	562.72	6.29	562.64	5.78	563.15
PN-7A	558.9	568.70	6.09	562.61	6.09	562.61	5.61	563.09
PN-8A	557.8	568.83	4.82	564.01	4.71	564.12	3.95	564.88

NOTES:

* - From 1997 performance monitoring test.

** Buffalo Avenue Measurement

NM - Not measured.

NI - Not Installed

DRY - Water elevation not applicable.

Bottom of screened interval used in contouring.

Table 1
Summary of A-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	01/21/1999		02/05/1999		03/02/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
Gill Creek -Stilling Well	NM	571.22	10.92	561.86	9.67**	562.55**	9.64**	562.58**
MW-20AR	NM	570.51	NM	NM	NM	NM	NM	NM
OBA-01A	562.8	571.02	5.99	565.03	3.53	567.49	4.16	566.86
OBA-02A	561.6	572.93	10.00	562.93	9.80	563.13	DRY	561.60
OBA-03A	552.6	572.5	14.62	557.88	14.48	558.02	14.73	557.77
OBA-04A	558.7	572.88	12.71	560.17	10.64	562.24	11.51	561.37
OBA-05A	558.2	572.21	7.53	564.68	7.50	564.71	7.57	564.64
OBA-06A	561.4	569	3.71	565.29	3.30	565.70	2.56	566.44
OBA-07A	563	573.97	7.47	566.50	7.34	566.63	7.50	566.47
OBA-08A	560.2	572.95	10.79	562.16	10.01	562.94	10.56	562.39
OBA-09A	558.3	569.88	6.15	563.73	5.90	563.98	6.25	563.63
OBA-09AR	557.7	569.88	6.41	563.47	6.10	563.78	6.45	563.43
OBA-10A	552.5	568.92	NM	NM	5.10	563.82	5.54	563.38
OBA-11A	559.2	573.22	DRY	559.20	13.05	560.17	13.06	560.16
OBA-12A	563.9	573.89	9.26	564.63	8.71	565.18	9.38	564.51
OBA-13A	553.6	573.98	16.33	557.65	16.17	557.81	16.37	557.61
OBA-14A	552.5	571.1	12.94	558.16	12.82	558.28	12.99	558.11
OBA-15A	551	573.08	15.14	557.94	14.97	558.11	15.17	557.91
OBA-16A	560.9	573.55	10.02	563.53	9.56	563.99	10.73	562.82
OBA-18A	559.9	573.85	13.14	560.71	13.11	560.74	13.09	560.76
OBA-19A	558.6	574.34	12.63	561.71	11.35	562.99	12.00	562.34
OBA-23A	561.4	570.72	NM	NM	7.71	563.01	8.43	562.29
OBA-24A	558.23	569.35	NI	NI	NI	NI	NI	NI
OBA-25A	558.44	569.47	NI	NI	NI	NI	NI	NI
OBA-26A	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1A	560.8	571.01	7.17	563.84	6.59	564.42	7.56	563.45
PN-2A	562.1	571.20	NM	NM	8.15	563.05	DRY	562.10
PN-3A	559.7	571.43	8.87	562.56	8.37	563.06	9.34	562.09
PN-4A	559.1	568.78	7.04	561.74	6.36	562.42	7.05	561.73
PN-5A	559.1	569.10	6.61	562.49	5.93	563.17	6.40	562.70
PN-6A	559.2	568.93	5.81	563.12	5.38	563.55	5.81	563.12
PN-7A	558.9	568.70	5.82	562.88	5.61	563.09	5.79	562.91
PN-8A	557.8	568.83	4.36	564.47	4.10	564.73	4.30	564.53

NOTES:

* - From 1997 performance monitoring test.

** Buffalo Avenue Measurement

NM - Not measured.

NI - Not Installed

DRY - Water elevation not applicable.

Bottom of screened interval used in contouring.

Table 1
Summary of A-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	04/08/1999		05/17/1999		06/04/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
Gill Creek -Stilling Well	NM	571.22	7.62	563.6	7.82	563.4	7.62	563.6
MW-20AR	NM	570.51	NM	NM	DRY	565.6	DRY	565.6
OBA-01A	562.8	571.02	3.21	567.8	3.79	567.2	3.60	567.4
OBA-02A	561.6	572.93	DRY	561.6	DRY	561.6	DRY	561.6
OBA-03A	552.6	572.5	14.56	557.9	14.45	558.1	14.42	558.1
OBA-04A	558.7	572.88	12.20	560.7	12.63	560.3	12.27	560.6
OBA-05A	558.2	572.21	7.56	564.7	7.56	564.7	7.48	564.7
OBA-06A	561.4	569	3.42	565.6	3.47	565.5	3.21	565.8
OBA-07A	563	573.97	7.87	566.1	8.12	565.9	7.89	566.1
OBA-08A	560.2	572.95	11.00	562.0	11.17	561.8	10.38	562.6
OBA-09A	558.3	569.88	6.22	563.7	6.23	563.7	5.94	563.9
OBA-09AR	557.7	569.88	6.72	563.2	6.75	563.1	6.23	563.7
OBA-10A	552.5	568.92	5.93	563.0	5.88	563.0	5.29	563.6
OBA-11A	559.2	573.22	13.03	560.2	13.06	560.2	DRY	559.2
OBA-12A	563.9	573.89	9.37	564.5	9.33	564.6	9.38	564.5
OBA-13A	553.6	573.98	16.27	557.7	16.09	557.9	16.12	557.9
OBA-14A	552.5	571.1	12.95	558.2	12.73	558.4	13.02	558.1
OBA-15A	551	573.08	15.05	558.0	14.84	558.2	14.86	558.2
OBA-16A	560.9	573.55	10.91	562.6	11.00	562.6	10.60	563.0
OBA-18A	559.9	573.85	13.17	560.7	13.13	560.7	12.77	561.1
OBA-19A	558.6	574.34	12.31	562.0	12.72	561.6	12.16	562.2
OBA-23A	561.4	570.72	8.86	561.9	DRY	561.4	8.55	562.2
OBA-24A	558.23	569.35	NI	NI	NI	NI	NM	NM
OBA-25A	558.44	569.47	NI	NI	NI	NI	NM	NM
OBA-26A	556.2	570.04	NI	NI	NI	NI	NM	NM
PN-1A	560.8	571.01	7.16	563.9	7.37	563.6	6.99	564.0
PN-2A	562.1	571.20	DRY	562.1	DRY	562.1	DRY	562.1
PN-3A	559.7	571.43	9.55	561.9	9.56	561.9	8.84	562.6
PN-4A	559.1	568.78	7.04	561.7	7.03	561.8	6.59	562.2
PN-5A	559.1	569.10	6.46	562.6	6.57	562.5	6.23	562.9
PN-6A	559.2	568.93	5.91	563.0	5.85	563.1	5.57	563.4
PN-7A	558.9	568.70	5.83	562.9	5.81	562.9	5.67	563.0
PN-8A	557.8	568.83	4.62	564.2	4.37	564.5	4.20	564.6

NOTES:

* - From 1997 performance monitoring test.

** Buffalo Avenue Measurement

NM - Not measured.

NI - Not Installed

DRY - Water elevation not applicable.

Bottom of screened interval used in contouring.

Table 1
Summary of A-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	07/23/1999		08/30/1999		09/17/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
Gill Creek -Stilling Well	NM	571.22	7.71	563.5	8.09	563.1	7.63	563.6
MW-20AR	NM	570.51	DRY	565.6	DRY	565.6	DRY	565.6
OBA-01A	562.8	571.02	4.88	566.1	4.08	566.9	4.08	566.9
OBA-02A	561.6	572.93	DRY	561.6	DRY	561.6	DRY	561.6
OBA-03A	552.6	572.5	14.51	558.0	13.84	558.7	14.63	557.9
OBA-04A	558.7	572.88	12.99	559.9	11.94	560.9	12.40	560.5
OBA-05A	558.2	572.21	7.51	564.7	7.42	564.8	7.47	564.7
OBA-06A	561.4	569	3.48	565.5	3.47	565.5	3.58	565.4
OBA-07A	563	573.97	8.60	565.4	7.88	566.1	8.15	565.8
OBA-08A	560.2	572.95	14.71	558.2	10.20	562.8	10.76	562.2
OBA-09A	558.3	569.88	6.19	563.7	5.94	563.9	6.06	563.8
OBA-09AR	557.7	569.88	6.70	563.2	6.11	563.8	6.38	563.5
OBA-10A	552.5	568.92	5.90	563.0	5.19	563.7	5.56	563.4
OBA-11A	559.2	573.22	DRY	559.2	DRY	559.2	DRY	559.2
OBA-12A	563.9	573.89	9.34	564.6	9.32	564.6	9.31	564.6
OBA-13A	553.6	573.98	16.10	557.9	15.75	558.2	16.09	557.9
OBA-14A	552.5	571.1	12.82	558.3	12.78	558.3	12.81	558.3
OBA-15A	551	573.08	14.89	558.2	14.10	559.0	15.02	558.1
OBA-16A	560.9	573.55	10.95	562.6	10.43	563.1	10.83	562.7
OBA-18A	559.9	573.85	13.20	560.7	13.16	560.7	13.06	560.8
OBA-19A	558.6	574.34	12.81	561.5	12.40	561.9	12.89	561.5
OBA-23A	561.4	570.72	DRY	561.4	8.86	561.9	DRY	561.4
OBA-24A	558.23	569.35	6.42	562.9	5.68	563.7	6.00	563.4
OBA-25A	558.44	569.47	6.50	563.0	5.91	563.6	6.22	563.3
OBA-26A	556.2	570.04	6.60	563.4	6.35	563.7	6.35	563.7
PN-1A	560.8	571.01	7.79	563.2	7.31	563.7	7.88	563.1
PN-2A	562.1	571.20	DRY	562.1	8.89	562.3	DRY	562.1
PN-3A	559.7	571.43	9.38	562.1	8.89	562.5	9.17	562.3
PN-4A	559.1	568.78	6.97	561.8	6.67	562.1	6.82	562.0
PN-5A	559.1	569.10	6.46	562.6	6.26	562.8	6.30	562.8
PN-6A	559.2	568.93	5.94	563.0	5.69	563.2	5.85	563.1
PN-7A	558.9	568.70	5.75	563.0	5.69	563.0	5.72	563.0
PN-8A	557.8	568.83	4.51	564.3	4.31	564.5	4.48	564.4

NOTES:

* - From 1997 performance monitoring test.

checked by/date: AMC/9-24-99

** Buffalo Avenue Measurement

NM - Not measured.

NI - Not Installed

DRY - Water elevation not applicable.

Bottom of screened interval used in contouring.

Table 2
Summary of B-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation	Reference Point Elevation (Feet AMSL)	10/20/1997		11/06/1997	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
			BACKGROUND		BACKGROUND	
BH-1	557.53	574.38	NM	NM	NM	NM
OBA-01B	563.3	570.9	NM	NM	NM	NM
OBA-02B	561.7	573.07	NM	NM	NM	NM
OBA-03B	552.9	572.17	NM	NM	NM	NM
OBA-04B	558.3	573.49	NM	NM	NM	NM
OBA-05B	558.4	572.7	NM	NM	NM	NM
OBA-06B	561.7	569.49	NM	NM	NM	NM
OBA-07B	560	574.47	NM	NM	NM	NM
OBA-08B	560.1	573.24	NM	NM	NM	NM
OBA-11B	559.5	573.29	NM	NM	NM	NM
OBA-12B	563.9	574.04	NM	NM	NM	NM
OBA-13B	552.1	574.26	NM	NM	NM	NM
OBA-14B	552.3	571.26	NM	NM	NM	NM
OBA-16B	560.9	573.47	NM	NM	NM	NM
OBA-21AB	559	572.46	NM	NM	NM	NM
OBA-23B	561.3	570.54	10.56	559.98	11.21	559.33
OBA-24B	558.23	569.28	NI	NI	NI	NI
OBA-25B	558.44	569.45	NI	NI	NI	NI
OBA-26B	556.2	570.04	NI	NI	NI	NI
PN-1B	560.8	570.87	10.75	560.12	11.34	559.53
PN-2B	562	571.01	11.35	559.66	11.71	559.30
PN-3B	559.7	571.36	11.82	559.54	12.79	558.57
PN-4B	559.1	568.89	9.05	559.84	10.32	558.57
PN-5B	559.1	569.10	9.20	559.90	10.52	558.58
PN-6B	559.2	569.07	8.75	560.32	10.40	558.67
PN-7B	558.9	568.95	8.65	560.30	9.77	559.18
PN-8B	557.8	568.38	8.25	560.13	9.55	558.83
PN-9B	560.22	571.90	NI	NI	NI	NI
PN-10B	561.53	571.63	NI	NI	NI	NI
MW-20B		570.09	NM	NM	NM	NM
MW-22B		569.86	NM	NM	NM	NM

NOTES:
NM - Not Measured
NI - Not Installed
N/A - Not Accessible

Table 2
Summary of B-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation	Reference Point Elevation (Feet AMSL)	01/29/1998		02/20/1998		03/27/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
BH-1	557.53	574.38	16.14	558.24	16.12	558.26	16.09	558.29
OBA-01B	563.3	570.9	13.31	558.09	13.08	558.32	11.90	559.00
OBA-02B	561.7	573.07	14.88	558.69	14.72	558.85	14.64	558.43
OBA-03B	552.9	572.17	15.77	556.90	15.55	557.12	15.67	556.50
OBA-04B	558.3	573.49	13.92	560.07	13.40	560.59	12.71	560.78
OBA-05B	558.4	572.7	11.91	561.29	10.88	562.32	10.95	561.75
OBA-06B	561.7	569.49	10.69	559.30	10.33	559.66	NM	NM
OBA-07B	560	574.47	10.42	564.55	10.12	564.85	9.75	564.72
OBA-08B	560.1	573.24	14.47	559.27	14.02	559.72	13.69	559.55
OBA-11B	559.5	573.29	15.61	558.18	15.05	558.74	14.66	558.63
OBA-12B	563.9	574.04	14.17	560.37	13.30	561.24	12.85	561.19
OBA-13B	552.1	574.26	16.51	558.25	16.36	558.40	16.28	557.98
OBA-14B	552.3	571.26	13.08	558.68	12.95	558.81	12.89	558.37
OBA-16B	560.9	573.47	14.66	559.31	14.36	559.61	14.14	559.33
OBA-21AB	559	572.46	9.60	563.36	7.78	565.18	7.72	564.74
OBA-23B	561.3	570.54	11.46	559.58	11.04	560.00	10.86	559.68
OBA-24B	558.23	569.28	NI	NI	NI	NI	NI	NI
OBA-25B	558.44	569.45	NI	NI	NI	NI	NI	NI
OBA-26B	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1B	560.8	570.87	11.72	559.65	11.34	560.03	11.15	559.72
PN-2B	562	571.01	NM	NM	12.26	559.25	12.13	558.88
PN-3B	559.7	571.36	13.20	558.66	13.07	558.79	13.00	558.36
PN-4B	559.1	568.89	10.70	558.69	10.61	558.78	10.53	558.36
PN-5B	559.1	569.10	10.88	558.72	10.78	558.82	10.71	558.39
PN-6B	559.2	569.07	10.84	558.73	10.71	558.86	10.62	558.45
PN-7B	558.9	568.95	10.20	559.25	9.98	559.47	9.80	559.15
PN-8B	557.8	568.38	10.03	558.85	9.91	558.97	9.96	558.42
PN-9B	560.22	571.90	NI	NI	NI	NI	NI	NI
PN-10B	561.53	571.63	NI	NI	NI	NI	NI	NI
MW-20B		570.09	10.72	559.37	NM	NM	NM	NM
MW-22B		569.86	13.15	556.71	NM	NM	NM	NM

NOTES:
NM - Not Measured
NI - Not Installed
N/A - Not Accessible

Table 2
Summary of B-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation	Reference Point Elevation (Feet AMSL)	04/17/1998		05/26/1998		06/11/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
BH-1	557.53	574.38	16.14	558.24	16.04	558.34	15.83	558.55
OBA-01B	563.3	570.9	13.11	557.79	13.34	557.56	13.42	557.48
OBA-02B	561.7	573.07	14.77	558.30	14.83	558.24	14.84	558.23
OBA-03B	552.9	572.17	15.86	556.31	15.84	556.33	15.86	556.31
OBA-04B	558.3	573.49	13.20	560.29	14.03	559.46	14.05	559.44
OBA-05B	558.4	572.7	12.13	560.57	11.59	561.11	13.63	559.07
OBA-06B	561.7	569.49	10.19	559.30	10.45	559.04	10.53	558.96
OBA-07B	560	574.47	10.49	563.98	10.96	563.51	10.91	563.56
OBA-08B	560.1	573.24	14.30	558.94	14.91	558.33	14.63	558.61
OBA-11B	559.5	573.29	15.39	557.90	16.09	557.20	16.11	557.18
OBA-12B	563.9	574.04	14.31	559.73	14.52	559.52	14.67	559.37
OBA-13B	552.1	574.26	16.50	557.76	16.49	557.77	22.23	552.03
OBA-14B	552.3	571.26	12.98	558.28	13.05	558.21	13.01	558.25
OBA-16B	560.9	573.47	14.39	559.08	14.58	558.89	14.47	559.00
OBA-21AB	559	572.46	7.84	564.62	8.61	563.85	9.02	563.44
OBA-23B	561.3	570.54	11.21	559.33	11.50	559.04	11.55	558.99
OBA-24B	558.23	569.28	NI	NI	NI	NI	NI	NI
OBA-25B	558.44	569.45	NI	NI	NI	NI	NI	NI
OBA-26B	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1B	560.8	570.87	11.57	559.30	11.93	558.94	11.84	559.03
PN-2B	562	571.01	12.33	558.68	12.51	558.50	12.49	558.52
PN-3B	559.7	571.36	13.11	558.25	13.16	558.20	13.16	558.20
PN-4B	559.1	568.89	10.63	558.26	10.70	558.19	10.66	558.23
PN-5B	559.1	569.10	10.82	558.28	10.85	558.25	10.8	558.30
PN-6B	559.2	569.07	10.76	558.31	10.80	558.27	10.74	558.33
PN-7B	558.9	568.95	9.93	559.02	10.09	558.86	9.82	559.13
PN-8B	557.8	568.38	10.13	558.25	10.13	558.25	10.1	558.28
PN-9B	560.22	571.90	NI	NI	NI	NI	NI	NI
PN-10B	561.53	571.63	NI	NI	NI	NI	NI	NI
MW-20B		570.09	NM	NM	NM	NM	NM	NM
MW-22B		569.86	NM	NM	NM	NM	NM	NM

NOTES:
NM - Not Measured
NI - Not Installed
N/A - Not Accessible

Table 2
Summary of B-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation	Reference Point Elevation (Feet AMSL)	07/23/1998		09/01/1998		09/29/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
BH-1	557.53	574.38	16.11	558.27	16.21	558.17	16.20	558.18
OBA-01B	563.3	570.9	13.16	557.74	13.41	557.49	13.08	557.82
OBA-02B	561.7	573.07	14.79	558.28	14.91	558.16	14.91	558.16
OBA-03B	552.9	572.17	16.02	556.15	16.35	555.82	16.21	555.96
OBA-04B	558.3	573.49	13.28	560.21	14.51	558.98	14.35	559.14
OBA-05B	558.4	572.7	12.60	560.10	13.06	559.64	13.03	559.67
OBA-06B	561.7	569.49	10.42	559.07	10.82	558.67	10.51	558.98
OBA-07B	560	574.47	10.68	563.79	10.99	563.48	10.71	563.76
OBA-08B	560.1	573.24	14.27	558.97	15.28	557.96	14.60	558.64
OBA-11B	559.5	573.29	15.67	557.62	16.55	556.74	16.06	557.23
OBA-12B	563.9	574.04	14.79	559.25	14.95	559.09	14.35	559.69
OBA-13B	552.1	574.26	16.44	557.82	16.55	557.71	16.55	557.71
OBA-14B	552.3	571.26	12.99	558.27	13.02	558.24	13.15	558.11
OBA-16B	560.9	573.47	14.33	559.14	14.71	558.76	14.45	559.02
OBA-21AB	559	572.46	7.91	564.55	8.71	563.75	7.82	564.64
OBA-23B	561.3	570.54	11.50	559.04	11.90	558.64	11.53	559.01
OBA-24B	558.23	569.28	NI	NI	NI	NI	NI	NI
OBA-25B	558.44	569.45	NI	NI	NI	NI	NI	NI
OBA-26B	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1B	560.8	570.87	11.74	559.13	11.55	559.32	11.74	559.13
PN-2B	562	571.01	12.45	558.56	12.35	558.66	12.51	558.50
PN-3B	559.7	571.36	13.11	558.25	13.23	558.13	13.25	558.11
PN-4B	559.1	568.89	10.60	558.29	10.73	558.16	10.70	558.19
PN-5B	559.1	569.10	11.56	557.54	10.92	558.18	10.91	558.19
PN-6B	559.2	569.07	10.72	558.35	10.88	558.19	10.81	558.26
PN-7B	558.9	568.95	9.76	559.19	10.24	558.71	10.08	558.87
PN-8B	557.8	568.38	10.07	558.31	10.28	558.10	10.26	558.12
PN-9B	560.22	571.90	NI	NI	NI	NI	NI	NI
PN-10B	561.53	571.63	NI	NI	NI	NI	NI	NI
MW-20B		570.09	NM	NM	NM	NM	NM	NM
MW-22B		569.86	NM	NM	NM	NM	NM	NM

NOTES:
NM - Not Measured
NI - Not Installed
N/A - Not Accessible

Table 2
Summary of B-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation	Reference Point Elevation (Feet AMSL)	10/30/1998		11/23/1998		12/22/1998	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
BH-1	557.53	574.38	16.21	558.17	16.25	558.13	16.21	558.17
OBA-01B	563.3	570.9	13.80	557.10	13.84	557.06	13.47	557.43
OBA-02B	561.7	573.07	15.06	558.01	15.14	557.93	15.11	557.96
OBA-03B	552.9	572.17	16.37	555.80	16.64	555.53	16.32	555.85
OBA-04B	558.3	573.49	14.51	558.98	14.60	558.89	13.61	559.88
OBA-05B	558.4	572.7	13.43	559.27	14.06	558.64	13.20	559.50
OBA-06B	561.7	569.49	11.10	558.39	11.01	558.48	10.81	558.68
OBA-07B	560	574.47	11.40	563.07	11.45	563.02	10.91	563.56
OBA-08B	560.1	573.24	14.94	558.30	15.06	558.18	14.56	558.68
OBA-11B	559.5	573.29	16.39	556.90	16.37	556.92	15.86	557.43
OBA-12B	563.9	574.04	15.59	558.45	15.77	558.27	15.43	558.61
OBA-13B	552.1	574.26	16.63	557.63	16.72	557.54	16.79	557.47
OBA-14B	552.3	571.26	13.23	558.03	13.32	557.94	13.35	557.91
OBA-16B	560.9	573.47	14.99	558.48	15.17	558.30	14.83	558.64
OBA-21AB	559	572.46	8.81	563.65	9.13	563.33	7.76	564.70
OBA-23B	561.3	570.54	12.39	558.15	12.33	558.21	11.96	558.58
OBA-24B	558.23	569.28	NI	NI	NI	NI	NI	NI
OBA-25B	558.44	569.45	NI	NI	NI	NI	NI	NI
OBA-26B	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1B	560.8	570.87	12.71	558.16	12.54	558.33	12.22	558.65
PN-2B	562	571.01	12.49	558.52	12.93	558.08	12.81	558.20
PN-3B	559.7	571.36	13.32	558.04	13.46	557.90	13.45	557.91
PN-4B	559.1	568.89	10.73	558.16	10.82	558.07	10.82	558.07
PN-5B	559.1	569.10	10.96	558.14	11.10	558.00	11.11	557.99
PN-6B	559.2	569.07	10.89	558.18	11.03	558.04	11.05	558.02
PN-7B	558.9	568.95	10.18	558.77	10.21	558.74	10.22	558.73
PN-8B	557.8	568.38	10.34	558.04	10.46	557.92	10.47	557.91
PN-9B	560.22	571.90	NI	NI	NI	NI	NI	NI
PN-10B	561.53	571.63	NI	NI	NI	NI	NI	NI
MW-20B		570.09	NM	NM	NM	NM	NM	NM
MW-22B		569.86	NM	NM	NM	NM	NM	NM

NOTES:
NM - Not Measured
NI - Not Installed
N/A - Not Accessible

Table 2
Summary of B-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation	Reference Point Elevation (Feet AMSL)	01/21/1999		02/05/1999		03/02/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
BH-1	557.53	574.38	16.18	558.20	15.79	558.59	15.77	558.61
OBA-01B	563.3	570.9	13.28	557.62	12.95	557.95	13.23	557.67
OBA-02B	561.7	573.07	15.12	557.95	14.99	558.08	15.24	557.83
OBA-03B	552.9	572.17	16.14	556.03	16.06	556.11	16.22	555.95
OBA-04B	558.3	573.49	14.51	558.98	13.30	560.19	13.41	560.08
OBA-05B	558.4	572.7	13.46	559.24	13.00	559.70	13.45	559.25
OBA-06B	561.7	569.49	10.86	558.63	10.65	558.84	11.13	558.36
OBA-07B	560	574.47	10.32	564.15	9.97	564.50	10.46	564.01
OBA-08B	560.1	573.24	14.99	558.25	14.37	558.87	14.66	558.58
OBA-11B	559.5	573.29	16.17	557.12	15.46	557.83	15.98	557.31
OBA-12B	563.9	574.04	14.98	559.06	14.17	559.87	15.51	558.53
OBA-13B	552.1	574.26	16.79	557.47	16.62	557.64	16.84	557.42
OBA-14B	552.3	571.26	13.40	557.86	13.23	558.03	13.42	557.84
OBA-16B	560.9	573.47	14.77	558.70	14.51	558.96	15.05	558.42
OBA-21AB	559	572.46	7.82	564.64	7.78	564.68	7.94	564.52
OBA-23B	561.3	570.54	NM	NM	11.60	558.94	12.37	558.17
OBA-24B	558.23	569.28	NI	NI	NI	NI	NI	NI
OBA-25B	558.44	569.45	NI	NI	NI	NI	NI	NI
OBA-26B	556.2	570.04	NI	NI	NI	NI	NI	NI
PN-1B	560.8	570.87	12.06	558.81	11.85	559.02	12.65	558.22
PN-2B	562	571.01	NM	NM	12.59	558.42	13.02	557.99
PN-3B	559.7	571.36	13.41	557.95	13.31	558.05	13.56	557.80
PN-4B	559.1	568.89	10.85	558.04	10.77	558.12	10.94	557.95
PN-5B	559.1	569.10	11.08	558.02	10.92	558.18	11.15	557.95
PN-6B	559.2	569.07	11.11	557.96	10.92	558.15	11.13	557.94
PN-7B	558.9	568.95	10.43	558.52	10.16	558.79	10.35	558.60
PN-8B	557.8	568.38	10.48	557.90	10.32	558.06	10.49	557.89
PN-9B	560.22	571.90	NI	NI	NI	NI	NI	NI
PN-10B	561.53	571.63	NI	NI	NI	NI	NI	NI
MW-20B		570.09	NM	NM	NM	NM	NM	NM
MW-22B		569.86	NM	NM	NM	NM	NM	NM

NOTES:
NM - Not Measured
NI - Not Installed
N/A - Not Accessible

Table 2
Summary of B-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation	Reference Point Elevation (Feet AMSL)	04/08/1999		05/17/1999		06/04/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
BH-1	557.53	574.38	15.71	558.7	16.07	558.3	16.10	558.3
OBA-01B	563.3	570.9	13.17	557.7	13.05	557.9	13.13	557.8
OBA-02B	561.7	573.07	15.12	558.0	14.98	558.1	14.96	558.1
OBA-03B	552.9	572.17	16.07	556.1	15.90	556.3	16.10	556.1
OBA-04B	558.3	573.49	13.54	560.0	13.87	559.6	13.61	559.9
OBA-05B	558.4	572.7	13.23	559.5	13.39	559.3	13.27	559.4
OBA-06B	561.7	569.49	10.97	558.5	11.06	558.4	11.08	558.4
OBA-07B	560	574.47	10.68	563.8	10.86	563.6	10.74	563.7
OBA-08B	560.1	573.24	14.60	558.6	14.61	558.6	14.48	558.8
OBA-11B	559.5	573.29	16.08	557.2	16.08	557.2	15.99	557.3
OBA-12B	563.9	574.04	15.55	558.5	15.51	558.5	15.51	558.5
OBA-13B	552.1	574.26	16.71	557.6	16.60	557.7	16.55	557.7
OBA-14B	552.3	571.26	13.31	558.0	13.19	558.1	13.14	558.1
OBA-16B	560.9	573.47	14.87	558.6	14.83	558.6	15.11	558.4
OBA-21AB	559	572.46	7.96	564.5	8.32	564.1	7.77	564.7
OBA-23B	561.3	570.54	12.30	558.2	12.45	558.1	12.37	558.2
OBA-24B	558.23	569.28	NI	NI	NI	NI	NM	NM
OBA-25B	558.44	569.45	NI	NI	NI	NI	NM	NM
OBA-26B	556.2	570.04	NI	NI	NI	NI	NM	NM
PN-1B	560.8	570.87	12.54	558.3	12.73	558.1	12.61	558.3
PN-2B	562	571.01	12.91	558.1	12.95	558.1	12.89	558.1
PN-3B	559.7	571.36	13.45	557.9	13.35	558.0	13.27	558.1
PN-4B	559.1	568.89	10.85	558.0	10.81	558.1	10.76	558.1
PN-5B	559.1	569.10	11.07	558.0	11.00	558.1	10.95	558.2
PN-6B	559.2	569.07	11.04	558.0	10.93	558.1	10.88	558.2
PN-7B	558.9	568.95	10.25	558.7	10.93	558.0	10.25	558.7
PN-8B	557.8	568.38	10.41	558.0	10.30	558.1	10.21	558.2
PN-9B	560.22	571.90	NI	NI	13.15	558.8	13.06	558.8
PN-10B	561.53	571.63	NI	NI	13.61	558.0	13.55	558.1
MW-20B		570.09	NM	NM	11.53	558.6	11.61	558.5
MW-22B		569.86	NM	NM	13.59	556.3	13.5	556.4

NOTES:
NM - Not Measured
NI - Not Installed
N/A - Not Accessible

Table 2
Summary of B-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation	Reference Point Elevation (Feet AMSL)	07/23/1999		08/30/1999		09/17/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
BH-1	557.53	574.38	16.20	558.2	15.95	558.4	16.22	558.2
OBA-01B	563.3	570.9	13.17	557.7	13.07	557.8	13.20	557.7
OBA-02B	561.7	573.07	15.02	558.1	14.90	558.2	15.06	558.0
OBA-03B	552.9	572.17	16.15	556.0	16.23	555.9	16.43	555.7
OBA-04B	558.3	573.49	14.07	559.4	13.70	559.8	13.88	559.6
OBA-05B	558.4	572.7	12.98	559.7	12.63	560.1	12.73	560.0
OBA-06B	561.7	569.49	10.73	558.8	10.34	559.2	10.53	559.0
OBA-07B	560	574.47	11.09	563.4	10.61	563.9	10.88	563.6
OBA-08B	560.1	573.24	10.82	562.4	14.63	558.6	14.71	558.5
OBA-11B	559.5	573.29	16.22	557.1	11.08	562.2	16.20	557.1
OBA-12B	563.9	574.04	15.54	558.5	15.18	558.9	15.48	558.6
OBA-13B	552.1	574.26	16.60	557.7	16.05	558.2	16.26	558.0
OBA-14B	552.3	571.26	13.25	558.0	12.65	558.6	13.18	558.1
OBA-16B	560.9	573.47	14.68	558.8	14.45	559.0	14.71	558.8
OBA-21AB	559	572.46	7.85	564.6	N/A	N/A	7.73	564.7
OBA-23B	561.3	570.54	11.90	558.6	11.65	558.9	12.23	558.3
OBA-24B	558.23	569.28	10.43	558.9	10.25	559.0	10.05	559.2
OBA-25B	558.44	569.45	10.60	558.9	10.56	558.9	10.28	559.2
OBA-26B	556.2	570.04	11.23	558.8	11.25	558.8	11.13	558.9
PN-1B	560.8	570.87	12.18	558.7	11.91	559.0	12.43	558.4
PN-2B	562	571.01	12.80	558.2	12.62	558.4	12.92	558.1
PN-3B	559.7	571.36	13.34	558.0	13.22	558.1	13.40	558.0
PN-4B	559.1	568.89	10.79	558.1	10.73	558.2	10.86	558.0
PN-5B	559.1	569.10	10.98	558.1	10.96	558.1	11.07	558.0
PN-6B	559.2	569.07	10.95	558.1	10.94	558.1	11.05	558.0
PN-7B	558.9	568.95	10.18	558.8	10.26	558.7	10.33	558.6
PN-8B	557.8	568.38	10.32	558.1	10.33	558.1	10.43	558.0
PN-9B	560.22	571.90	13.11	558.8	13.01	558.9	13.16	558.7
PN-10B	561.53	571.63	13.08	558.6	12.80	558.8	13.35	558.3
MW-20B		570.09	12.00	558.1	12.00	558.1	12.58	557.5
MW-22B		569.86	13.56	556.3	13.56	556.3	13.60	556.3

NOTES:
NM - Not Measured
NI - Not Installed
N/A - Not Accessible

checked by/date: AMC/9-24-99

Table 3
Summary of C-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	01/29/1998		02/20/1998		03/27/1998	
		Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
OBA-01C	570.96	15.20	555.76	14.88	556.08	14.96	556.00
OBA-04C	573.54	15.35	558.19	15.22	558.32	15.14	558.40
OBA-07C	574.85	19.23	555.62	18.94	555.91	18.99	555.86
OBA-12C	574.31	19.41	554.90	19.38	554.93	19.34	554.97
OBA-14C	570.61	12.45	558.16	12.32	558.29	12.25	558.36
OBA-15B	573.58	15.39	558.19	15.27	558.31	15.19	558.39
MW-22C	570.09	16.92	553.17	NM	NM	NM	NM

Table 3
Summary of C-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	04/17/1998		05/26/1998		06/11/1998	
		Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
OBA-01C	570.96	15.75	555.21	15.62	555.34	14.65	556.31
OBA-04C	573.54	15.25	558.29	15.30	558.24	15.28	558.26
OBA-07C	574.85	19.71	555.14	19.59	555.26	18.57	556.28
OBA-12C	574.31	19.67	554.64	19.72	554.59	19.86	554.45
OBA-14C	570.61	12.33	558.28	12.41	558.20	12.39	558.22
OBA-15B	573.58	15.27	558.31	15.34	558.24	15.32	558.26
MW-22C	570.09	NM	NM	NM	NM	NM	NM

Table 3
Summary of C-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	07/23/1998		09/01/1998		09/29/1998	
		Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
OBA-01C	570.96	13.91	557.05	14.91	556.05	14.10	556.86
OBA-04C	573.54	15.26	558.28	15.32	558.22	15.41	558.13
OBA-07C	574.85	17.76	557.09	18.88	555.97	18.06	556.79
OBA-12C	574.31	19.41	554.90	19.53	554.78	19.47	554.84
OBA-14C	570.61	12.35	558.26	12.55	558.06	12.50	558.11
OBA-15B	573.58	15.31	558.27	15.50	558.08	15.46	558.12
MW-22C	570.09	NM	NM	NM	NM	NM	NM

Table 3
Summary of C-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	10/30/1998		11/23/1998		12/22/1998	
		Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
OBA-01C	570.96	14.38	556.58	14.63	556.33	13.22	557.74
OBA-04C	573.54	15.50	558.04	15.58	557.96	15.60	557.94
OBA-07C	574.85	18.34	556.51	18.60	556.25	17.20	557.65
OBA-12C	574.31	19.71	554.60	19.95	554.36	20.49	553.82
OBA-14C	570.61	12.60	558.01	12.69	557.92	12.73	557.88
OBA-15B	573.58	15.54	558.04	15.42	558.16	15.62	557.96
MW-22C	570.09	NM	NM	NM	NM	NM	NM

Table 3
Summary of C-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	01/21/1999		02/05/1999		03/02/1999	
		Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
OBA-01C	570.96	15.74	555.22	15.26	555.70	15.20	555.76
OBA-04C	573.54	15.64	557.90	15.47	558.07	15.70	557.84
OBA-07C	574.85	19.70	555.15	19.24	555.61	19.20	555.65
OBA-12C	574.31	20.54	553.77	20.42	553.89	20.37	553.94
OBA-14C	570.61	12.76	557.85	12.58	558.03	12.77	557.84
OBA-15B	573.58	15.68	557.90	15.53	558.05	15.74	557.84
MW-22C	570.09	NM	NM	NM	NM	NM	NM

Table 3
Summary of C-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	04/08/1999		05/17/1999		06/04/1999	
		Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
OBA-01C	570.96	15.06	555.9	14.97	556.0	14.42	556.5
OBA-04C	573.54	15.56	558.0	15.40	558.1	15.41	558.1
OBA-07C	574.85	19.04	555.8	18.91	555.9	18.47	556.4
OBA-12C	574.31	20.30	554.0	20.20	554.1	20.38	553.9
OBA-14C	570.61	12.66	558.0	12.50	558.1	12.55	558.1
OBA-15B	573.58	15.60	558.0	15.50	558.1	15.43	558.2
MW-22C	570.09	NM	NM	16.72	553.4	16.16	553.9

Table 3
Summary of C-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	07/23/1999		08/30/1999		09/17/1999	
		Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
OBA-01C	570.96	13.88	557.08	14.21	556.75	13.35	557.61
OBA-04C	573.54	15.52	558.02	14.96	558.58	15.61	557.93
OBA-07C	574.85	17.93	556.92	18.29	556.56	18.40	556.45
OBA-12C	574.31	19.76	554.55	20.00	554.31	19.82	554.49
OBA-14C	570.61	12.68	557.93	12.18	558.43	12.77	557.84
OBA-15B	573.58	15.54	558.04	14.75	558.83	15.66	557.92
MW-22C	570.09	15.11	554.98	15.61	554.48	15.94	554.15

checked by/date: AMC/9-24-99

Table 4
Summary of CD-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	01/29/1998		02/20/1998		03/27/1998	
		Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
OBA-02C	573.12	16.93	556.19	16.71	556.41	16.76	556.36
OBA-03C	573.14	15.35	557.79	15.12	558.02	15.16	557.98
OBA-05C	572.46	16.24	556.22	16.23	556.23	16.39	556.07
OBA-06C	569.49	12.71	556.78	12.73	556.76	NM	NM
OBA-08C	573.26	19.32	553.94	19.14	554.12	19.05	554.21
OBA-11C	573.37	16.82	556.55	16.44	556.93	15.87	557.50
OBA-13C	574.08	22.22	551.86	21.76	552.32	22.12	551.96
MW-22D	570.67	14.41	556.26	NM	NM	NM	NM

Notes:
NM - Not Measured.

Table 4
Summary of CD-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	04/17/1998		05/26/1998		06/11/1998	
		Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
OBA-02C	573.12	17.17	555.95	17.13	555.99	16.99	556.13
OBA-03C	573.14	15.24	557.90	15.29	557.85	15.2	557.94
OBA-05C	572.46	16.85	555.61	16.68	555.78	16.57	555.89
OBA-06C	569.49	12.88	556.61	12.82	556.67	13.4	556.09
OBA-08C	573.26	19.79	553.47	19.73	553.53	18.64	554.62
OBA-11C	573.37	16.70	556.67	17.22	556.15	17.34	556.03
OBA-13C	574.08	22.30	551.78	22.23	551.85	16.49	557.59
MW-22D	570.67	NM	NM	NM	NM	NM	NM

Notes:
NM - Not Measured.

Table 4
Summary of CD-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	07/23/1998		09/01/1998		09/29/1998	
		Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
OBA-02C	573.12	16.55	556.57	16.82	556.30	16.61	556.51
OBA-03C	573.14	15.15	557.99	15.31	557.83	15.22	557.92
OBA-05C	572.46	15.66	556.80	16.10	556.36	15.72	556.74
OBA-06C	569.49	12.30	557.19	12.46	557.03	12.40	557.09
OBA-08C	573.26	17.77	555.49	19.09	554.17	18.18	555.08
OBA-11C	573.37	17.09	556.28	17.57	555.80	17.43	555.94
OBA-13C	574.08	22.19	551.89	23.38	550.70	22.85	551.23
MW-22D	570.67	NM	NM	NM	NM	NM	NM

Notes:
NM - Not Measured.

Table 4
Summary of CD-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	10/30/1998		11/23/1998		12/22/1998	
		Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
OBA-02C	573.12	16.71	556.41	17.11	556.01	17.38	555.74
OBA-03C	573.14	15.37	557.77	15.41	557.73	15.58	557.56
OBA-05C	572.46	15.77	556.69	16.02	556.44	16.05	556.41
OBA-06C	569.49	12.52	556.97	13.07	556.42	13.28	556.21
OBA-08C	573.26	18.45	554.81	18.78	554.48	16.22	557.04
OBA-11C	573.37	17.61	555.76	17.58	555.79	17.35	556.02
OBA-13C	574.08	22.51	551.57	23.25	550.83	23.31	550.77
MW-22D	570.67	NM	NM	NM	NM	NM	NM

Notes:
NM - Not Measured.

Table 4
Summary of CD-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	01/21/1999		02/05/1999		03/02/1999	
		Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
OBA-02C	573.12	17.22	555.90	17.34	555.78	17.71	555.41
OBA-03C	573.14	15.51	557.63	15.38	557.76	15.60	557.54
OBA-05C	572.46	17.01	555.45	17.02	555.44	16.85	555.61
OBA-06C	569.49	13.54	555.95	13.35	556.14	13.50	555.99
OBA-08C	573.26	19.98	553.28	19.45	553.81	19.35	553.91
OBA-11C	573.37	17.51	555.86	17.00	556.37	17.32	556.05
OBA-13C	574.08	22.67	551.41	22.96	551.12	23.03	551.05
MW-22D	570.67	NM	NM	NM	NM	NM	NM

Notes:
NM - Not Measured.

Table 4
Summary of CD-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	04/08/1999		05/17/1999		06/04/1999	
		Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
OBA-02C	573.12	17.32	555.8	17.14	556.0	17.23	555.9
OBA-03C	573.14	15.41	557.7	15.35	557.8	15.37	557.8
OBA-05C	572.46	16.69	555.8	16.39	556.1	16.39	556.1
OBA-06C	569.49	13.50	556.0	13.28	556.2	13.50	556.0
OBA-08C	573.26	19.17	554.1	19.08	554.2	18.40	554.9
OBA-11C	573.37	17.30	556.1	17.23	556.1	17.25	556.1
OBA-13C	574.08	22.32	551.8	21.88	552.2	22.35	551.7
MW-22D	570.67	NM	NM	NM	NM	NM	NM

Notes:
NM - Not Measured.

Table 4
Summary of CD-Zone Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Reference Point Elevation (Feet AMSL)	07/23/1999		08/30/1999		09/17/1999	
		Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
OBA-02C	573.12	16.70	556.4	16.80	556.3	16.85	556.3
OBA-03C	573.14	15.45	557.7	14.82	558.3	15.68	557.5
OBA-05C	572.46	15.67	556.8	15.91	556.6	15.88	556.6
OBA-06C	569.49	12.65	556.8	12.62	556.9	12.68	556.8
OBA-08C	573.26	17.55	555.7	18.05	555.2	18.37	554.9
OBA-11C	573.37	17.43	555.9	17.36	556.0	17.50	555.9
OBA-13C	574.08	21.84	552.2	22.26	551.8	22.23	551.9
MW-22D	570.67	NM	NM	NM	NM	NM	NM

Notes:
NM - Not Measured.

checked by/date: AMC/9-24-99

Table 5
Summary of Recovery and Passive Relief Well
Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	01/29/1998		02/20/1998		03/27/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
RW-1	561.2	573.69	14.33	559.36	13.93	559.76	19.30	554.39
RW-1-PZ	561.2	572.73	14.52	558.21	NM	NM	NM	NM
RW-2	557	572.49	13.93	558.56	13.72	558.77	13.56	558.93
RW-2-PZ	557	572.22	13.69	558.53	NM	NM	NM	NM
RW-3	557.1	570.09	NM	NM	19.38	550.71	11.42	558.67
RW-3-PZ	557.1	570.03	18.01	552.02	NM	NM	NM	NM
RW-4	557.3	569.77	NM	NM	12.86	556.91	11.83	557.94
RW-4-PZ	557.3	569.81	12.45	557.36	NM	NM	NM	NM
RW-5	557.3	569.79	NM	NM	20.09	549.70	19.58	550.21
RW-5-PZ	557.3	569.74	12.20	557.54	NM	NM	NM	NM
PR-1	561.8	572.82	14.45	558.37	14.30	558.52	14.21	558.61
PR-1-PZ	561.8	571.58	13.22	558.36	NM	NM	NM	NM
PR-2	561.7	572.72	14.12	558.60	13.87	558.85	13.70	559.02
PR-2-PZ	561.7	572.70	14.11	558.59	NM	NM	NM	NM
PR-3	558.2	572.79	14.41	558.38	14.31	558.48	14.35	558.44
PR-3-PZ	558.2	572.16	13.95	558.21	NM	NM	NM	NM
PR-4	556.7	570.21	7.36	562.85	6.56	563.65	6.37	563.84
PR-4-PZ	556.7	570.14	10.82	559.32	NM	NM	NM	NM
PR-5	559.1	570.68	12.02	558.66	11.84	558.84	11.71	558.97
PR-5-PZ	559.1	569.69	11.03	558.66	NM	NM	NM	NM

NOTES:
Below bottom of A-zone
NM - Not Measured
NR - Not Recorded
1 - Water level from previous month with similar flow rate used for contouring.

Table 5
Summary of Recovery and Passive Relief Well
Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	04/17/1998		05/26/1998		06/11/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
RW-1	561.2	573.69	14.18	559.51	NM	NM	NM	NM
RW-1-PZ	561.2	572.73	NM	NM	NM	NM	NM	NM
RW-2	557	572.49	13.95	558.54	13.85	558.64	14.22	558.27
RW-2-PZ	557	572.22	NM	NM	NM	NM	NM	NM
RW-3	557.1	570.09	14.29	555.80	13.83	556.26	18.19	551.9
RW-3-PZ	557.1	570.03	NM	NM	NM	NM	NM	NM
RW-4	557.3	569.77	11.87	557.90	12.03	557.74	12.04	557.73
RW-4-PZ	557.3	569.81	NM	NM	NM	NM	NM	NM
RW-5	557.3	569.79	17.61	552.18	20.16	549.63	15.42	554.37
RW-5-PZ	557.3	569.74	NM	NM	NM	NM	NM	NM
PR-1	561.8	572.82	14.31	558.51	14.49	558.33	14.56	558.26
PR-1-PZ	561.8	571.58	NM	NM	NM	NM	NM	NM
PR-2	561.7	572.72	13.93	558.79	14.15	558.57	14.2	558.52
PR-2-PZ	561.7	572.70	NM	NM	NM	NM	NM	NM
PR-3	558.2	572.79	14.43	558.36	14.56	558.23	14.55	558.24
PR-3-PZ	558.2	572.16	NM	NM	NM	NM	NM	NM
PR-4	556.7	570.21	7.33	562.88	7.67	562.54	8.45	561.76
PR-4-PZ	556.7	570.14	NM	NM	NM	NM	NM	NM
PR-5	559.1	570.68	11.85	558.83	11.86	558.82	11.64	559.04
PR-5-PZ	559.1	569.69	NM	NM	NM	NM	NM	NM

NOTES:
Below bottom of A-zone
NM - Not Measured
NR - Not Recorded
1 - Water level from previous month with similar flow rate used for contouring.

Table 5
Summary of Recovery and Passive Relief Well
Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	07/23/1998		09/01/1998		09/29/1998	
			Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)	Water Level (Ft. BTOC)	Water Elevation (Feet AMSL)
RW-1	561.2	573.69	19.41	554.28	18.62	555.07	17.13	556.56
RW-1-PZ	561.2	572.73	NM	NM	NM	NM	NM	NM
RW-2	557	572.49	14.90	557.59	14.36	558.13	24.90	547.59
RW-2-PZ	557	572.22	NM	NM	NM	NM	NM	NM
RW-3	557.1	570.09	19.28	550.81	12.07	558.02	17.87	552.22
RW-3-PZ	557.1	570.03	NM	NM	NM	NM	NM	NM
RW-4	557.3	569.77	12.88	556.89	11.65	558.12	11.19	558.58
RW-4-PZ	557.3	569.81	NM	NM	NM	NM	NM	NM
RW-5	557.3	569.79	17.71	552.08	11.96	557.83	12.96	556.83
RW-5-PZ	557.3	569.74	NM	NM	NM	NM	NM	NM
PR-1	561.8	572.82	14.50	558.32	14.66	558.16	14.60	558.22
PR-1-PZ	561.8	571.58	NM	NM	NM	NM	NM	NM
PR-2	561.7	572.72	14.16	558.56	14.36	558.36	14.24	558.48
PR-2-PZ	561.7	572.70	NM	NM	NM	NM	NM	NM
PR-3	558.2	572.79	14.53	558.26	14.60	558.19	14.58	558.21
PR-3-PZ	558.2	572.16	NM	NM	NM	NM	NM	NM
PR-4	556.7	570.21	7.48	562.73	7.60	562.61	7.60	562.61
PR-4-PZ	556.7	570.14	NM	NM	NM	NM	NM	NM
PR-5	559.1	570.68	10.77	559.91	12.02	558.66	11.85	558.83
PR-5-PZ	559.1	569.69	NM	NM	NM	NM	NM	NM

NOTES:
Below bottom of A-zone
NM - Not Measured
NR - Not Recorded
1 - Water level from previous month with similar flow rate used for contouring.

Table 5
Summary of Recovery and Passive Relief Well
Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	10/30/1998		11/23/1998		12/22/1998	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
RW-1	561.2	573.69	16.05	557.64	15.50	558.19	15.61	558.08
RW-1-PZ	561.2	572.73	15.10	557.63	14.59	558.14	14.71	558.02
RW-2	557	572.49	24.90	547.59	22.40	550.09	24.92	547.57
RW-2-PZ	557	572.22	20.75	551.47	19.58	552.64	19.19	553.03
RW-3	557.1	570.09	19.40	550.69	19.82	550.27	14.00	556.09
RW-3-PZ	557.1	570.03	NM	NM	19.64	550.39	13.45	556.58
RW-4	557.3	569.77	13.44	556.33	13.48	556.29	15.55	554.22
RW-4-PZ	557.3	569.81	13.35	556.46	13.74	556.07	15.48	554.33
RW-5	557.3	569.79	16.31	553.48	18.09	551.70	21.10	548.69
RW-5-PZ	557.3	569.74	15.26	554.48	16.75	552.99	18.86	550.88
PR-1	561.8	572.82	14.78	558.04	14.85	557.97	14.84	557.98
PR-1-PZ	561.8	571.58	13.54	558.04	13.62	557.96	13.81	557.77
PR-2	561.7	572.72	14.67	558.05	14.66	558.06	14.66	558.06
PR-2-PZ	561.7	572.70	16.67	556.03	14.65	558.05	19.16	553.54
PR-3	558.2	572.79	14.65	558.14	14.66	558.13	14.54	558.25
PR-3-PZ	558.2	572.16	14.04	558.12	14.09	558.07	14.02	558.14
PR-4	556.7	570.21	8.15	562.06	8.81	561.40	8.61	561.60
PR-4-PZ	556.7	570.14	11.30	558.84	10.15	559.99	10.11	560.03
PR-5	559.1	570.68	11.95	558.73	11.97	558.71	11.85	558.83
PR-5-PZ	559.1	569.69	11.01	558.68	11.05	558.64	11.05	558.64

NOTES:
Below bottom of A-zone
NM - Not Measured
NR - Not Recorded
1 - Water level from previous month with similar flow rate used for contouring.

Table 5
Summary of Recovery and Passive Relief Well
Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	01/21/1999		02/05/1999		03/02/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
RW-1	561.2	573.69	14.99	558.70	15.60	558.09	16.55	557.14
RW-1-PZ	561.2	572.73	14.08	558.65	14.69	558.04	15.60	557.13
RW-2	557	572.49	20.20	552.29	17.60	554.89	16.40	556.09
RW-2-PZ	557	572.22	18.71	553.51	18.07	554.15	16.20	556.02
RW-3	557.1	570.09	17.02	553.07	17.60	552.49	20.03	550.06
RW-3-PZ	557.1	570.03	16.93	553.10	17.39	552.64	19.90	550.13
RW-4	557.3	569.77	15.28	554.49	15.65	554.12	17.82	551.95
RW-4-PZ	557.3	569.81	15.34	554.47	15.75	554.06	17.06	552.75
RW-5	557.3	569.79	21.02	548.77	20.90	548.89	23.30	546.49
RW-5-PZ	557.3	569.74	18.84	550.90	18.70	551.04	19.10	550.64
PR-1	561.8	572.82	14.84	557.98	14.67	558.15	14.91	557.91
PR-1-PZ	561.8	571.58	13.60	557.98	13.42	558.16	13.71	557.87
PR-2	561.7	572.72	14.76	557.96	14.32	558.40	14.79	557.93
PR-2-PZ	561.7	572.70	14.76	557.94	14.37	558.33	14.78	557.92
PR-3	558.2	572.79	14.61	558.18	14.53	558.26	14.77	558.02
PR-3-PZ	558.2	572.16	14.07	558.09	14.03	558.13	14.18	557.98
PR-4	556.7	570.21	8.06	562.15	6.90	563.31	7.93	562.28
PR-4-PZ	556.7	570.14	10.50	559.64	8.56	561.58	10.13	560.01
PR-5	559.1	570.68	11.91	558.77	11.59	559.09	11.69	558.99
PR-5-PZ	559.1	569.69	11.17	558.52	10.84	558.85	11.05	558.64

NOTES:

Below bottom of A-zone

NM - Not Measured

NR - Not Recorded

1 - Water level from previous month with similar flow rate used for contouring.

Table 5
Summary of Recovery and Passive Relief Well
Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	04/08/1999		05/17/1999		06/04/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
RW-1	561.2	573.69	NM [1]	557.1	24.05	549.6	NM [1]	549.6
RW-1-PZ	561.2	572.73	NM [1]	557.1	21.62	551.1	NM [1]	551.1
RW-2	557	572.49	17.94	554.6	21.52	551.0	24.85	547.6
RW-2-PZ	557	572.22	17.39	554.8	20.20	552.0	22.34	549.9
RW-3	557.1	570.09	19.55	550.5	19.41	550.7	18.07	552.0
RW-3-PZ	557.1	570.03	19.27	550.8	19.06	551.0	17.78	552.3
RW-4	557.3	569.77	20.80	549.0	20.00	549.8	17.92	551.9
RW-4-PZ	557.3	569.81	18.19	551.6	17.50	552.3	16.79	553.0
RW-5	557.3	569.79	18.85	550.9	18.83	551.0	16.49	553.3
RW-5-PZ	557.3	569.74	18.12	551.6	16.35	553.4	16.39	553.4
PR-1	561.8	572.82	14.81	558.0	14.73	558.1	14.69	558.1
PR-1-PZ	561.8	571.58	13.58	558.0	NM	NM	13.44	558.1
PR-2	561.7	572.72	14.58	558.1	14.65	558.1	14.58	558.1
PR-2-PZ	561.7	572.70	14.63	558.1	14.65	558.1	14.58	558.1
PR-3	558.2	572.79	14.71	558.1	14.72	558.1	14.66	558.1
PR-3-PZ	558.2	572.16	14.11	558.1	14.12	558.0	14.06	558.1
PR-4	556.7	570.21	7.99	562.2	7.95	562.3	6.70	563.5
PR-4-PZ	556.7	570.14	10.85	559.3	11.02	559.1	9.55	560.6
PR-5	559.1	570.68	11.52	559.2	11.61	559.1	11.52	559.2
PR-5-PZ	559.1	569.69	10.99	558.7	11.11	558.6	10.95	558.7

NOTES:

Below bottom of A-zone

NM - Not Measured

NR - Not Recorded

1 - Water level from previous month with similar flow rate used for contouring.

Table 5
Summary of Recovery and Passive Relief Well
Water Levels
Olin Chemical
Niagara Falls, NY

Well I.D.	Bottom of A-Zone Elevation (Feet AMSL)	Reference Point Elevation (Feet AMSL)	07/23/1999		08/30/1999		09/17/1999	
			Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)	Water Level (Feet BTOC)	Water Elevation (Feet AMSL)
RW-1	561.2	573.69	15.11	558.6	14.71	559.0	17.28	556.4
RW-1-PZ	561.2	572.73	14.21	558.5	13.81	558.9	16.37	556.4
RW-2	557	572.49	17.61	554.9	19.52	553.0	19.95	552.5
RW-2-PZ	557	572.22	17.36	554.9	19.25	553.0	20.87	551.4
RW-3	557.1	570.09	12.15	557.9	12.57	557.5	12.54	557.6
RW-3-PZ	557.1	570.03	12.12	557.9	12.56	557.5	12.5	557.5
RW-4	557.3	569.77	11.71	558.1	11.75	558.0	11.84	557.9
RW-4-PZ	557.3	569.81	11.73	558.1	11.72	558.1	11.83	558.0
RW-5	557.3	569.79	12.27	557.5	12.84	557.0	15.55	554.2
RW-5-PZ	557.3	569.74	12.24	557.5	12.81	556.9	15.46	554.3
PR-1	561.8	572.82	14.72	558.1	14.69	558.1	14.81	558.0
PR-1-PZ	561.8	571.58	13.48	558.1	13.44	558.1	13.58	558.0
PR-2	561.7	572.72	14.5	558.2	14.38	558.3	14.64	558.1
PR-2-PZ	561.7	572.70	14.58	558.1	14.41	558.3	14.65	558.1
PR-3	558.2	572.79	14.69	558.1	14.6	558.2	14.76	558.0
PR-3-PZ	558.2	572.16	14.11	558.1	14.02	558.1	14.17	558.0
PR-4	556.7	570.21	7.85	562.4	6.6	563.6	7.75	562.5
PR-4-PZ	556.7	570.14	10.56	559.6	9.16	561.0	9.97	560.2
PR-5	559.1	570.68	NR	NR	11.5	559.2	11.59	559.1
PR-5-PZ	559.1	569.69	12.45	557.2	11.02	558.7	11.07	558.6

NOTES:

Below bottom of A-zone

checked by/date: AMC/9-24-99

NM - Not Measured

NR - Not Recorded

1 - Water level from previous month with similar flow rate used for contouring.

TABLE 6
Olin - Niagara Falls
OMNX Systems Check
Summary of Total Flow, Average System Flow Rates, and Average Ground-Water Elevations

Period	Total Flow (gal/month)	Total Quarterly Flow (gal)	Average Flow Rate (gpm)						Flow Contribution Per Well (gal/month)					Notes
			RW-1	RW-2	RW-3	RW-4	RW-5	Total	RW-1	RW-2	RW-3	RW-4	RW-5	
Dec-97	60,000		0.1	0.0	0.4	0.4	0.4	1.3	4,720	810	19,098	18,902	16,471	1,3
4th Qtr 97		**60,000**												
Jan-98	60,000		0.1	0.0	0.4	0.4	0.4	1.3	4,720	810	19,098	18,902	16,471	1,3
Feb-98	45,000		0.1	0.0	0.4	0.4	0.3	1.1	3,540	607	14,323	14,176	12,353	1,3
Mar-98	45,000		0.1	0.0	0.3	0.3	0.3	1.0	3,540	607	14,323	14,176	12,353	1,3
1st Qtr 98		**150,000**												
Apr-98	365,297		0.7	0.1	2.7	2.7	2.3	8.5	28,735	4,931	116,271	115,080	100,280	1,3
May-98	334,862		0.6	0.1	2.4	2.4	2.1	7.5	26,341	4,520	106,584	105,492	91,925	2,3
Jun-98	475,640		0.9	0.1	3.5	3.5	3.0	11.0	37,415	6,421	151,393	149,841	130,570	2,3
2nd Qtr 98		**1,175,799**												
Jul-98	921,665		1.6	0.3	6.6	6.5	5.7	20.6	72,501	12,441	293,359	290,353	253,011	2,3
Aug-98	526,034		0.1	0.6	3.7	3.8	3.4	11.6	5,554	26,894	169,255	172,032	152,300	2, 4
Sep-98	1,135,460		2.4	2.5	7.0	7.1	7.1	26.0	104,479	107,966	306,316	309,076	307,623	2, 4
3rd Qtr 98		**2,583,159**												
Oct-98	1,252,945		0.4	1.1	6.8	10.1	9.7	28.1	18,288	48,816	302,400	451,872	431,568	2, 4
Nov-98	1,408,950		2.2	0.7	5.0	14.4	10.5	32.8	94,806	31,590	213,858	618,408	450,288	2, 4
Dec-98	1,393,101		0.3	1.0	4.5	15.4	9.8	31.1	15,642	44,072	203,121	691,082	439,185	2, 4
4th Qtr 98		**4,054,996**												
Jan-99	1,295,192		0.02	0.41	3.6	17.2	7.8	29.0	860	18,178	162,181	767,148	346,826	2, 4
Feb-99	1,362,751		2.9	3.1	4.2	18.0	5.6	33.8	117,795	123,770	171,019	725,571	224,596	2, 4
Mar-99	1,575,578		3.0	5.1	4.1	18.7	4.4	35.3	134,877	229,745	181,540	833,892	195,524	2, 4
1st Qtr 99		**4,233,521**												
Apr-99	1,419,313		2.8	5.5	3.0	18.2	3.3	32.8	123,042	237,750	129,803	785,958	142,761	2, 4
May-99	1,394,656		2.6	4.8	2.3	17.8	3.7	31.2	116,709	213,374	102,340	796,659	165,574	2, 4
Jun-99	1,177,615		2.6	1.6	2.0	17.3	3.6	27.3	112,803	70,596	87,762	748,818	157,637	2, 4
2nd Qtr 99		**3,991,584**												
Jul-99	1,195,224		1.2	2.8	3.1	14.9	4.8	26.8	53,137	122,975	140,305	663,996	214,812	2, 4
Aug-99	1,847,659		0.0	5.0	6.2	20.3	9.8	41.4	863	222,431	278,727	908,309	437,328	2, 4
Sep-99	2,176,325		1.4	3.6	7.3	20.2	17.8	50.4	59,270	157,635	316,791	872,352	770,276	2, 4
3rd Qtr 99		**5,219,207**												
Average	**975,830**		**1.2**	**1.8**	**3.6**	**10.5**	**5.3**	**22.3**	**51,802**	**76,679**	**159,085**	**457,822**	**230,442**	
Total	**21,468,265**								**1,139,637**	**1,686,938**	**3,499,864**	**10,072,095**	**5,069,732**	

1. Estimated total flow
2. Monthly flow totalizer data
3. Average % for totalized flow for Dec-97 through Jul-98.
4. % flow calculated from monthly totalizer data
- Data not available.

TABLE 7

MONITORING WELL CONSTRUCTION SUMMARY
OLIN BUFFALO AVENUE PLANT SITE
NIAGARA FALLS, NEW YORK

Monitoring Well	Installation Date	Type of Well	Coordinates Easting	Coordinates Northing	Top of Riser Elevation (Ft. AMSL)	Ground Elevation (Ft. AMSL)	Top of Bedrock Elevation (Ft. AMSL)	Depth to Bedrock (Ft. BGS)	Screened Interval (Ft. BGS)		Zone Monitored
BH-1	1978-Harza	1 1/4" st. steel well point	5323	20055	574.38	570.63	560.53	10.1	12.1 - 16.1		B
BH-3	1978-Harza	1 1/4" st. steel well point	5315	19553	573.15	569.13	560.63	8.5	14.0 - 18.0		B
BH-9	1978-Harza	1 1/4" st. steel well point	5162	19494	574.49	570.06	561.66	8.4	4.4 - 8.4		Overburden
OBA-1A	6/22/89-WCC	screened-4"PVC	4201.15	19999.64	571.02	571.3	565.8	5.5	2.5 - 8.5		A-Bedrock
OBA-1B	6/23/89-WCC	open-4"rockhole	4213.82	20000.06	570.9	571.3	566.3	5	10.0 - 25.0	(OH)	B
OBA-1C	6/27/89-WCC	open-4"rockhole	4225.16	20000.67	570.96	571.3	566.3	5	25.0 - 38.5	(OH)	C
OBA-2A	8/22/89-WCC	screened-4"PVC	5088.62	20086.17	572.93	570.4	564.6	5.8	2.8 - 8.8		A-Bedrock
OBA-2B	8/24/89-WCC	open-4"rockhole	5096.54	20086.61	573.07	570.5	564.7	5.8	11.0 - 25.0	(OH)	B
OBA-2C	8/30/89-WCC	open-4"rockhole	5077.08	20085.85	573.12	570.3	564.6	5.7	25.0 - 50.0	(OH)	C/CD (1)
OBA-3A	6/30/89-WCC	screened-4"PVC	5750.81	20086.02	572.5	569.9	555.6	14.3	11.4 - 17.4		A-Bedrock
OBA-3B	7/7/89-WCC	open-4"rockhole	5689.02	20066.19	572.17	569.9	555.9	14	19.0 - 33.5	(OH)	B (1)
OBA-3C	7/11/89-WCC	open-4"rockhole	5675.18	20066.79	573.14	569.8	555.8	14	33.0 - 58.0	(OH)	C/CD (1)
OBA-4A	7/14/89-WCC	screened-4"PVC	5433.18	19816.72	572.88	570.1	561.7	8.4	5.5 - 11.5		A-Bedrock
OBA-4B	7/20/89-WCC	open-4"rockhole	5433.3	19828.33	573.49	570.3	561.3	9	13.9 - 21.5	(OH)	B
OBA-4C	7/24/89-WCC	open-4"rockhole	5435.37	19840.19	573.54	570.4	561.9	8.5	22.0 - 30.5	(OH)	C
OBA-5A	8/7/89-WCC	screened-4"PVC	5116.7	19479.39	572.21	569.6	561.2	8.4	4.5 - 11.3		A-Bedrock
OBA-5B	8/8/89-WCC	open-4"rockhole	5106.73	19479.42	572.7	569.7	561.4	8.3	12.2 - 23.5	(OH)	B
OBA-5C	8/10/89-WCC	open-4"rockhole	5124.83	19478.7	572.46	569.7	561.4	8.3	23.0 - 53.0	(OH)	CD
OBA-6A	8/15/89-WCC	screened-4"PVC	4925.19	19649.53	569	569.5	564.4	5.1	2.1 - 8.1		A-Bedrock
OBA-6B	8/15/89-WCC	open-4"rockhole	4919.74	19649.33	569.49	569.9	564.7	4.9	10.0 - 22.5	(OH)	B
OBA-6C	8/18/89-WCC	open-4"rockhole	4930.18	19650.24	569.49	569.5	565	4.5	22.5 - 48.0	(OH)	C/CD (1)
OBA-7A	6/7/89-WCC	screened-4"PVC	4417.99	19808.26	573.97	571.5	566	5.5	2.3 - 8.3		A-Bedrock
OBA-7B	6/13/89-WCC	open-4"rockhole	4428.31	19809.3	574.47	571.5	563	8.5	10.4 - 24.8	(OH)	B
OBA-7C	6/20/89-WCC	open-4"rockhole	4399.6	19807.47	574.85	571.7	567.7	4	25.0 - 40.0	(OH)	C
OBA-8A	7/26/89-WCC	screened-4"PVC	3479.17	19572.73	572.95	570.7	563.2	7.5	4.5 - 10.5		A-Bedrock
OBA-8B	7/28/89-WCC	open-4"rockhole	3488.1	19566.78	573.24	570.6	563.1	7.5	12.4 - 25.0	(OH)	B
OBA-8C	8/4/89-WCC	open-4"rockhole	3469.86	19578.04	573.26	570.6	563.1	7.5	24.9 - 52.0	(OH)	CD
OBA-9A	11/2/92-WCC	screened-4"PVC	5342.71	19481.13	569.88	568.33	561.3	7	3.8 - 10.0		A-Bedrock
OBA-9AR	11/30/92-WCC	screened-6"st. steel	5343.11	19477.83	569.88	568.23	560.7	7.5	4.5 - 10.8		A-Bedrock (2)
OBA-10A	11/4/92-WCC	screened-4"PVC	5417.11	19454.63	568.92	569.24	555.5 (3)	13.7 (3)	10.4 - 16.4		A-Bedrock/B-Bedrock
OBA-11A	11/30/93-WCC	screened-4"PVC	3249.8	20019.5	573.22	571	562.2	8.8	6.2 - 12.0		A-Bedrock
OBA-11B	12/2/93-WCC	open-4"rockhole	3225.6	20015.4	573.29	571	562.5	8.5	13.5 - 24.5	(OH)	B
OBA-11C	12/6/93-WCC	open-4"rockhole	3239.1	20017.9	573.37	571	562.7	8.3	22.5 - 47.8	(OH)	CD
OBA-12A	12/7/93-WCC	screened-4"PVC	4777.5	20298.3	573.89	571.5	568.5	3	2.3 - 7.6		A-Bedrock

Monitoring Well	Installation Date	Type of Well	Coordinates Easting	Coordinates Northing	Top of Riser Elevation (Ft. AMSL)	Ground Elevation (Ft. AMSL)	Top of Bedrock Elevation (Ft. AMSL)	Depth to Bedrock (Ft. BGS)	Screened Interval (Ft. BGS)		Zone Monitored
OBA-12B	12/20/93-WCC	open-4"rockhole	4803.2	20292.8	574.04	571.5	567.5	4	9.0 - 19.6	(OH)	B
OBA-12C	12/20/93-WCC	open-4"rockhole	4789.4	20295.9	574.31	571.5	567.3	4.2	18.4 - 44.5	(OH)	C/CD (1)
OBA-13AOB	4/18/94-WCC	screened-4"PVC	5486.8	20202.9	574.29	572	557	15	9.4 - 15.0		Overburden
OBA-13A	4/18/94-WCC	screened-4"PVC	5483.2	20203.2	573.98	572	556.6	15.4	12.6 - 19.0		A-Bedrock
OBA-13B	4/19/94-WCC	open-4"rockhole	5500.9	20202.1	574.26	572	555.1	16.9	20.9 - 29.7	(OH)	B
OBA-13C	4/26/94-WCC	open-4"rockhole	5493.7	20202.6	574.08	572	556.5	15.5	29.0 - 48.4	(OH)	C/CD (1)
OBA-14A	4/25/94-WCC	screened-4"PVC	5784.3	19867.8	571.1	568.9	555.5	13.4	9.0 - 14.5		A-Bedrock
OBA-14B	4/25/94-WCC	open-4"rockhole	5783.6	19886.2	571.26	568.9	555.3	13.6	17.3 - 24.2	(OH)	B
OBA-14C	4/27/94-WCC	open-4"rockhole	5784.1	19876.9	570.61	568.9	555.2	13.7	25.1 - 41.7	(OH)	C
OBA-15A	4/13/94-WCC	screened-4"PVC	5476.4	20060.7	573.08	570.9	554	16.9	14.0 - 20.2		A
OBA-15B	4/20/94-WCC	open-4"rockhole	5473.2	19978.2	573.58	570.9	553.4	17.5	22.5 - 32.1	(OH)	C
OBA-16A	4/5/94-WCC	screened-4"PVC	5214.8	19955.6	573.55	571.1	563.9	7.2	3.2 - 9.2		A-Bedrock
OBA-16B	4/20/94-WCC	open-4"rockhole	5215.3	19950.1	573.47	571.1	563.9	7.2	11.6 - 21.8	(OH)	B
OBA-18A	-CRA		3344.93	20033.60	573.85	571.35	562.95	8.4	5.3 - 11.3		A-Bedrock
OBA-19A	-CRA		3221.30	19788.90	574.34	571.74	561.64	10.1	7.0 - 12.8		A-Bedrock
OBA-21AB	-CRA	screened-4" PVC	5160.88	19469.01	572.46	570	562	8	4.0 - 24.0		A-Bedrock/B-Bedrock
OBA-23A	8/4/97-LAW	screened-4" st. steel	4982.9	19974.72	570.72	570.92	564.42	6.5	6.1 - 9.5	**	A
OBA-23B	8/1/97-CRA	screened-4" st. steel	4982.86	19968.04	570.54	570.84	564.34	6.5	12.0 - 20.0		B
OBA-24A	6/6/99-CRA	screened-2" PVC	5441.4	19512.2	569.35	569.73	561.23	8.47	8.3 - 11.3		A
OBA-24B	6/6/99-CRA	open-4"rockhole	5440.7	19517.9	569.28	569.73	561.63	8.1	13.7 - 22.9		
OBA-25A	6/11/99-CRA	screened-2" PVC	5600.4	19521.6	569.47	569.94	561.44	8.46	6.5 - 11.5		
OBA-25B	6/12/99-CRA	open-4"rockhole	5601.4	19532.8	569.45	570.05	561.75	8.35	13.5 - 22.0		
OBA-26A	6/10/99-CRA	screened-2" PVC	5541	19667.8	570.04	570.45	560.75	9.7	9.3 - 14.3		
OBA-26B	6/10/99-CRA	open-4"rockhole	5532.9	19668.7	570.04	570.45	560.95	9.5	15.0 - 22.0		
Olin Caustic Wells											
OCW-6BR (4)	-WCC		4689.71	19906.43	571.26	571.69	566.1	5.6	6.1 - 9.5		A-Bedrock
OCW-1 (4)	-WCC		4670.11	20021.43	570.79	571.12	565.7	5.4	1.2 - 5.2		Overburden
OCW-2 (4)	-WCC		4610.31	19881.13	572.27	572.7	568.5	4.2	0.9 - 3.9		Overburden
OCW-3 (4)	-WCC		4611.01	19806.53	572.42	572.81	569	3.9	1.0 - 3.8		Overburden
OCW-4 (4)	-WCC		4649.41	19755.33	571.63	572.2	564.2	7.9	2.0 - 7.9		Overburden
OCW-5 (4)	-WCC		4689.11	19614.63	571.92	572.29	566.9	5.4	1.0 - 5.4		Overburden
OCW-6 (4)	-WCC		4690.01	19880.13	571.17	571.5	565.6	5.9	1.2 - 5.9		Overburden
Olin Collection Wells and Piezometers											
RW-1	8/5/97-LAW	screened-6" st. steel	5002.98	19908.13	573.69	570.69	564.19	6.5	7.3 - 20.8		A/B
RW-1-PZ	8/5/97-LAW	screened-1 1/4" st. steel			572.73				13.6 - 23.4		
PR-1	8/7/97-LAW	screened-6" st. steel	4992.24	19816.04	572.82	570.82	564.82	6	8.1 - 21.5		A/B
PR-1-PZ	8/7/97-LAW	screened-1 1/4" st. steel			571.58				15.0 - 24.5		
PN-1			4941.1	19864.32		571.3	563.8	7.5			

Monitoring Well	Installation Date	Type of Well	Coordinates Easting	Coordinates Northing	Top of Riser Elevation (Ft. AMSL)	Ground Elevation (Ft. AMSL)	Top of Bedrock Elevation (Ft. AMSL)	Depth to Bedrock (Ft. BGS)	Screened Interval (Ft. BGS)	Zone Monitored
PN-1A	8/13/97-LAW	screened-1 1/4" st. steel			571.01				5.3 - 10.1	A
PN-1B	8/13/97-LAW	screened-1 1/4" st. steel			570.87				16.8 - 21.6	B
RW-2	8/7/97-LAW	screened-6" st. steel	5176.11	20000.04	572.49	571.49	559.99	11.5	8.7 - 22.1	A/B
RW-2-PZ	8/7/97-LAW	screened-1 1/4" st. steel			572.22				14.9 - 24.8	
PR-2	8/6/97-LAW	screened-6" st. steel	5075.32	19971.4	572.72	571.72	564.72	7	8.1 - 21.5	A/B
PR-2-PZ	8/6/97-LAW	screened-1 1/4" st. steel			572.7				14.8 - 25.6	
PN-2			5136.33	19977.88		571.5	565	6.5		
PN-2A	8/13/97-LAW	screened-1 1/4" st. steel			571.2				4.6 - 9.4	A
PN-2B	8/13/97-LAW	screened-1 1/4" st. steel			571.01				17.2 - 22.0	B
RW-3	8/5/97-LAW	screened-6" st. steel	5331.82	19957.65	570.09	569.09	560.09	9	6.5 - 19.9	A/B
RW-3-PZ	8/5/97-LAW	screened-1 1/4" st. steel			570.03				13.2 - 23.0	
PR-3	8/11/97-LAW	screened-6" st. steel	5271.84	19983.45	572.79	571.67	561.17	10.5	9.0 - 22.4	A/B
PR-3-PZ	8/11/97-LAW	screened-1 1/4" st. steel			572.16				15.2 - 25.0	
PN-3			5278.6	19961.62		571.65	562.65	9		
PN-3A	8/12/97-LAW	screened-1 1/4" st. steel			571.43				6.3 - 11.1	A
PN-3B	8/12/97-LAW	screened-1 1/4" st. steel			571.36				20.5 - 25.3	B
RW-4	8/8/97-LAW	screened-6" st. steel	5321.62	19758.67	569.77	568.77	560.27	8.5	10.4 - 23.8	A/B
RW-4-PZ	8/8/97-LAW	screened-1 1/4" st. steel			569.81				17.0 - 26.8	
PR-4	8/6/97-LAW	screened-6" st. steel	5329.77	19859.85	570.21	569.21	559.71	9.5	7.3 - 20.7	A/B
PR-4-PZ	8/6/97-LAW	screened-1 1/4" st. steel			570.14				13.9 - 23.7	
PN-4			5336.66	19902.25		569.08	562.08	7		
PN-4A	8/14/97-LAW	screened-1 1/4" st. steel			568.78				4.7 - 9.5	A
PN-4B	8/14/97-LAW	screened-1 1/4" st. steel			568.89				15.9 - 20.7	B
RW-5	8/8/97-LAW	screened-6" st. steel	5305.61	19561.54	569.79	568.79	560.29	8.5	7.6 - 21.0	A/B
RW-5-PZ	8/8/97-LAW	screened-1 1/4" st. steel			569.74				14.8 - 24.6	
PR-5	8/13/97-LAW	screened-6" st. steel	5315.12	19646.18	570.68	569.08	562.08	7	8.8 - 22.2	A/B
PR-5-PZ	8/13/97-LAW	screened-1 1/4" st. steel			569.69				15.3 - 25.1	
PN-5			5333.68	19817.17		569.1	562.1	7		

Monitoring Well	Installation Date	Type of Well	Coordinates Easting	Coordinates Northing	Top of Riser Elevation (Ft. AMSL)	Ground Elevation (Ft. AMSL)	Top of Bedrock Elevation (Ft. AMSL)	Depth to Bedrock (Ft. BGS)	Screened Interval (Ft. BGS)	Zone Monitored
PN-5A	8/15/97-LAW	screened-1 1/4" st. steel			569.1				5.2 - 10.0	A
PN-5B	8/15/97-LAW	screened-1 1/4" st. steel			569.1				19.2 - 24.0	B
PN-6			5312.54	19693.77		569.15	562.15	7		
PN-6A	8/18/97-LAW	screened-1 1/4" st. steel			568.93				5.2 - 10.0	A
PN-6B	8/18/97-LAW	screened-1 1/4" st. steel			569.07				19.2 - 24.0	B
PN-7			5308.86	19604.91		568.93	561.93	7	5.4 - 10.2	A
PN-7A	8/19/97-LAW	screened-1 1/4" st. steel			568.7				16.8 - 21.6	B
PN-7B	8/19/97-LAW	screened-1 1/4" st. steel			568.95					
PN-8			5310.35	19515.78		568.83	560.83	8		
PN-8A	8/20/97-LAW	screened-1 1/4" st. steel			568.83				5.4 - 10.2	A
PN-8B	8/20/97-LAW	screened-1 1/4" st. steel			568.38				16.7 - 21.5	B
PN-9B	5/14/99-CRA		5271.67	20023.21	571.9	572.32	563.22	9.1	16.0 - 26.0	B
PN-10B	5/17/99-CRA		5055.19	20005.85	571.63	572.01	564.53	7.1	14.1 - 24.1	B

Notes:
OBA - Water Quality Monitoring Well
RW - Groundwater Recovery Well (Coordinates apply to both Recovery well and adjacent piezometer)
PN - Piezometer Nest (Coordinates apply to both A and B piezometers located in nest (which are 12" diameter road boxes))
PZ - Piezometer
PR - Passive Relief Well (Coordinates apply to both Passive Relief well and adjacent piezometer)
(1) No major waterbearing fractures encountered during drilling of the monitored interval.
(2) OBA-9AR was installed as a possible NAPL recovery well.
(3) OBA-10A was most likely installed in a sewer line trench excavated into rock, thus the top of rock elevation does not accurately reflect bedrock elevation in the surrounding area.
(4) OCW wells were installed as part of the investigation of the caustic spill of February 21, 1993.
(5) Competent bedrock; the depth to bedrock is questionable in this location due to the presence of an old foundation which may have been constructed on or into the bedrock surface.
** Total depth of well OBA-23A was re-measured on 11/??/98 at 9.5 feet bgs. (The original measurement was 9.0 feet bgs.)
AMSL Above Mean Sea Level.
BGS Below Ground Surface.
OH Open Hole.
Gill Creek stilling well reference elevation = 571.22. Ft. AMSL.

TABLE 8
OLIN NIAGARA
SEPTEMBER 1999 QUARTERLY SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate
Effluent Stripper	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	1,1,2,2-TETRACHLOROETHANE	290		UG/L	20	09/20/1999
Effluent Stripper	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	1,2,4-TRICHLOROBENZENE	48		UG/L	20	09/20/1999
Effluent Stripper	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	BENZENE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	CHLOROBENZENE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	CHLOROMETHANE		ND	UG/L	40	09/20/1999
Effluent Stripper	Volatiles	cis-1,2-DICHLOROETHYLENE	37		UG/L	20	09/20/1999
Effluent Stripper	Volatiles	METHYLENE CHLORIDE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	TETRACHLOROETHENE (PCE)	52		UG/L	20	09/20/1999
Effluent Stripper	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	20	09/20/1999
Effluent Stripper	Volatiles	TRICHLOROETHYLENE (TCE)	120		UG/L	20	09/20/1999
Effluent Stripper	Volatiles	VINYL CHLORIDE		ND	UG/L	40	09/20/1999
Influent Stripper	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	1,1,2,2-TETRACHLOROETHANE	1700		UG/L	400	09/20/1999
Influent Stripper	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	1,2,4-TRICHLOROBENZENE	820		UG/L	400	09/20/1999
Influent Stripper	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	BENZENE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	CHLOROBENZENE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	CHLOROMETHANE		ND	UG/L	800	09/20/1999
Influent Stripper	Volatiles	cis-1,2-DICHLOROETHYLENE	2400		UG/L	400	09/20/1999
Influent Stripper	Volatiles	METHYLENE CHLORIDE	560		UG/L	400	09/20/1999
Influent Stripper	Volatiles	TETRACHLOROETHENE (PCE)	9800		UG/L	400	09/20/1999
Influent Stripper	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	400	09/20/1999
Influent Stripper	Volatiles	TRICHLOROETHYLENE (TCE)	14000		UG/L	400	09/20/1999
Influent Stripper	Volatiles	VINYL CHLORIDE		ND	UG/L	800	09/20/1999
RW-1	Metals, Dissolved	MERCURY	0.0087		MG/L	0.0002	09/20/1999
RW-1	Metals, Total	MERCURY	0.013		MG/L	0.0006	09/20/1999

TABLE 8
OLIN NIAGARA
SEPTEMBER 1999 QUARTERLY SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate
RW-1	Pesticide/PCB	ALPHA BHC	41		UG/L	5	09/20/1999
RW-1	Pesticide/PCB	BETA BHC	11		UG/L	5	09/20/1999
RW-1	Pesticide/PCB	DELTA BHC		ND	UG/L	5	09/20/1999
RW-1	Pesticide/PCB	GAMMA BHC (LINDANE)		ND	UG/L	5	09/20/1999
RW-1	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	1,1,2,2-TETRACHLOROETHANE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	1,2,4-TRICHLOROBENZENE	4500		UG/L	2000	09/20/1999
RW-1	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	BENZENE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	CHLOROBENZENE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	CHLOROMETHANE		ND	UG/L	4000	09/20/1999
RW-1	Volatiles	cis-1,2-DICHLOROETHYLENE	2800		UG/L	2000	09/20/1999
RW-1	Volatiles	METHYLENE CHLORIDE	3800		UG/L	2000	09/20/1999
RW-1	Volatiles	TETRACHLOROETHENE (PCE)	7300		UG/L	2000	09/20/1999
RW-1	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	2000	09/20/1999
RW-1	Volatiles	TRICHLOROETHYLENE (TCE)	52000		UG/L	2000	09/20/1999
RW-1	Volatiles	VINYL CHLORIDE		ND	UG/L	4000	09/20/1999
RW-2	Metals, Dissolved	MERCURY	0.0016	J	MG/L	0.0002	09/27/1999
RW-2	Metals, Total	MERCURY	0.0075	J	MG/L	0.0002	09/27/1999
RW-2	Pesticide/PCB	ALPHA BHC	33		UG/L	2	09/27/1999
RW-2	Pesticide/PCB	BETA BHC	3.7		UG/L	2	09/27/1999
RW-2	Pesticide/PCB	DELTA BHC	5		UG/L	2	09/27/1999
RW-2	Pesticide/PCB	GAMMA BHC (LINDANE)	30		UG/L	2	09/27/1999
RW-2	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	1,1,2,2-TETRACHLOROETHANE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	1,2,4-TRICHLOROBENZENE	450		UG/L	170	09/27/1999
RW-2	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	BENZENE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	170	09/27/1999

TABLE 8
OLIN NIAGARA
SEPTEMBER 1999 QUARTERLY SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate
RW-2	Volatiles	CHLOROBENZENE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	CHLOROMETHANE		ND	UG/L	330	09/27/1999
RW-2	Volatiles	cis-1,2-DICHLOROETHYLENE	460		UG/L	170	09/27/1999
RW-2	Volatiles	METHYLENE CHLORIDE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	TETRACHLOROETHENE (PCE)	650		UG/L	170	09/27/1999
RW-2	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	170	09/27/1999
RW-2	Volatiles	TRICHLOROETHYLENE (TCE)	3200		UG/L	170	09/27/1999
RW-2	Volatiles	VINYL CHLORIDE		ND	UG/L	330	09/27/1999
RW-3	Metals, Dissolved	MERCURY		ND	MG/L	0.0002	09/20/1999
RW-3	Metals, Total	MERCURY	0.0066		MG/L	0.0002	09/20/1999
RW-3	Pesticide/PCB	ALPHA BHC	51		UG/L	5	09/20/1999
RW-3	Pesticide/PCB	BETA BHC		ND	UG/L	5	09/20/1999
RW-3	Pesticide/PCB	DELTA BHC	9.1		UG/L	5	09/20/1999
RW-3	Pesticide/PCB	GAMMA BHC (LINDANE)	51		UG/L	5	09/20/1999
RW-3	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	1,1,2,2-TETRACHLOROETHANE	190		UG/L	100	09/20/1999
RW-3	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	1,2,4-TRICHLOROBENZENE	710		UG/L	100	09/20/1999
RW-3	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	1,3-DICHLOROBENZENE	150		UG/L	100	09/20/1999
RW-3	Volatiles	1,4-DICHLOROBENZENE	160		UG/L	100	09/20/1999
RW-3	Volatiles	BENZENE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	CHLOROBENZENE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	CHLOROMETHANE		ND	UG/L	200	09/20/1999
RW-3	Volatiles	cis-1,2-DICHLOROETHYLENE	500		UG/L	100	09/20/1999
RW-3	Volatiles	METHYLENE CHLORIDE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	TETRACHLOROETHENE (PCE)	2200		UG/L	100	09/20/1999
RW-3	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	100	09/20/1999
RW-3	Volatiles	TRICHLOROETHYLENE (TCE)	2100		UG/L	100	09/20/1999
RW-3	Volatiles	VINYL CHLORIDE		ND	UG/L	200	09/20/1999
RW-3 DUP	Metals, Dissolved	MERCURY	0.00054	J	MG/L	0.0002	09/20/1999
RW-3 DUP	Metals, Total	MERCURY	0.0042	J	MG/L	0.0002	09/20/1999
RW-3 DUP	Pesticide/PCB	ALPHA BHC	44		UG/L	2.5	09/20/1999
RW-3 DUP	Pesticide/PCB	BETA BHC	4.5		UG/L	2.5	09/20/1999
RW-3 DUP	Pesticide/PCB	DELTA BHC	8.1		UG/L	2.5	09/20/1999
RW-3 DUP	Pesticide/PCB	GAMMA BHC (LINDANE)	44		UG/L	2.5	09/20/1999

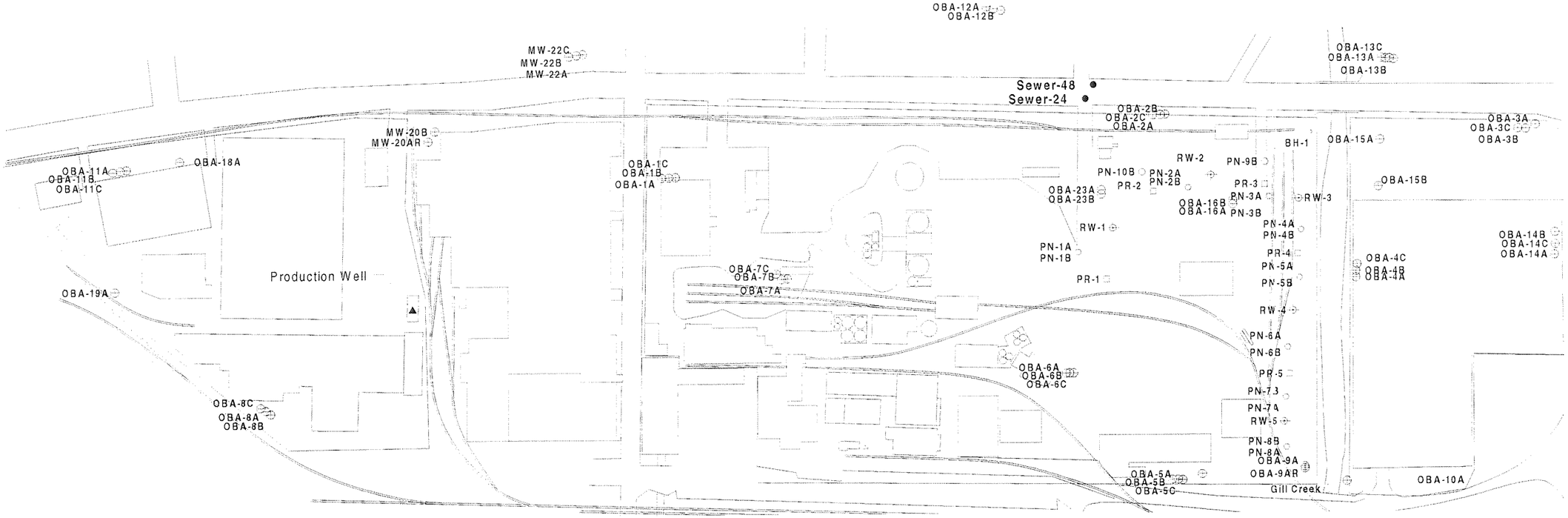
TABLE 8
OLIN NIAGARA
SEPTEMBER 1999 QUARTERLY SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate
RW-3 DUP	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	100	09/20/1999
RW-3 DUP	Volatiles	1,1,2,2-TETRACHLOROETHANE	180		UG/L	100	09/20/1999
RW-3 DUP	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	100	09/20/1999
RW-3 DUP	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	100	09/20/1999
RW-3 DUP	Volatiles	1,2,4-TRICHLOROBENZENE	620		UG/L	100	09/20/1999
RW-3 DUP	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	100	09/20/1999
RW-3 DUP	Volatiles	1,3-DICHLOROBENZENE	140		UG/L	100	09/20/1999
RW-3 DUP	Volatiles	1,4-DICHLOROBENZENE	140		UG/L	100	09/20/1999
RW-3 DUP	Volatiles	BENZENE		ND	UG/L	100	09/20/1999
RW-3 DUP	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	100	09/20/1999
RW-3 DUP	Volatiles	CHLOROBENZENE		ND	UG/L	100	09/20/1999
RW-3 DUP	Volatiles	CHLOROMETHANE		ND	UG/L	200	09/20/1999
RW-3 DUP	Volatiles	cis-1,2-DICHLOROETHYLENE	430		UG/L	100	09/20/1999
RW-3 DUP	Volatiles	METHYLENE CHLORIDE	110		UG/L	100	09/20/1999
RW-3 DUP	Volatiles	TETRACHLOROETHENE (PCE)	1900		UG/L	100	09/20/1999
RW-3 DUP	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	100	09/20/1999
RW-3 DUP	Volatiles	TRICHLOROETHYLENE (TCE)	1800		UG/L	100	09/20/1999
RW-3 DUP	Volatiles	VINYL CHLORIDE		ND	UG/L	200	09/20/1999
RW-4	Metals, Dissolved	MERCURY		ND	MG/L	0.0002	09/20/1999
RW-4	Metals, Total	MERCURY	0.00085		MG/L	0.0002	09/20/1999
RW-4	Pesticide/PCB	ALPHA BHC	150		UG/L	5	09/20/1999
RW-4	Pesticide/PCB	BETA BHC	8		UG/L	5	09/20/1999
RW-4	Pesticide/PCB	DELTA BHC	21		UG/L	5	09/20/1999
RW-4	Pesticide/PCB	GAMMA BHC (LINDANE)	120		UG/L	5	09/20/1999
RW-4	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	1,1,2,2-TETRACHLOROETHANE	590		UG/L	250	09/20/1999
RW-4	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	1,2,4-TRICHLOROBENZENE	1700		UG/L	250	09/20/1999
RW-4	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	BENZENE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	CHLOROBENZENE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	CHLOROMETHANE		ND	UG/L	500	09/20/1999
RW-4	Volatiles	cis-1,2-DICHLOROETHYLENE	1200		UG/L	250	09/20/1999
RW-4	Volatiles	METHYLENE CHLORIDE	310		UG/L	250	09/20/1999

TABLE 8
OLIN NIAGARA
SEPTEMBER 1999 QUARTERLY SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate
RW-4	Volatiles	TETRACHLOROETHENE (PCE)	6000		UG/L	250	09/20/1999
RW-4	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	250	09/20/1999
RW-4	Volatiles	TRICHLOROETHYLENE (TCE)	5400		UG/L	250	09/20/1999
RW-4	Volatiles	VINYL CHLORIDE		ND	UG/L	500	09/20/1999
RW-5	Metals, Dissolved	MERCURY		ND	MG/L	0.0002	09/20/1999
RW-5	Metals, Total	MERCURY		ND	MG/L	0.0002	09/20/1999
RW-5	Pesticide/PCB	ALPHA BHC	65		UG/L	2.5	09/20/1999
RW-5	Pesticide/PCB	BETA BHC	5.5		UG/L	2.5	09/20/1999
RW-5	Pesticide/PCB	DELTA BHC	11		UG/L	2.5	09/20/1999
RW-5	Pesticide/PCB	GAMMA BHC (LINDANE)	51		UG/L	2.5	09/20/1999
RW-5	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	1,1,2,2-TETRACHLOROETHANE	4100		UG/L	1000	09/20/1999
RW-5	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	1,2,4-TRICHLOROBENZENE	2500		UG/L	1000	09/20/1999
RW-5	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	BENZENE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	CHLOROBENZENE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	CHLOROMETHANE		ND	UG/L	2000	09/20/1999
RW-5	Volatiles	cis-1,2-DICHLOROETHYLENE	5600		UG/L	1000	09/20/1999
RW-5	Volatiles	METHYLENE CHLORIDE	1200		UG/L	1000	09/20/1999
RW-5	Volatiles	TETRACHLOROETHENE (PCE)	21000		UG/L	1000	09/20/1999
RW-5	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	1000	09/20/1999
RW-5	Volatiles	TRICHLOROETHYLENE (TCE)	29000		UG/L	1000	09/20/1999
RW-5	Volatiles	VINYL CHLORIDE		ND	UG/L	2000	09/20/1999

FIGURES



LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ⊕ GROUND WATER RECOVERY WELLS
- □ PASSIVE RELIFF WELLS
- ● SEWER INVERT ELEVATION
- ——— PROPERTY LINE

0 200 400

Scale 1 inch = 200 feet

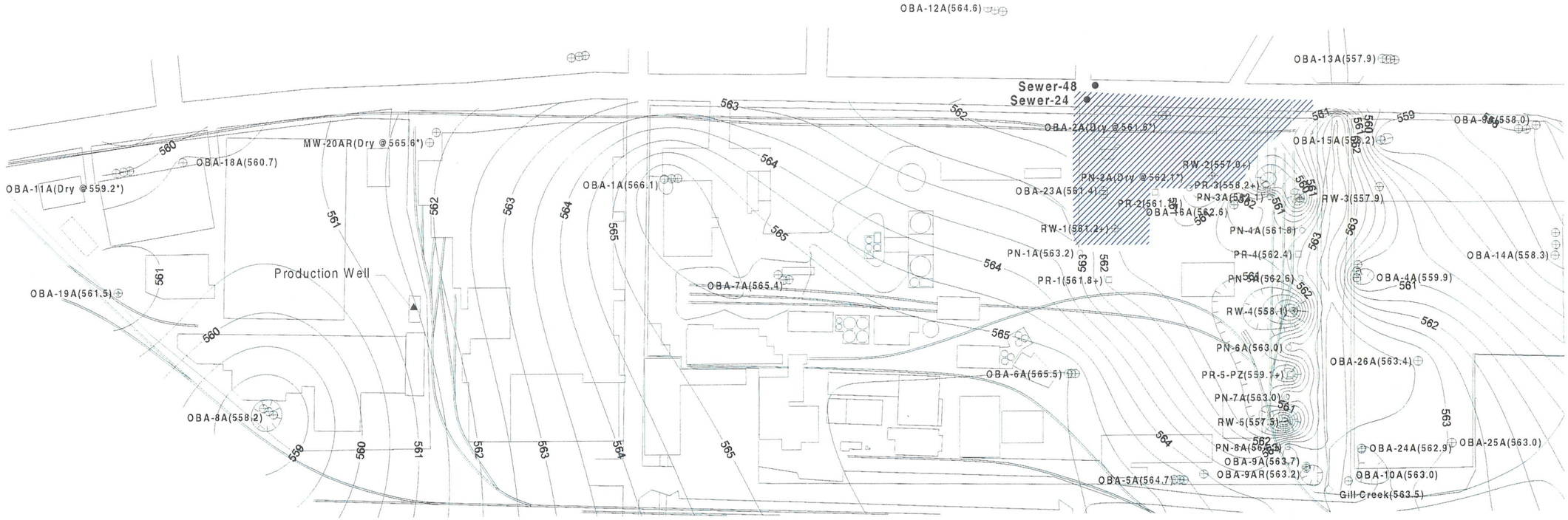
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

BASE MAP

Job No.: 12000-8-0030

Figure 0



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
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED DRY AREA IN ZONE A

Well	Average Flow Rate(gpm)*
RW-1	1.0
RW-2	2.8
RW-3	3.2
RW-4	12.8
RW-5	5.4

*: Flow rates averaged from end of well cleaning on July 9, 1999.

0 200 400

Scale 1 inch = 200 feet

NOTE

*: Well dry, elevation of bottom of A-Zone used in contouring.
+: Bottom of A-Zone elevation used in contouring.
▲: Water Elevation not obtained from Olin Production Well.
●: 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.

Two water level measurements were obtained in Gill Creek throughout the day at 13:30pm (563.66 feet), and 16:00pm (563.51feet). The Gill Creek elevation (563.51 feet) coinciding with the time water level measurements were obtained in the piezometers along Gill Creek was used in contouring in A zone.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

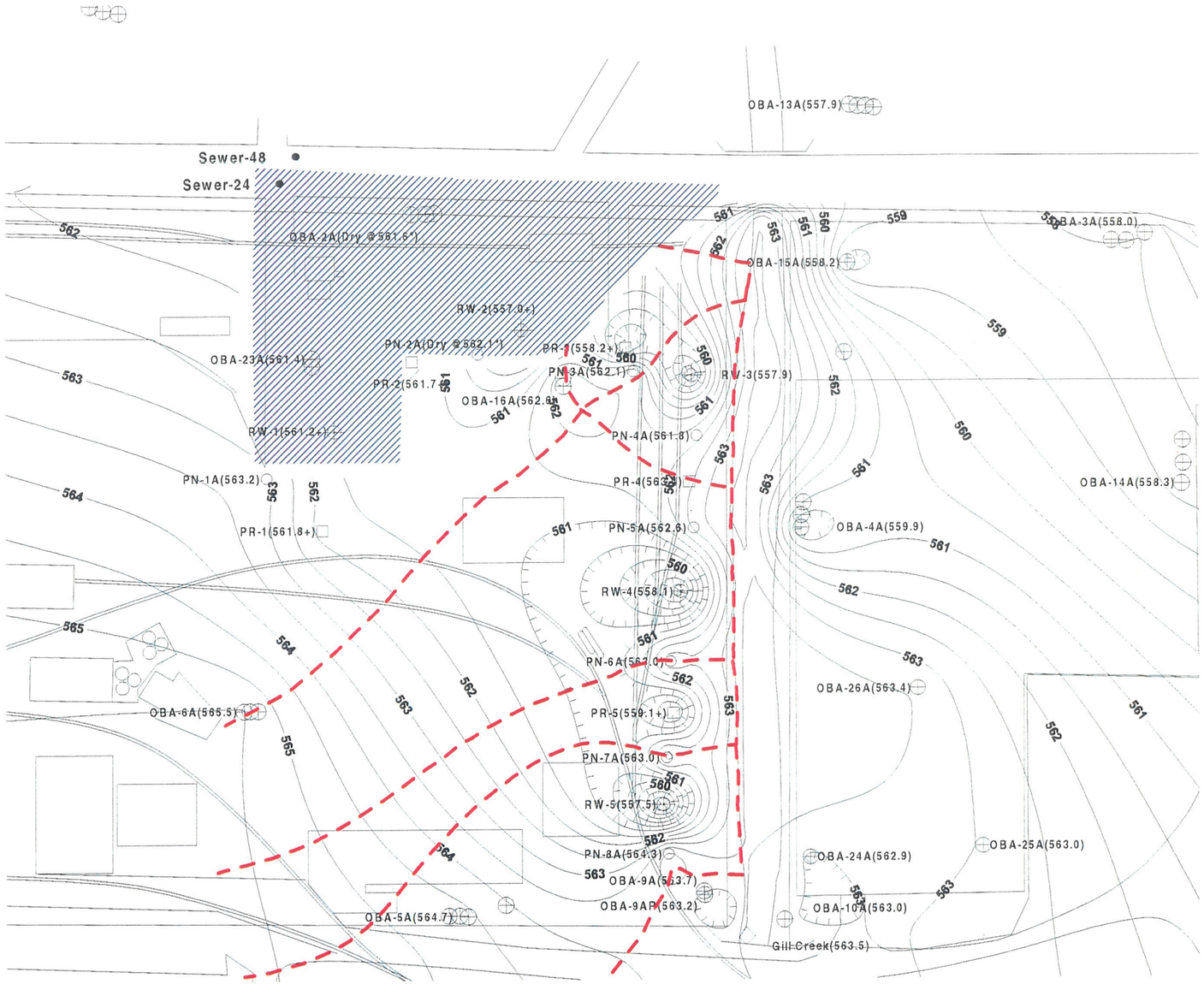
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- A ZONE (JULY 23, 1999)

Job No.: 12000-8-0030

Figure 1



Well	Average Flow Rate(gpm)*
RW-1	1.0
RW-2	2.8
RW-3	3.2
RW-4	12.8
RW-5	5.4

*: Flow rates averaged from end of well cleaning on July 9, 1999.

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
- PROPERTY LINE
- 565 — ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED CAPTURE ZONE BOUNDARY
- ESTIMATED DRY AREA IN ZONE A

0 120 240

Scale 1 inch = 120 feet

NOTE

*: Well dry, elevation of bottom of A-Zone used in contouring.
+: Bottom of A-Zone elevation 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.

Two water level measurements were obtained in Gill Creek throughout the day at 13:30pm (563.66 feet), and 16:00pm (563.51 feet). The Gill Creek elevation (563.51 feet) coinciding with the time water level measurements were obtained in the piezometers along Gill Creek was used in contouring in A zone.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995. CAPTURE ZONE BOUNDARY WAS DRAWN BASED THE FLOW PATHLINES GENERATED BY GWPATH.

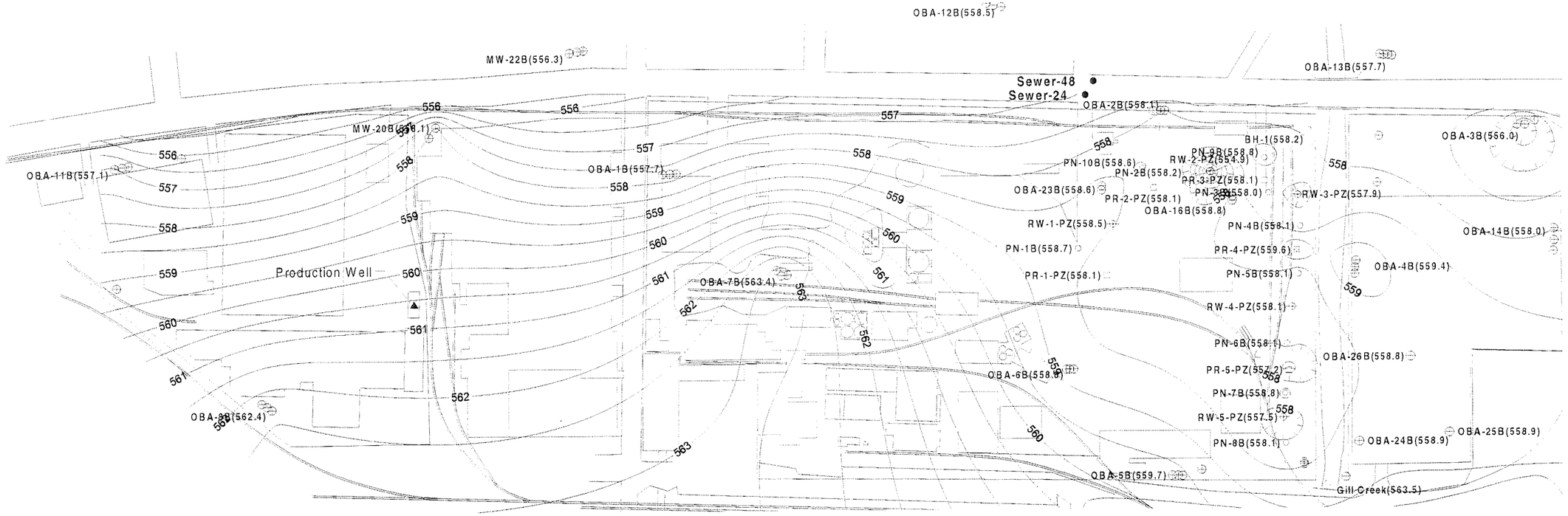
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

ESTIMATED CAPTURE ZONE AND
POTENTIOMETRIC SURFACE -- A ZONE
(JULY 23, 1999)

Job No.: 12000-8-0030

Figure 1B



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
- ⊕ GROUND WATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT ELEVATION
- ——— PROPERTY LINE
- ——— 565 ——— ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)

Well	Average Flow Rate(gpm)*
RW-1	1.0
RW-2	2.8
RW-3	3.2
RW-4	12.8
RW-5	5.4

*: Flow rates averaged from end of well cleaning on July 9, 1999.

NOTE

▲: 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.

Two water level measurements were obtained in Gill Creek throughout the day at 13:30pm (563.66 feet), and 16:00pm (563.51 feet). The Gill Creek elevation was not used in contouring the B zone but is included on the map for comparative purposes.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

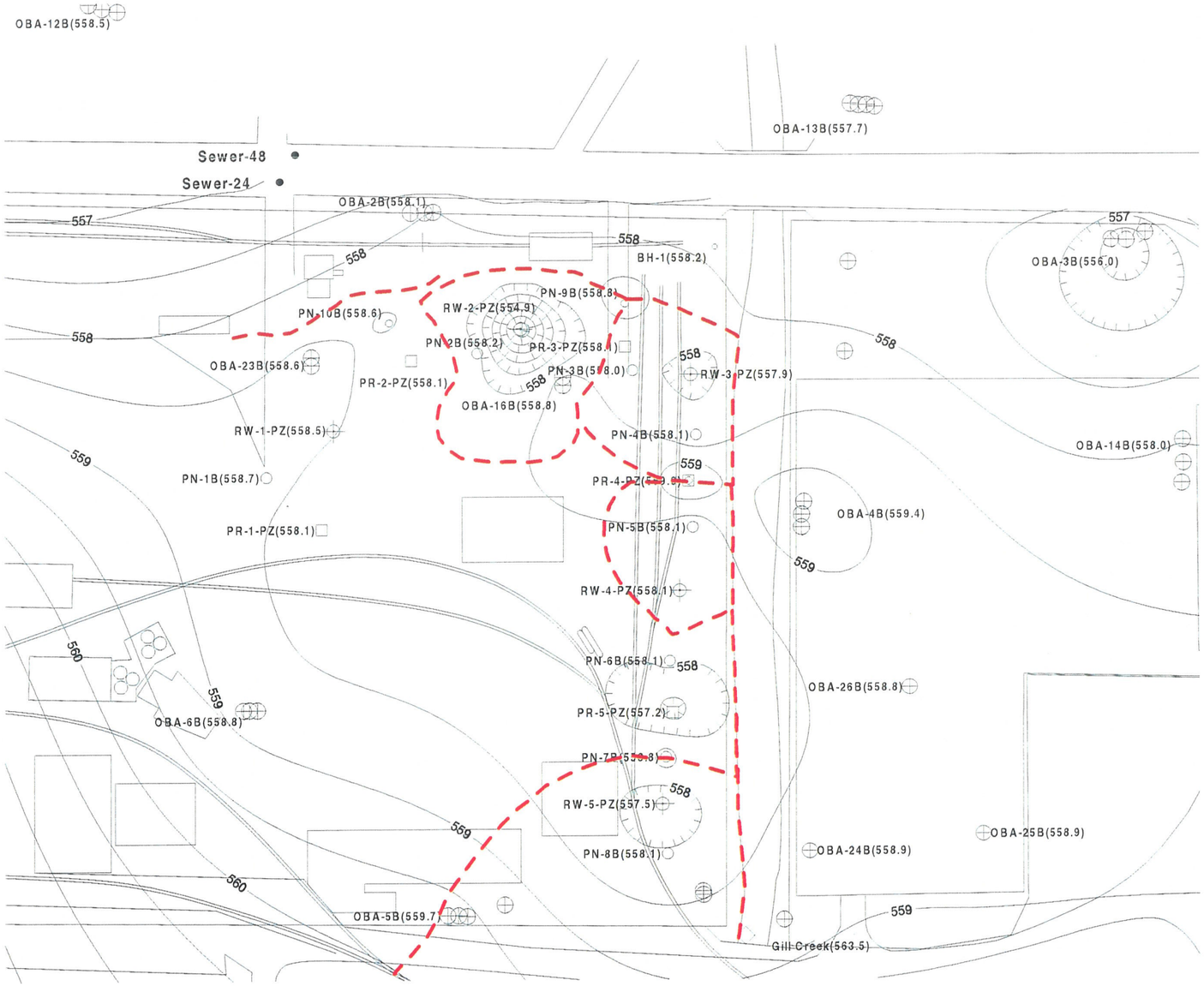
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- B ZONE
(JULY 23, 1999)

Job No.: 12000-8-0030

Figure 2



Well	Average Flow Rate(gpm)*
RW-1	1.0
RW-2	2.8
RW-3	3.2
RW-4	12.8
RW-5	5.4

*: Flow rates averaged from end of well cleaning on July 9, 1999.

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 (FLOW RATE FROM OMNX SYSTEM)
- PASSIVE RELIEF WELLS
- SEWER INVERT ELEVATION
- PROPERTY LINE
- 565 — ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED CAPTURE ZONE BOUNDARY

0 120 240

Scale 1 inch = 120 feet

NOTE

*: 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 conturs were estimated based on the sewer invert elevation. PN-2B elevation used as dummy points north of RW-2.

Two water level measurements were obtained in Gill Creek throughout the day at 13:30pm (563.66 feet), and 16:00pm (563.51 feet). The Gill Creek elevation was not used in contouring the B zone but is included on the map for comparative purposes.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995. CAPTURE ZONE BOUNDARY WAS DRAWN BASED THE FLOW PATHLINES GENERATED BY GWPATH.

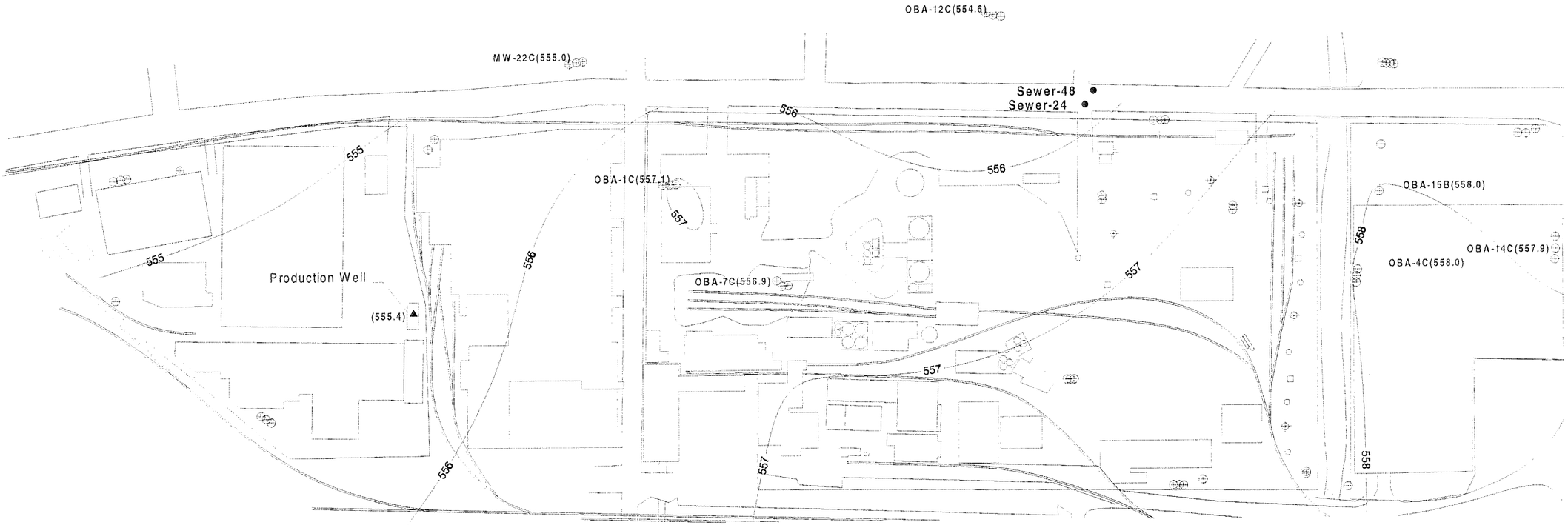
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

ESTIMATED CAPTURE ZONE AND
POTENTIOMETRIC SURFACE -- B ZONE
(JULY 23, 1999)

Job No.: 12000-8-0030

Figure 2B



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 (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ——— PROPERTY LINE
- ——— 565 ——— ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 1 FEET)

Well	Average Flow Rate(gpm)
Olin Production Well	412

0 200 400

Scale 1 inch = 200 feet

NOTE

▲: Water Elevation not obtained from Olin Production Well. Water elevation estimated from pumping rate of 412 gpm on July 23, 1999 using Figure 4-17 from Phase I RFI.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

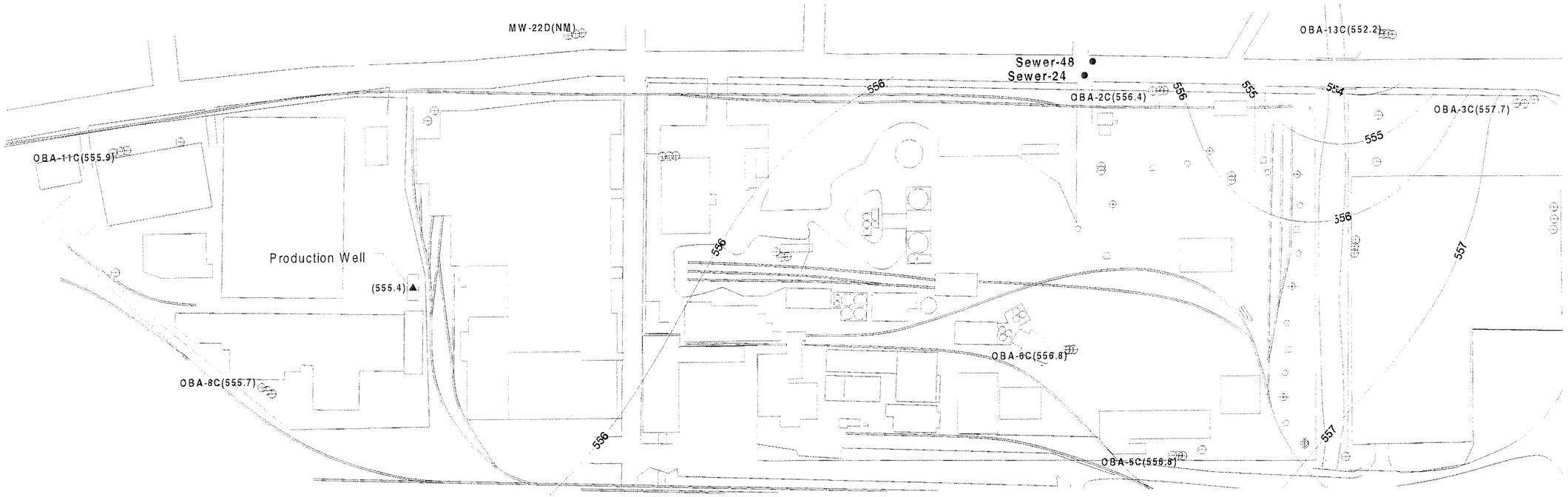
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- C ZONE
(JULY 23, 1999)

Job No.: 12000-8-0030

Figure 3



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 (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ——— PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 1 FEETS)

Well	Average Flow Rate(gpm)
Olin Production Well	412

0 200 400

Scale 1 inch = 200 feet

NOTE

▲: Water Elevation not obtained from Olin Production Well. Water elevation estimated from pumping rate of 412 gpm on July 23, 1999 using Figure 4-17 from Phase I RFI.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

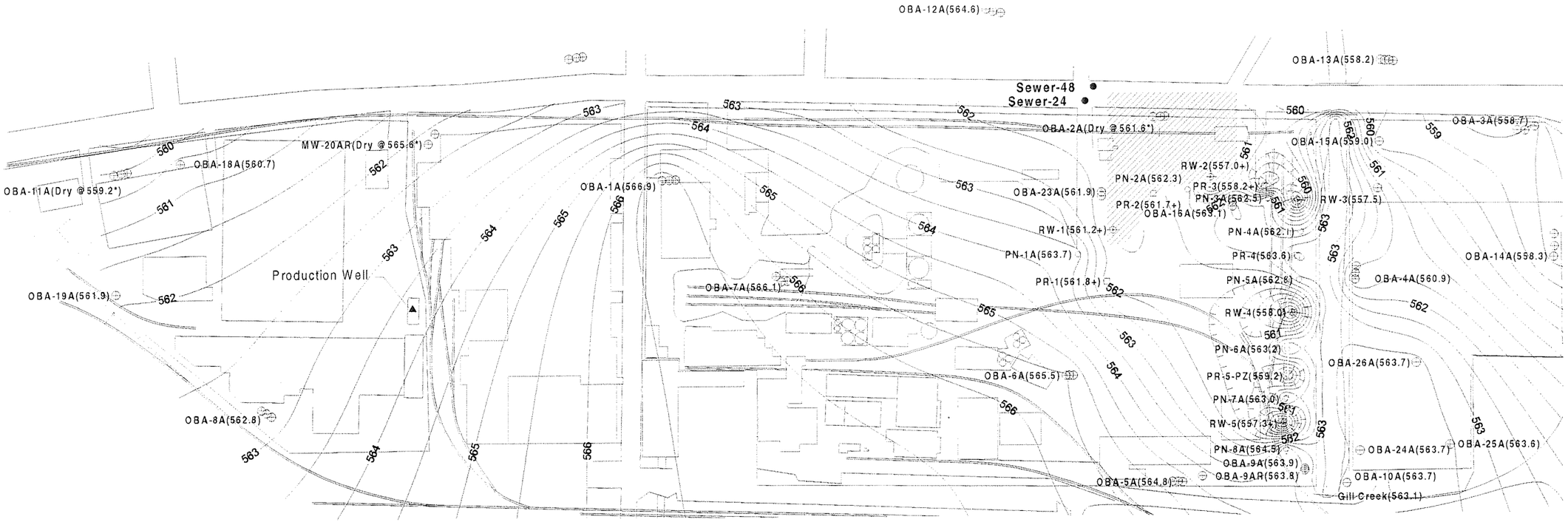
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- CD ZONE
(JULY 23, 1999)

Job No.: 12000-8-0030

Figure 4



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
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED DRY AREA IN ZONE A

Well	Average Flow Rate(gpm)*
RW-1	0.0
RW-2	5.1
RW-3	6.0
RW-4	20.6
RW-5	9.7

*: Averaged using daily flow rates since previous monthly field measurements.

0 200 400

Scale 1 inch = 200 feet

NOTE

*: Well dry, elevation of bottom of A-Zone used in contouring.
+: Bottom of A-Zone elevation used in contouring.
▲: Water Elevation not obtained from Olin Production Well.
●: 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.

Three water level measurements were obtained in Gill Creek throughout the day at 9:15am (563.55 feet), 12:20pm (563.37 feet), and 16:18pm (563.13feet). The Gill Creek elevation (563.13 feet) coinciding with the time water level measurements were obtained in the piezometers along Gill Creek was used in contouring in A zone.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

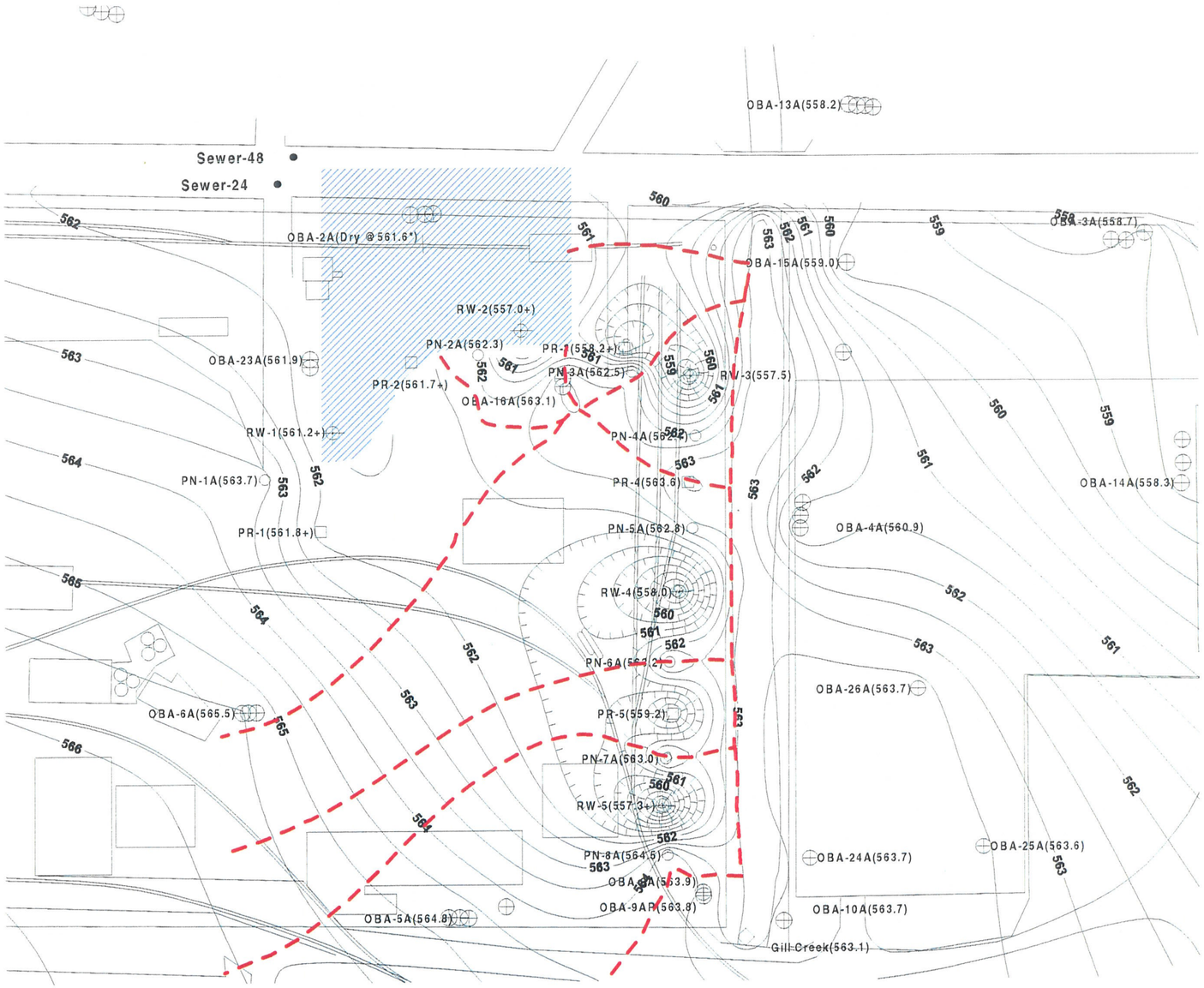
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- A ZONE (AUGUST 30, 1999)

Job No.: 12000-8-0030

Figure 5



Well	Average Flow Rate(gpm)*
RW-1	0.0
RW-2	5.1
RW-3	6.0
RW-4	20.6
RW-5	9.7

*: Averaged using daily flow rates since previous monthly field measurements.

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
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED CAPTURE ZONE BOUNDARY
- ESTIMATED DRY AREA IN ZONE A

0 120 240

Scale 1 inch = 120 feet

NOTE

*: Well dry, elevation of bottom of A-Zone used in contouring.
+: Bottom of A-Zone elevation 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.

Three water level measurements were obtained in Gill Creek throughout the day at 9:15am (563.55 feet), 12:20pm (563.37 feet), and 16:18pm (563.13 feet). The Gill Creek elevation (563.51 feet) coinciding with the time water level measurements were obtained in the piezometers along Gill Creek was used in contouring in A zone.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995. CAPTURE ZONE BOUNDARY WAS DRAWN BASED THE FLOW PATHLINES GENERATED BY GWPATH.

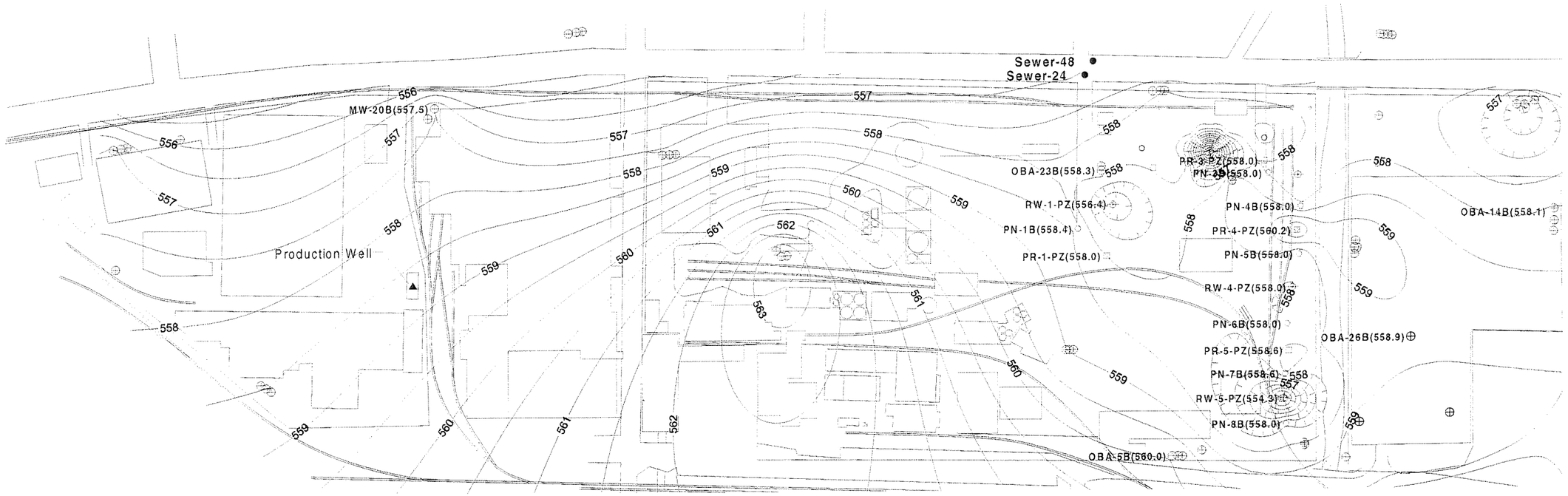
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

ESTIMATED CAPTURE ZONE AND
POTENTIOMETRIC SURFACE -- A ZONE
(AUGUST 30, 1999)

Job No.: 12000-8-0030

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
- ⊖ GROUND WATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT ELEVATION
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)

Well	Average Flow Rate(gpm)*
RW-1	1.6
RW-2	4.5
RW-3	6.8
RW-4	19.9
RW-5	14.2

*: Averaged using daily flow rates since previous monthly field measurements.

NOTE

▲: 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.

Three water level measurements were obtained in Gill Creek throughout the day at 9:59am (564 feet), 1:56pm (563.8 feet), and 16:16pm (563.6 feet). The Gill Creek elevation was not used in contouring the B zone but is included on the map for comparative purposes.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

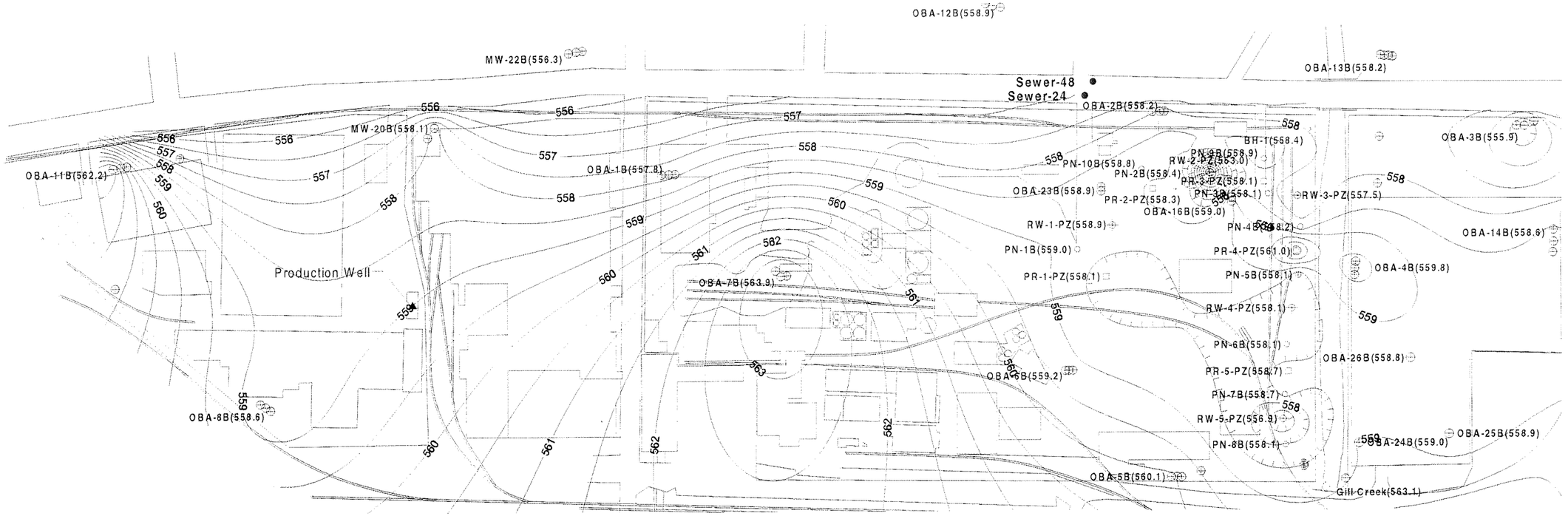
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- B ZONE
(SEPTEMBER 17, 1999)

Job No.: 12000-8-0030

Figure 10



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
- ⊕ GROUND WATER RECOVERY WELLS
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT ELEVATION
- ——— PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)

Well	Average Flow Rate(gpm)*
RW-1	0.0
RW-2	5.1
RW-3	6.0
RW-4	20.6
RW-5	9.7

*: Averaged using daily flow rates since previous monthly field measurements.

NOTE

▲: 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.

Three water level measurements were obtained in Gill Creek throughout the day at 9:15am (563.55 feet), 12:20pm (563.37 feet), and 16:18pm (563.13 feet). The Gill Creek elevation was not used in contouring the B zone but is included on the map for comparative purposes.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

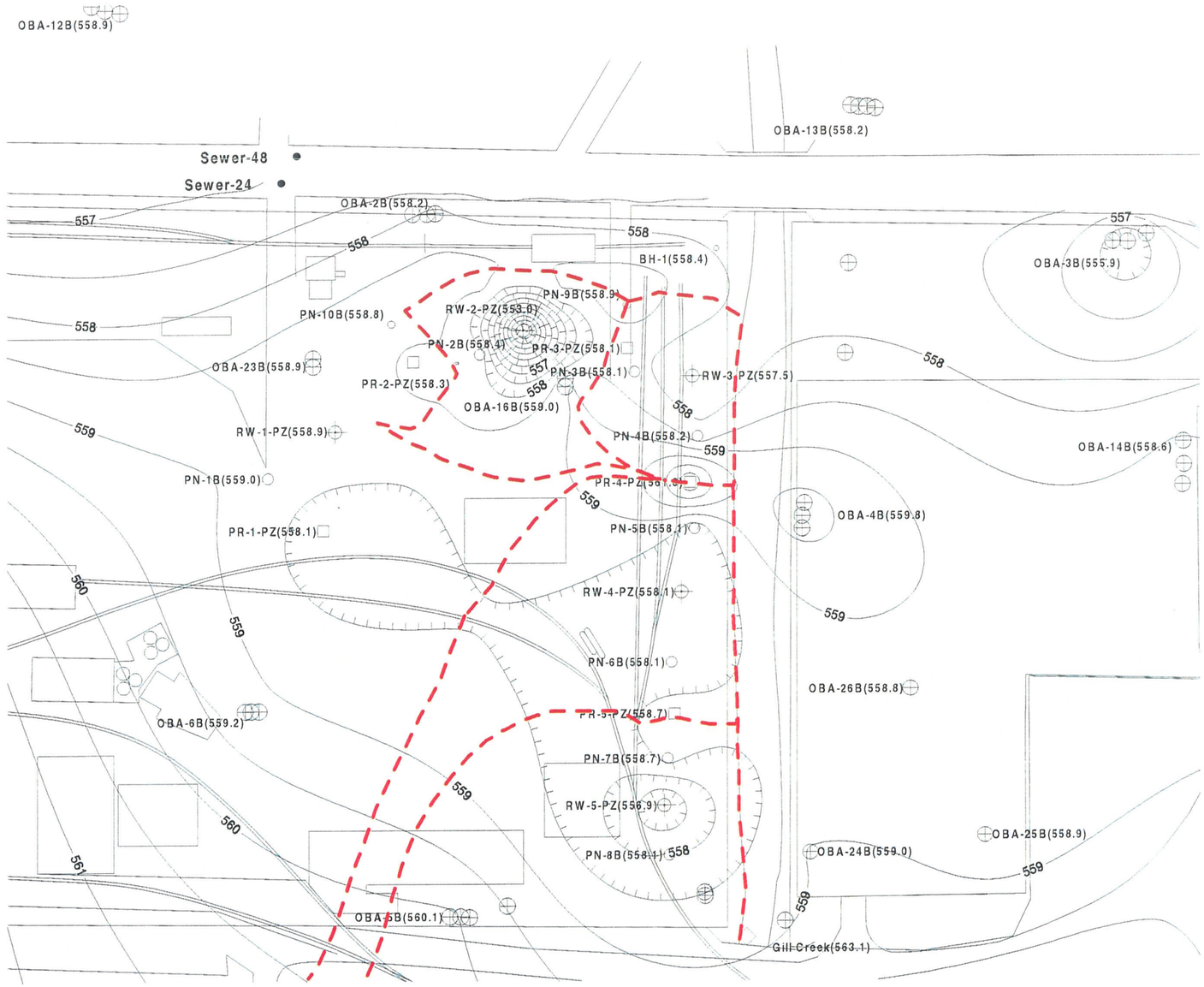
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- B ZONE
(AUGUST 30, 1999)

Job No.: 12000-8-0030

Figure 6



Well	Average Flow Rate(gpm)*
RW-1	0.0
RW-2	5.1
RW-3	6.0
RW-4	20.6
RW-5	9.7

*: Averaged using daily flow rates since previous monthly field measurements.

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 (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT ELEVATION
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED CAPTURE ZONE BOUNDARY

0 120 240

Scale 1 inch = 120 feet

NOTE

*: 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 conturs were estimated based on the sewer invert elevation.
PN-2B elevation used as dummy points north of RW-2.

Three water level measurements were obtained in Gill Creek throughout the day at 9:15am (563.55 feet), 12:37pm (563.37 feet), and 16:18pm (563.13 feet). The Gill Creek elevation was not used in contouring the B zone but is included on the map for comparative purposes.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995. CAPTURE ZONE BOUNDARY WAS DRAWN BASED THE FLOW PATHLINES GENERATED BY GWPATH.

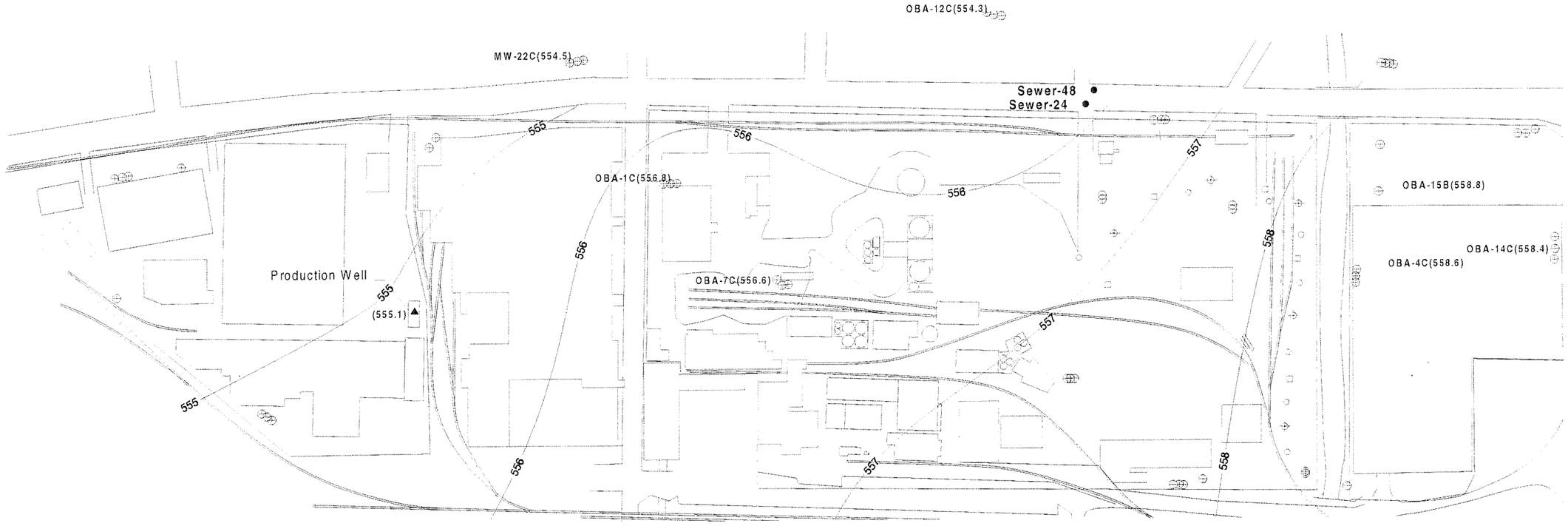
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

ESTIMATED CAPTURE ZONE AND
POTENTIOMETRIC SURFACE -- B ZONE
(AUGUST 30, 1999)

Job No.: 12000-8-0030

Figure 6A



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 (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ——— PROPERTY LINE
- ——— 565 ——— ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 1 FEET)

Well	Average Flow Rate(gpm)
Olin Production Well	465

0 200 400

Scale 1 inch = 200 feet

NOTE

▲: Water Elevation not obtained from Olin Production Well. Water elevation estimated from pumping rate of 465 gpm on August 30, 1999 using Figure 4-17 from Phase I RFI.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

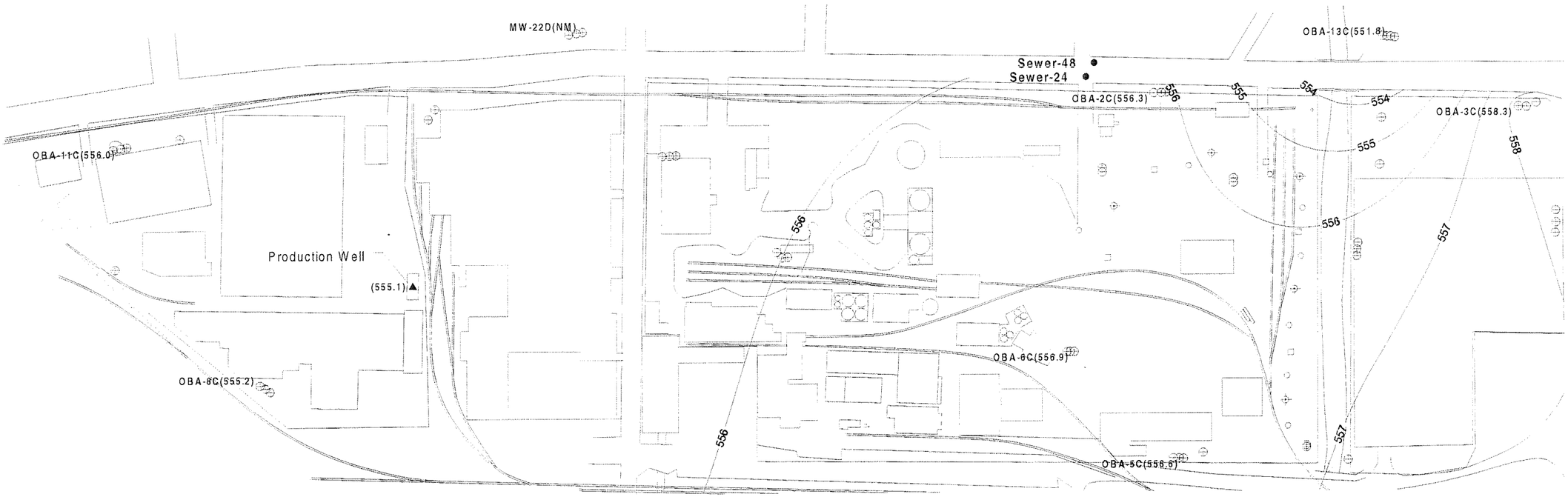
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- C ZONE (AUGUST 30, 1999)

Job No.: 12000-8-0030

Figure 7



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 (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- ——— PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 1 FEET)

Well	Average Flow Rate(gpm)
Olin Production Well	465

0 200 400

Scale 1 inch = 200 feet

NOTE

▲: Water Elevation not obtained from Olin Production Well. Water elevation estimated from pumping rate of 465 gpm on August 30, 1999 using Figure 4-17 from Phase I RFI.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

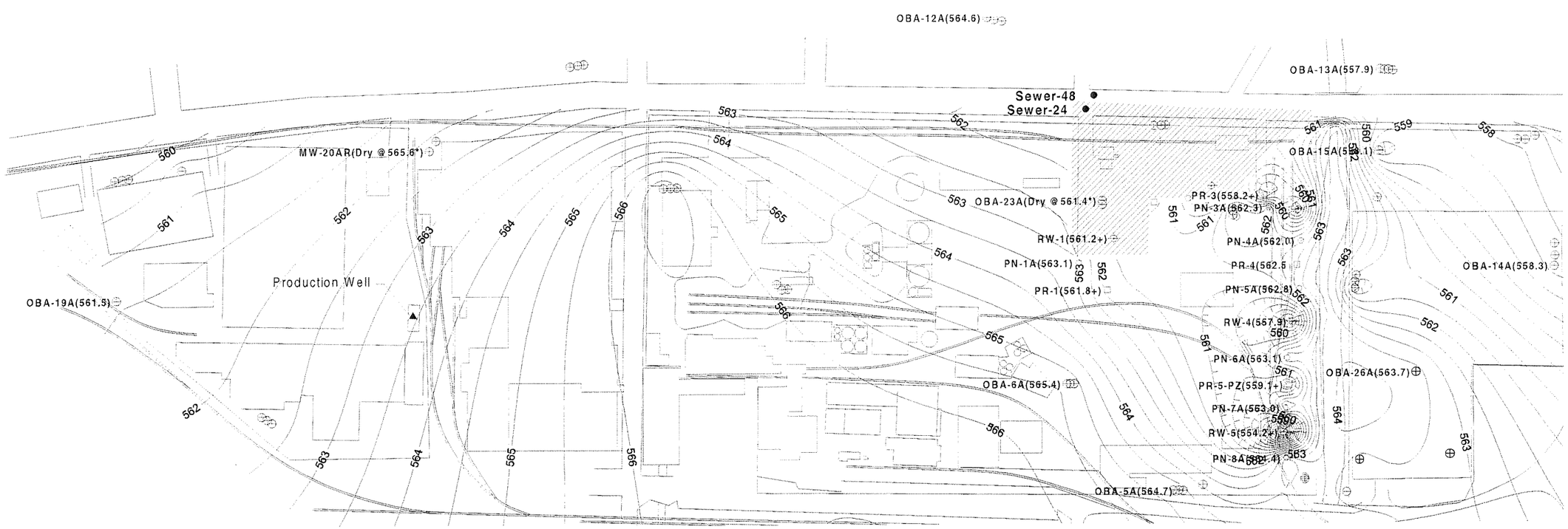
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- CD ZONE (AUGUST 30, 1999)

Job No.: 12000-8-0030

Figure 8



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
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED DRY AREA IN ZONE A

Well	Average Flow Rate(gpm)*
RW-1	1.6
RW-2	4.5
RW-3	6.8
RW-4	19.9
RW-5	14.2

*: Averaged using daily flow rates since previous monthly field measurements.

0 200 400

Scale 1 inch = 200 feet

NOTE

*: Well dry, elevation of bottom of A-Zone used in contouring.
+: Bottom of A-Zone elevation used in contouring.
▲: Water Elevation not obtained from Olin Production Well.
●: 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.

Three water level measurements were obtained in Gill Creek throughout the day at 9:59am (564 feet), 1:56pm (563.8 feet), and 16:16pm (563.6 feet). The Gill Creek elevation (563.6 feet) coinciding with the time water level measurements were obtained in the piezometers along Gill Creek was used in contouring in A zone.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

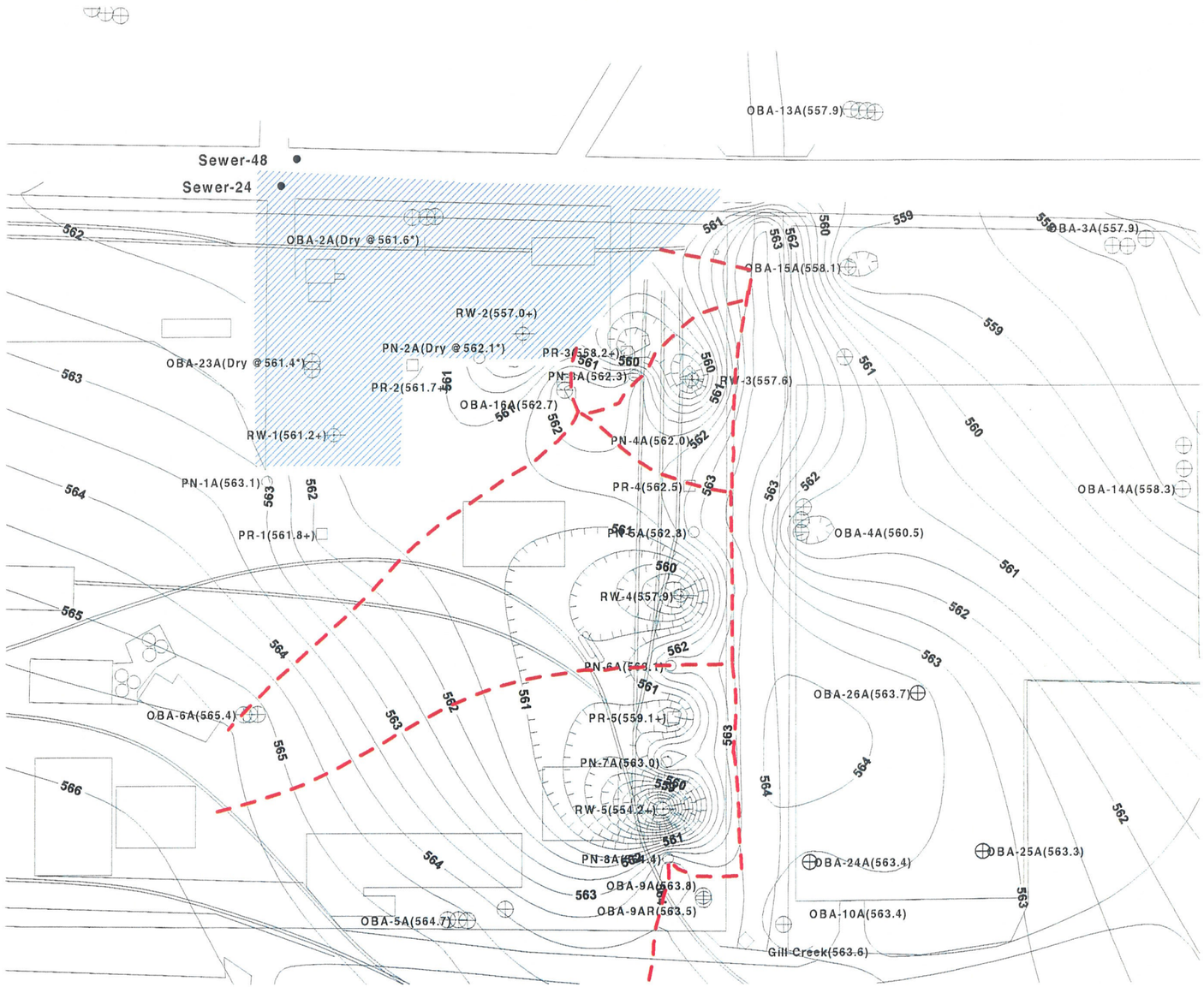
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- A ZONE (SEPTEMBER 17, 1999)

Job No.: 12000-8-0030

Figure 9



Well	Average Flow Rate(gpm)*
RW-1	1.6
RW-2	4.5
RW-3	6.8
RW-4	19.9
RW-5	14.2

*: Averaged using daily flow rates since previous monthly field measurements.

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
- PROPERTY LINE
- 565 — ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED CAPTURE ZONE BOUNDARY
- ESTIMATED DRY AREA IN ZONE A

0 120 240

Scale 1 inch = 120 feet

NOTE

*: Well dry, elevation of bottom of A-Zone used in contouring.
+: Bottom of A-Zone elevation 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.

Three water level measurements were obtained in Gill Creek throughout the day at 9:59 am (564 feet), 1:56 pm (563.8 feet), and 16:13 pm (563.6 feet). The Gill Creek elevation (563.6 feet) coinciding with the time water level measurements were obtained in the piezometers along Gill Creek was used in contouring in A zone.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995. CAPTURE ZONE BOUNDARY WAS DRAWN BASED THE FLOW PATHLINES GENERATED BY GWPATH.

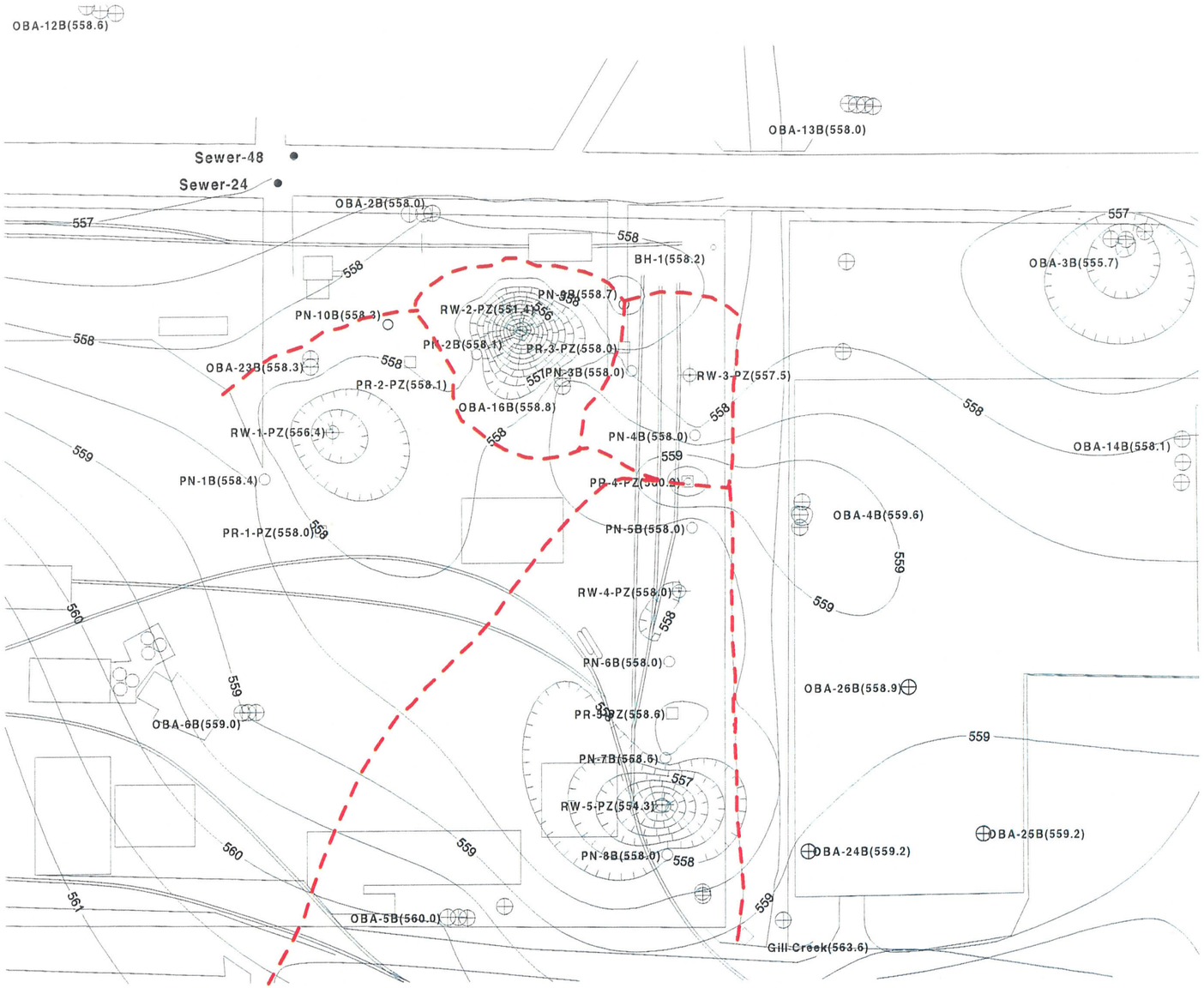
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

ESTIMATED CAPTURE ZONE AND POTENTIOMETRIC SURFACE -- A ZONE (SEPTEMBER 17, 1999)

Job No.: 12000-8-0030

Figure 9A



Well	Average Flow Rate(gpm)*
RW-1	1.6
RW-2	4.5
RW-3	6.8
RW-4	19.9
RW-5	14.2

*: Averaged using daily flow rates since previous monthly field measurements.

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 (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT ELEVATION
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 0.5 FEET)
- ESTIMATED CAPTURE ZONE BOUNDARY

0 120 240

Scale 1 inch = 120 feet

NOTE

*: 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 conturs were estimated based on the sewer invert elevation. PN-2B elevation used as dummy points north of RW-2.

Three water level measurements were obtained in Gill Creek throughout the day at 9:59 am (564 feet), 1:56 pm (563.8 feet), and 16:16 pm (563.6 feet). The Gill Creek elevation was not used in contouring the B zone but is included on the map for comparative purposes.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995. CAPTURE ZONE BOUNDARY WAS DRAWN BASED THE FLOW PATHLINES GENERATED BY GWPATH.

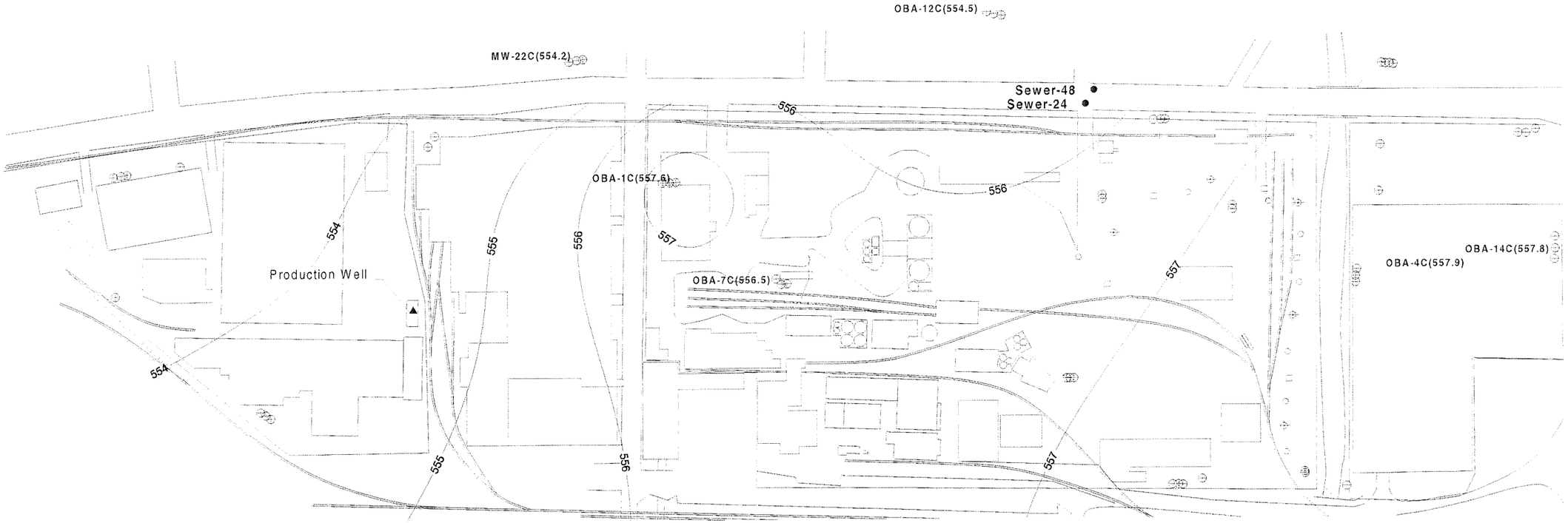
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

ESTIMATED CAPTURE ZONE AND
POTENTIOMETRIC SURFACE -- B ZONE
(SEPTEMBER 17, 1999)

Job No.: 12000-8-0030

Figure 10A



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 (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 1 FEETS)

Well	Average Flow Rate(gpm)
Olin Production Well	596

0 200 400

Scale 1 inch = 200 feet

NOTE

▲: Water Elevation not obtained from Olin Production Well. Water elevation estimated from pumping rate of 596 gpm on September 17, 1999 using Figure 4-17 from Phase I RFI.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

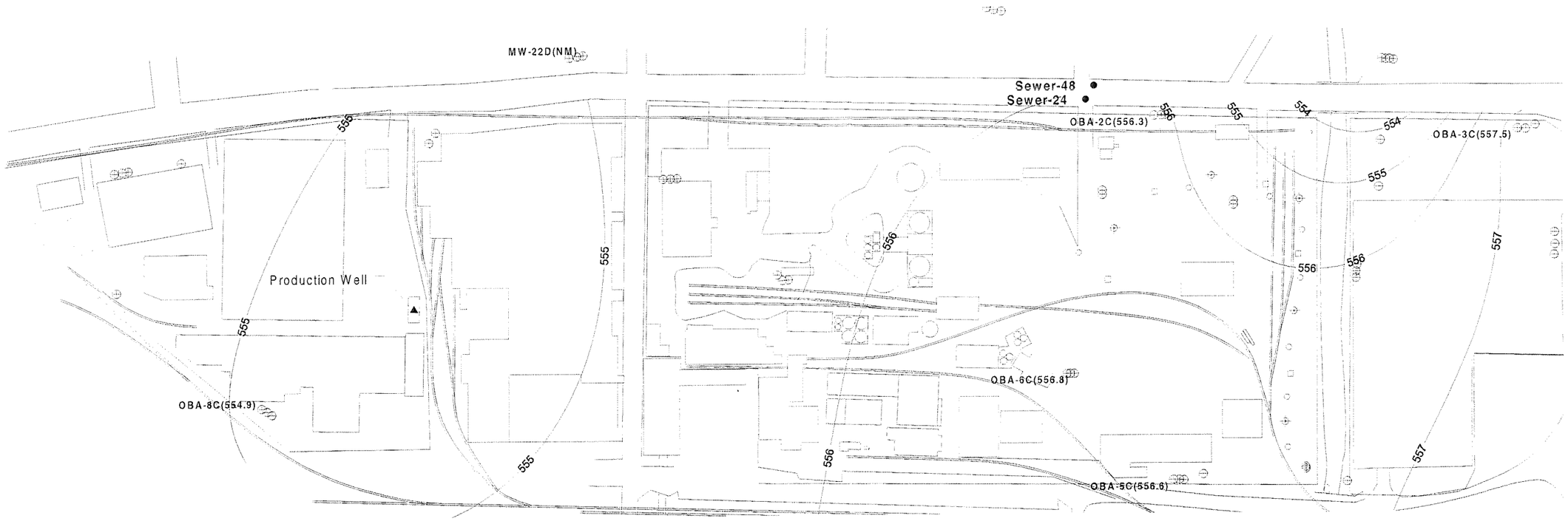
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- C ZONE
(SEPTEMBER 17, 1999)

Job No.: 12000-8-0030

Figure 11



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 (FLOW RATE FROM OMNX SYSTEM)
- □ PASSIVE RELIEF WELLS
- ● SEWER INVERT
- PROPERTY LINE
- 565 ESTIMATED GROUND-WATER CONTOUR LINES (CONTOUR INTERVAL: 1 FEETS)

Well	Average Flow Rate(gpm)
Olin Production Well	596

0 200 400

Scale 1 inch = 200 feet

NOTE

▲: Water Elevation not obtained from Olin Production Well. Water elevation estimated from pumping rate of 596 gpm on September 17, 1999 using Figure 4-17 from Phase I RFI.

POTENTIOMETRIC SURFACE CONTOUR GENERATED USING SURFER FOR WINDOWS BY GOLDEN SOFTWARE, INC. 1995.

OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

POTENTIOMETRIC SURFACE -- CD ZONE
(SEPTEMBER 17, 1999)

Job No.: 12000-8-0030

Figure 12

ATTACHMENT 1

ASSUMPTIONS AND METHODS

Assumptions and Methods

- The potentiometric surface maps were developed from ground-water elevation data obtained once a month in accordance with the Remedial Plan dated February 1996.

- The ground-water contour lines were generated using a computer contouring software (Surfer for Windows) package. The capture zones were developed using a forward particle tracking computer software program (GW Path version 4.0) under steady state conditions. The actual cones of depressions may not be as broad as those depicted on the potentiometric surface maps.

- The Buffalo Avenue sewer is assumed to act as a ground-water boundary. The sewer invert elevation is below the bottom of the A-zone. Therefore, the bottom of A-zone elevations obtained from four A-zone wells (OBA-1A, OBA-2A, OBA-3A and OBA-11A) installed close to the sewer were used to develop the potentiometric surface maps. The sewer does not penetrate the C- or CD-zone and is not assumed to affect the C and CD-zone ground-water elevations. Sewer invert elevations were not included for the C and CD-zone potentiometric surface maps.

- The measured B-zone ground-water elevations in the passive relief, and recovery wells were used in developing the potentiometric surface maps for the B-zone. For developing potentiometric surface maps, the bottom of the A-zone elevation was used as the ground-water elevation for the passive relief and recovery wells in which the measured ground-water elevation was below the A-zone. The measured ground-water elevation was used for the passive relief and recovery wells in which the ground-water elevation was above the bottom of the A-zone.

- Gill Creek surface water is assumed to be in hydraulic communication with the A-zone and was used as a constant head boundary. The surface-water elevation was measured at the southern end of the creek and assumed to increase a total of 0.03 feet at the north end near Buffalo Avenue. The gradient is typical for the creek when water flow is to the south (flow direction changes depending on water stage in the Niagara River). Fluctuations in creek stage occur diurnally. Bank storage effects from the stage fluctuations may impact A-zone groundwater elevations in the wells installed closest to the creek.

- The Olin Production Well, located on the western half of the site, was installed to an approximate depth of 125 feet below ground surface. The ground-water elevation in the production well is estimated from the pumping rate using Figure 4-17 from the Phase I RFI Report dated August 1994. This figure relates drawdown and pumping rates. Figure 4-17 is included in Attachment 2. The estimated ground-water elevation for the production well was used in developing the potentiometric surface maps for the C and CD-zones.

ATTACHMENT 2

FIGURE 4-17

WOODWARD-CLYDE CONSULTANTS
Consulting Engineers, Geologists and Environmental Scientists

OLIN CHEMICALS
NIAGARA PLANT RFI

Static Water Level vs Pumping Rate
South Production Well

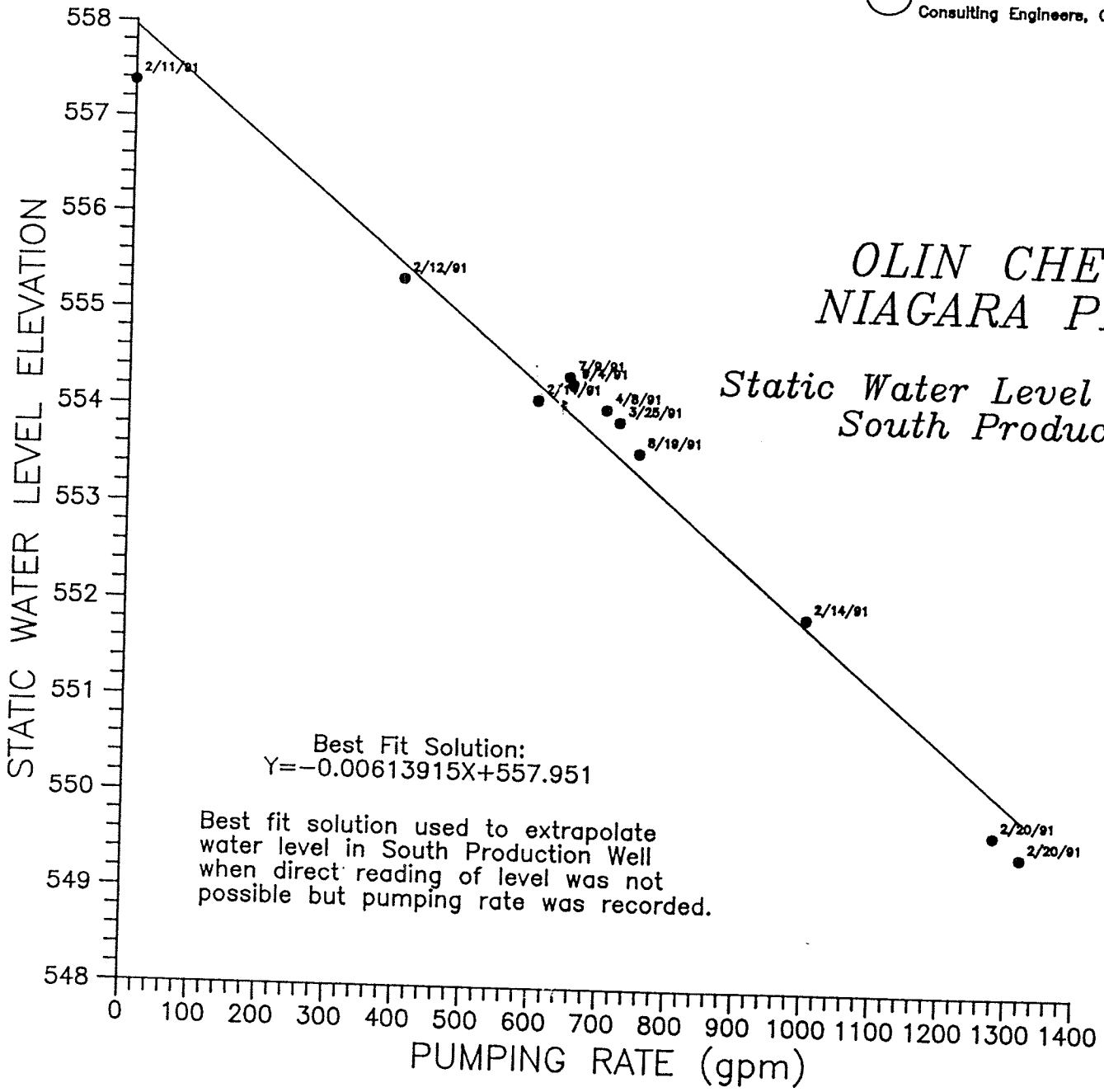
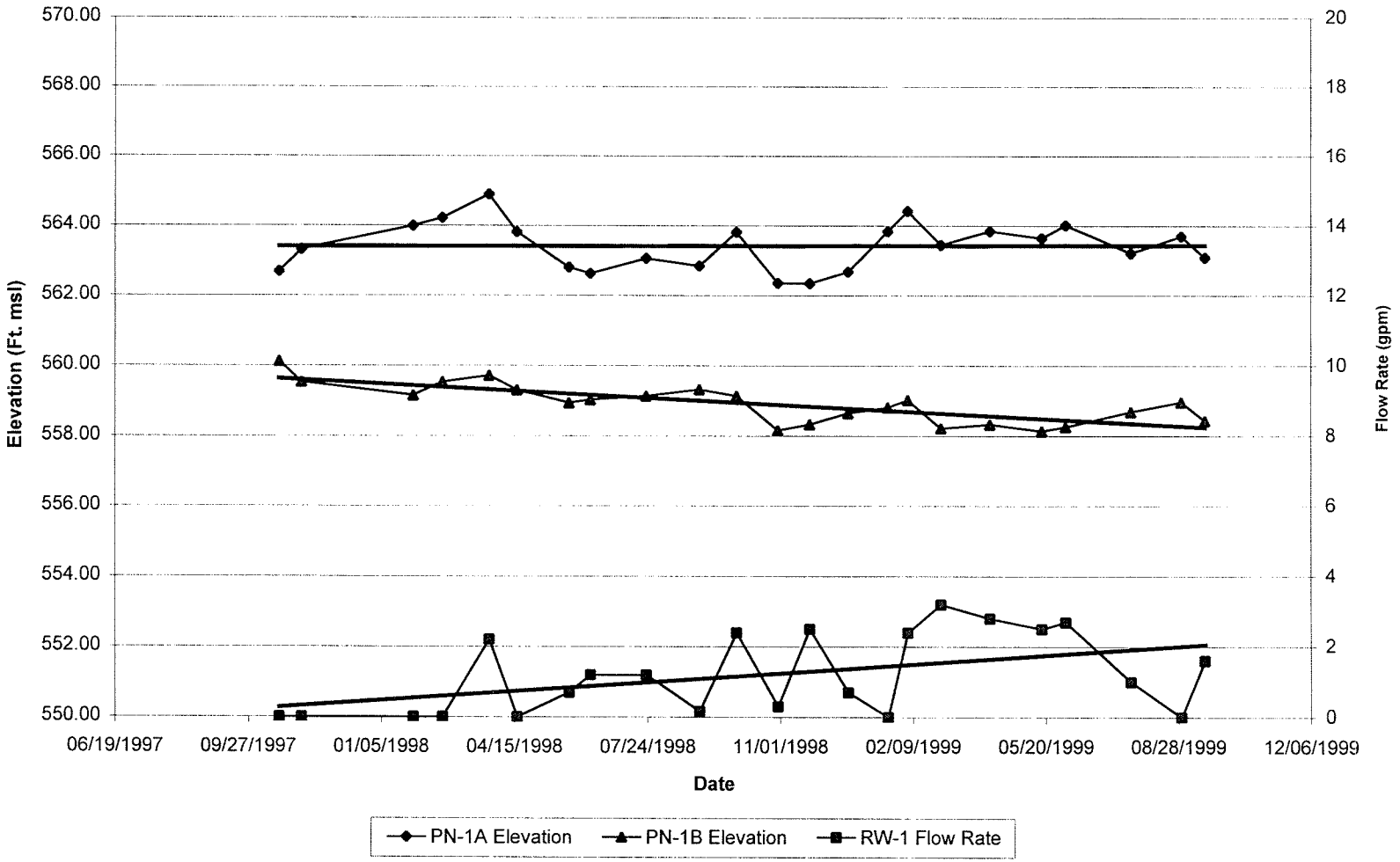


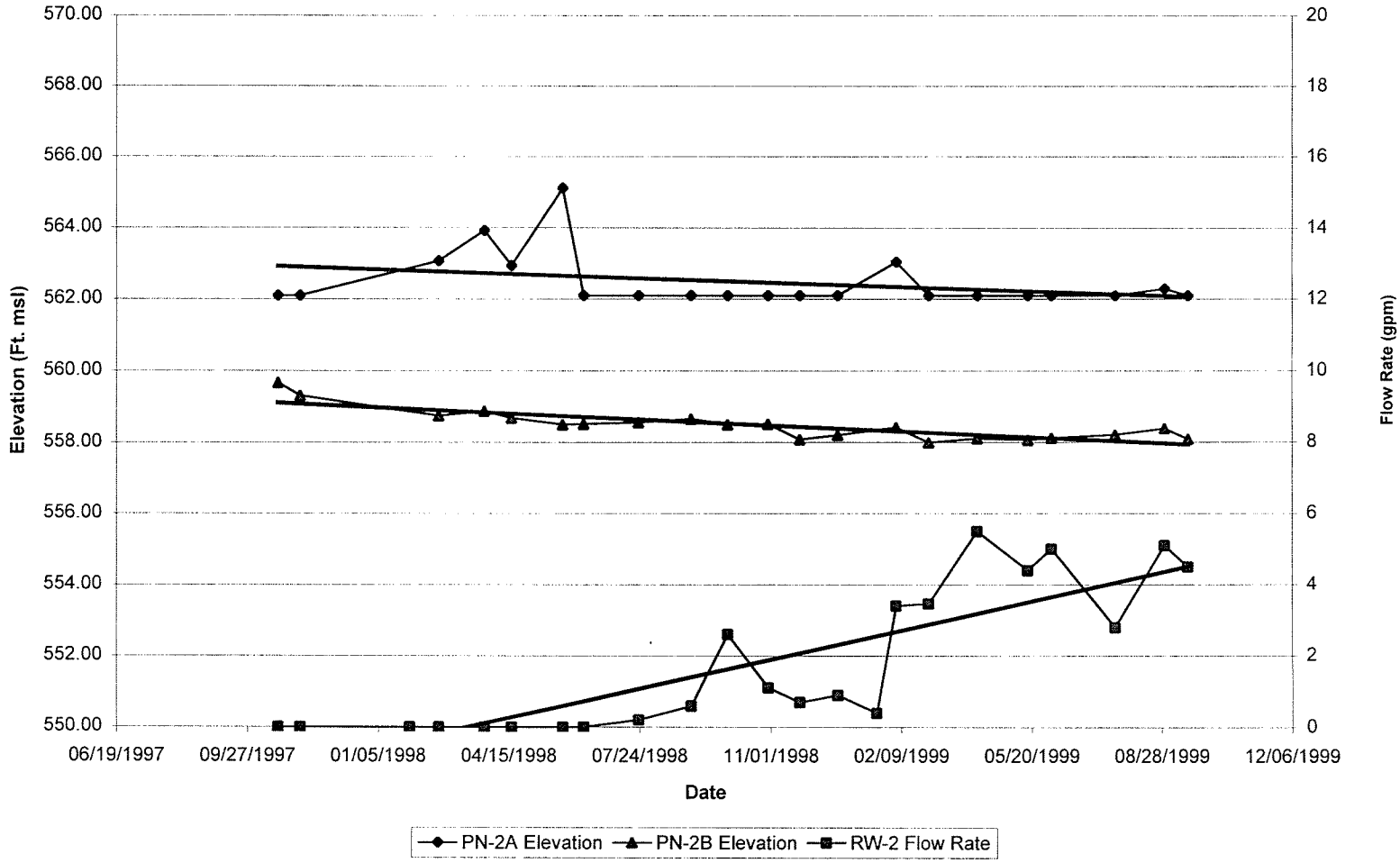
Figure 4-17

ATTACHMENT 3

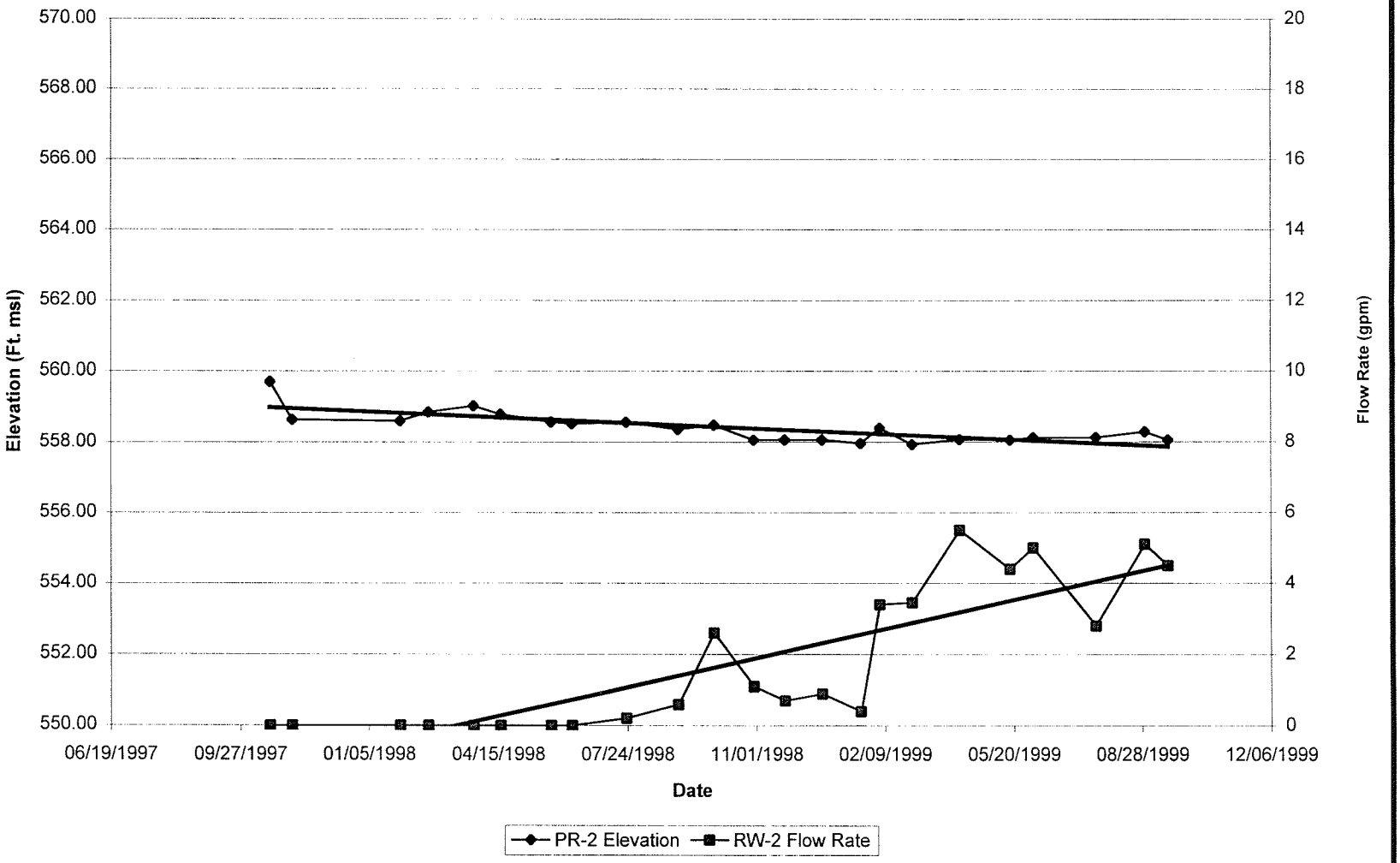
HYDROGRAPHS



Olin Chemical Corporation Niagara Falls, New York	LAW Engineering and Environmental Services	RW-1, PN-1A, PN-1B Hydrograph Project 12000-8-0030 Figure A3-1



Olin Chemical Corporation Niagara Falls, New York	LAW Engineering and Environmental Services	RW-2, PN-2A, and PN-2B Hydrograph Project 12000-8-0030 Figure A3-2



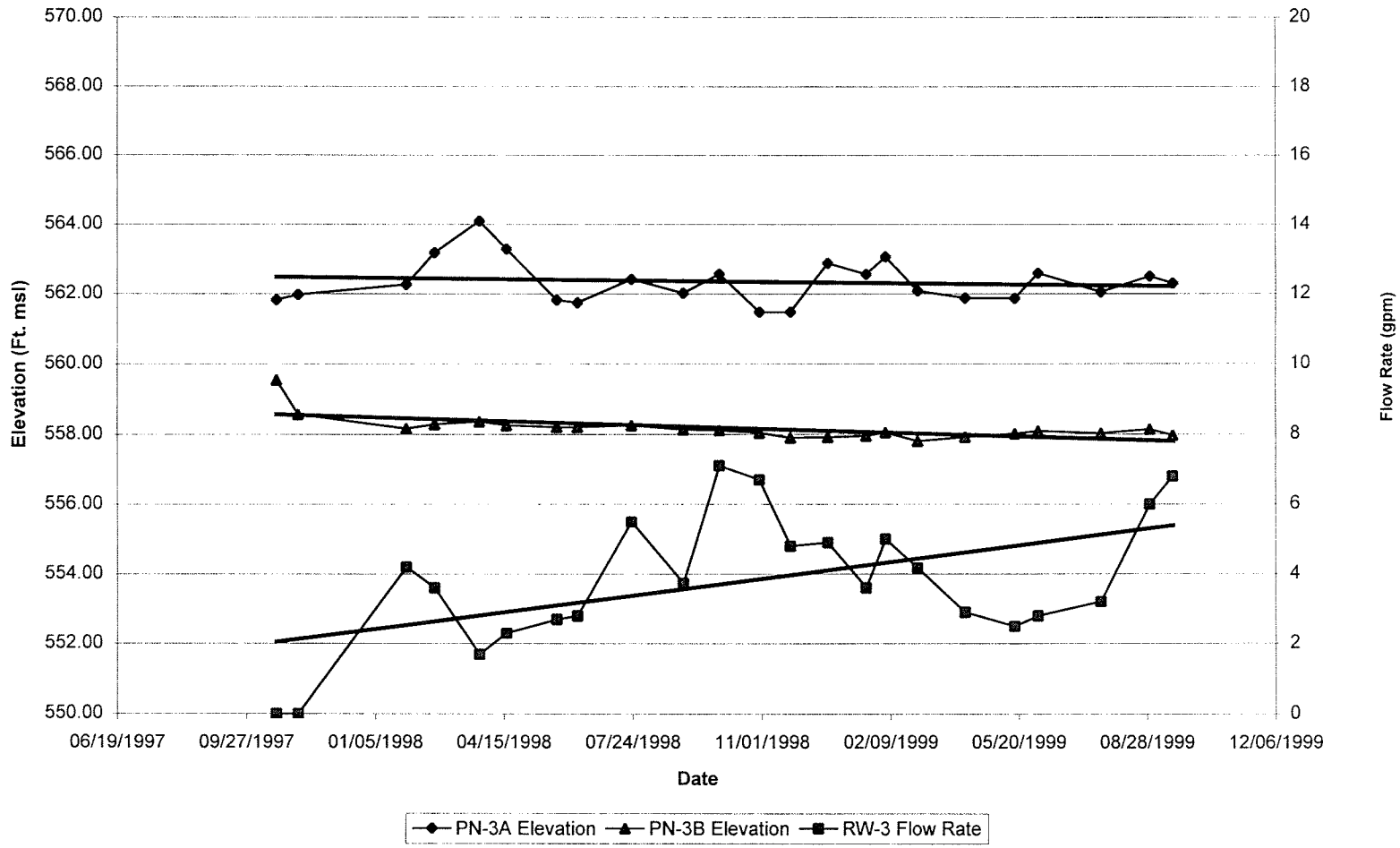
Olin Chemical Corporation
Niagara Falls, New York

LAW
Engineering and Environmental Services

RW-2 Flow and PR-2 Elev.
Hydrograph

Project 12000-8-0030

Figure A3-3



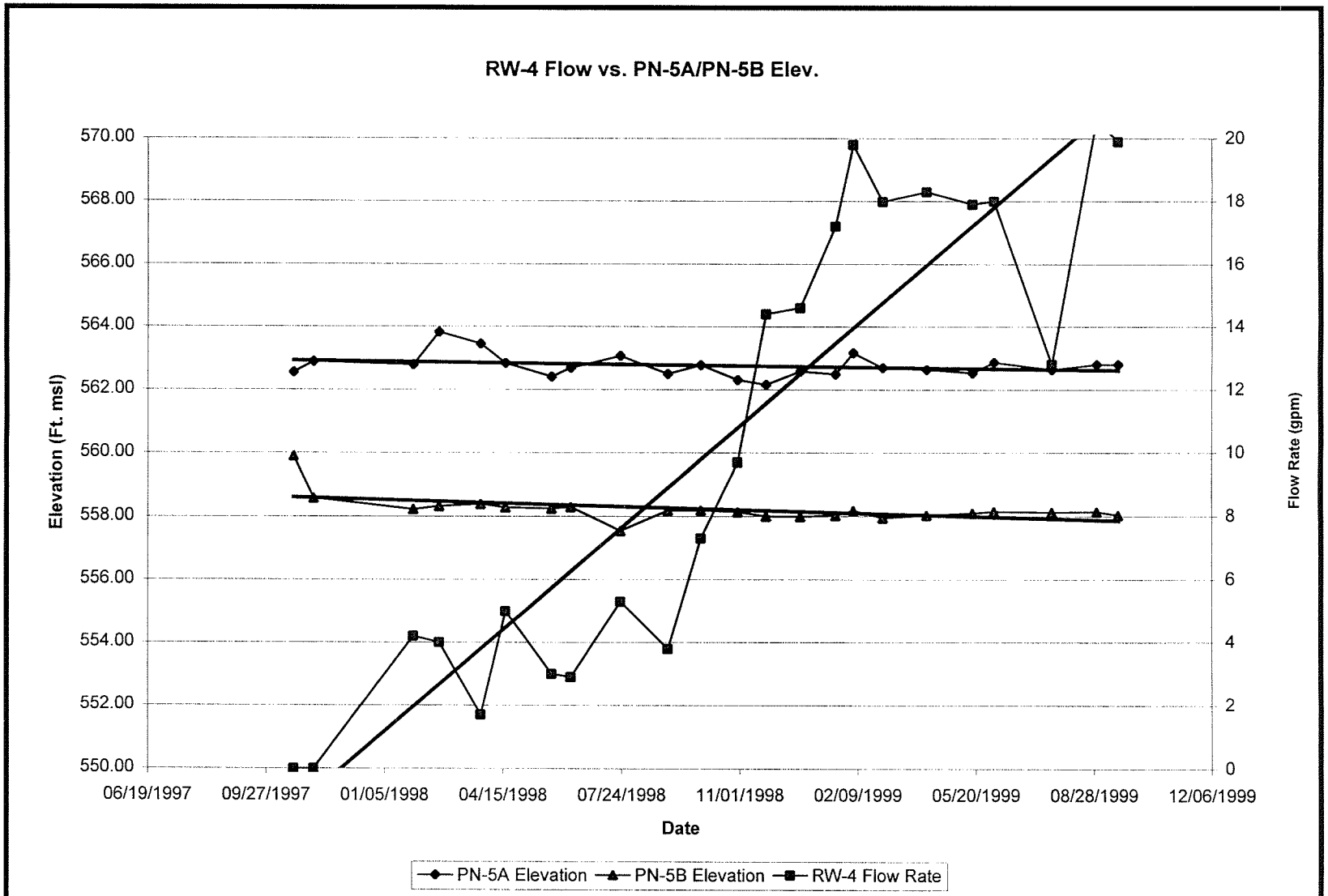
Olin Chemical Corporation
Niagara Falls, New York

LAW
Engineering and Environmental Services

RW-3, PN-3A, and PN-3B
Hydrograph

Project 12000-8-0030

Figure A3-4



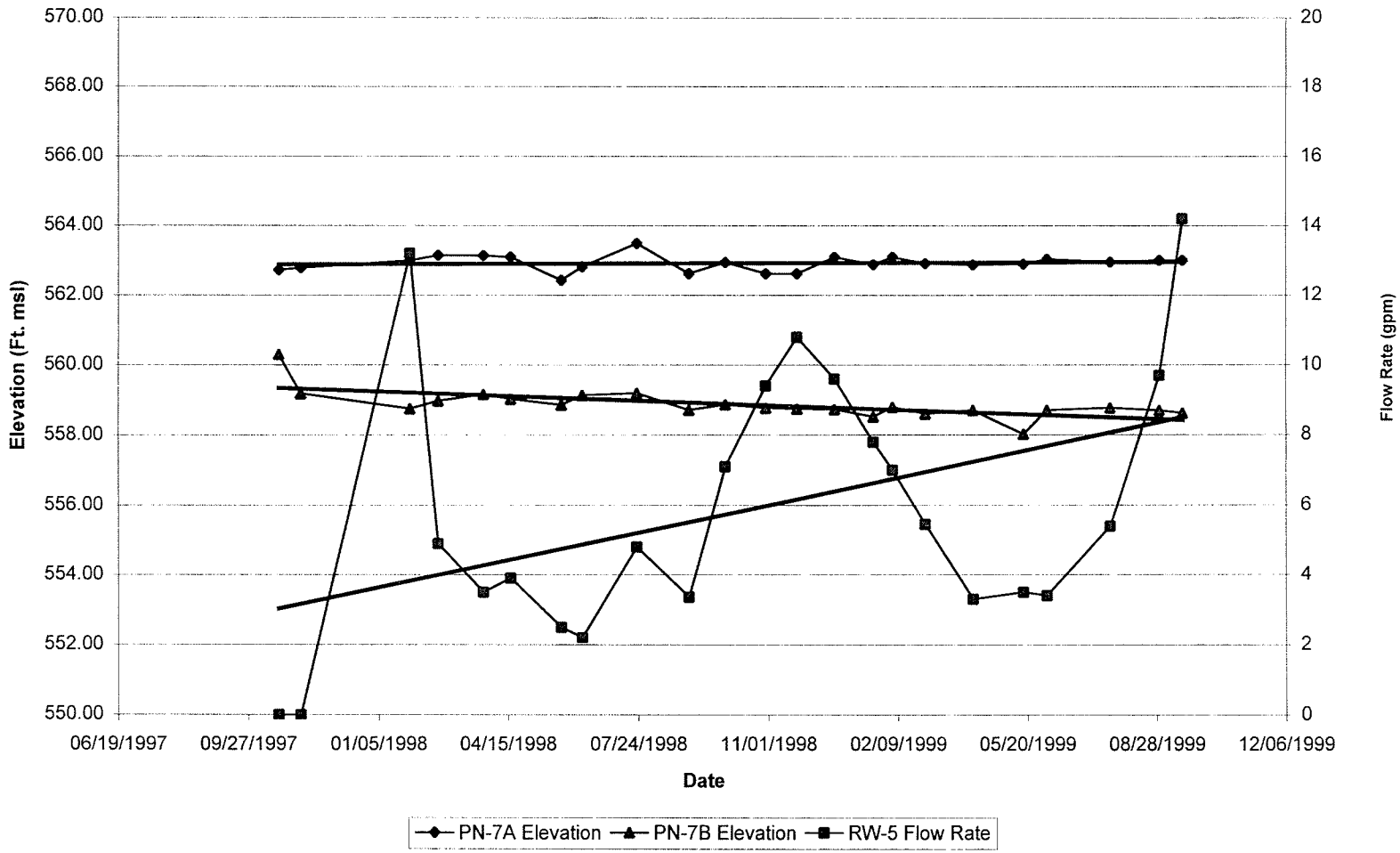
Olin Chemical Corporation
Niagara Falls, New York

LAW
Engineering and Environmental Services

RW-4, PN-5A, and PN-5B
Hydrograph

Project 12000-8-0030

Figure A3-5



Olin Chemical Corporation
Niagara Falls, New York

LAW
Engineering and Environmental Services

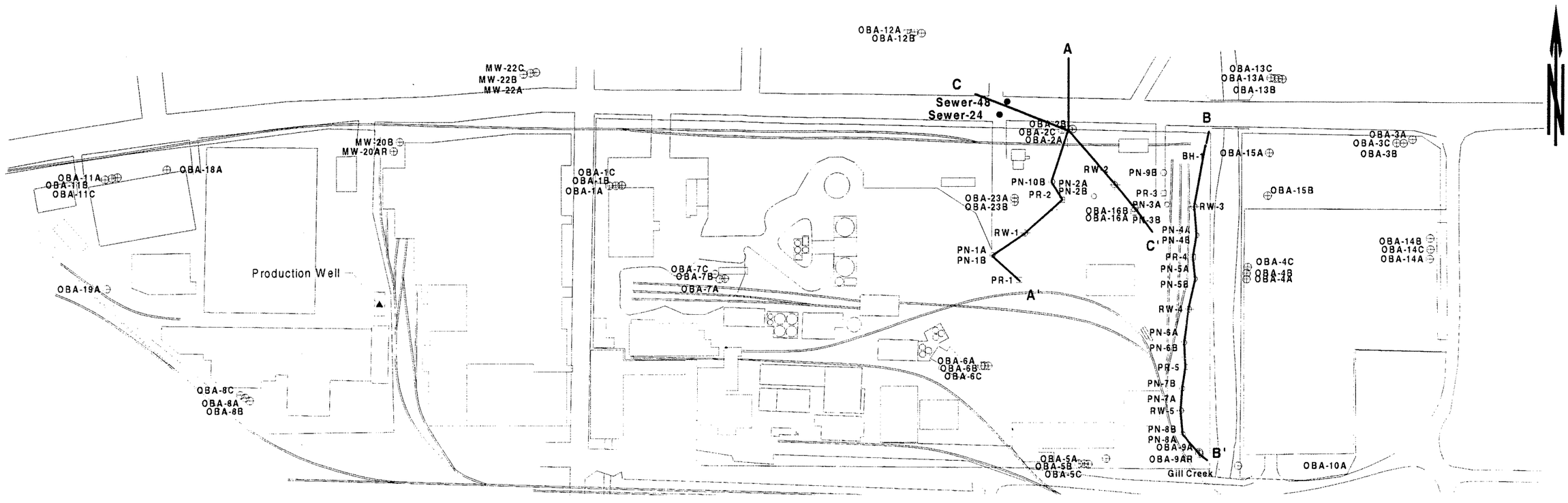
RW-5, PN-7A, PN-7B
Hydrograph

Project 12000-8-0030

Figure A3-6

ATTACHMENT 4

HYDROGEOLOGIC CROSS SECTIONS



LEGEND

- ◇ GILL CREEK MONITORING POINT
- ▲ OLIN PRODUCTION WELL
- ⊕ WATER QUALITY MONITORING WELLS
- ○ A/B ZONE PIEZOMETER NESTS
- ⊕ GROUND WATER RECOVERY WELLS
- PASSIVE RELIFF WELLS
- ● SEWER INVERT ELEVATION
- ——— PROPERTY LINE
- A ——— A' HYDRAGEOLOGIC CROSS SECTION

OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

CROSS SECTION LOCATION MAP

Job No.: 12000-8-0030

Figure A4-1

A
North

A'
South

Buffalo Avenue

Ground Surface

OBA-2A
OBA-2B
OBA-2C
PN-10B
PR-2
RW-1
PN-1A
PN-1B
PR-1

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

48" Sewer
Invert

24" Sewer
Invert

ELEVATION (FT)

570
566
562
558
554
550
546
542
538

561.6
563.1
558.0
556.3
558.3
558.1
556.4
558.4
558.0

BT

SCALE
IN FEET
4
0
40

Vertical Exaggeration 10x

Down to 520.3

NOTE

▽ : Ground-Water elevation measured on 9/17/99.

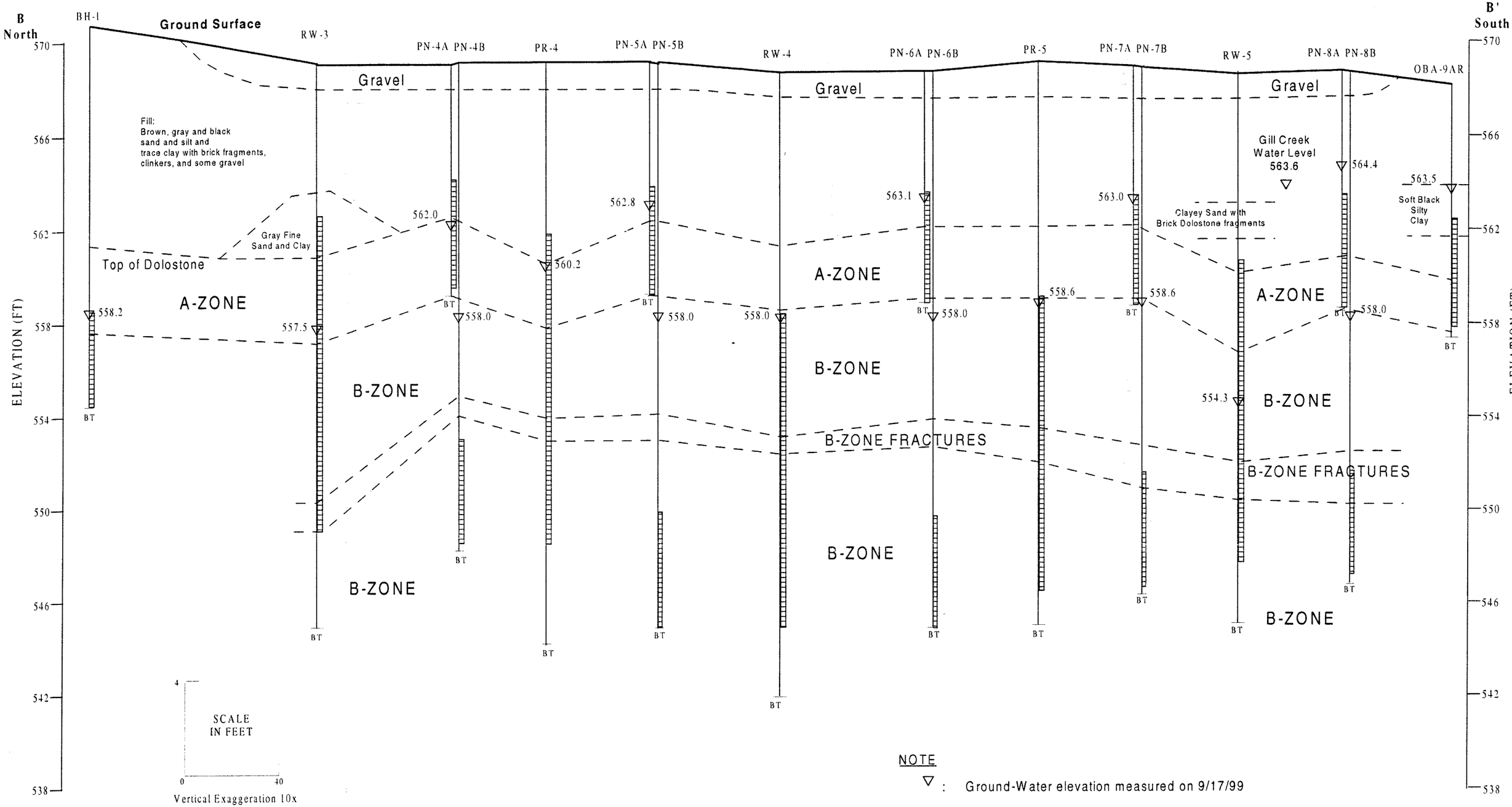
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

Hydrogeologic Cross Section AA'

Job Number 12000-8-0030

Figure A4-2



NOTE

▽ : Ground-Water elevation measured on 9/17/99

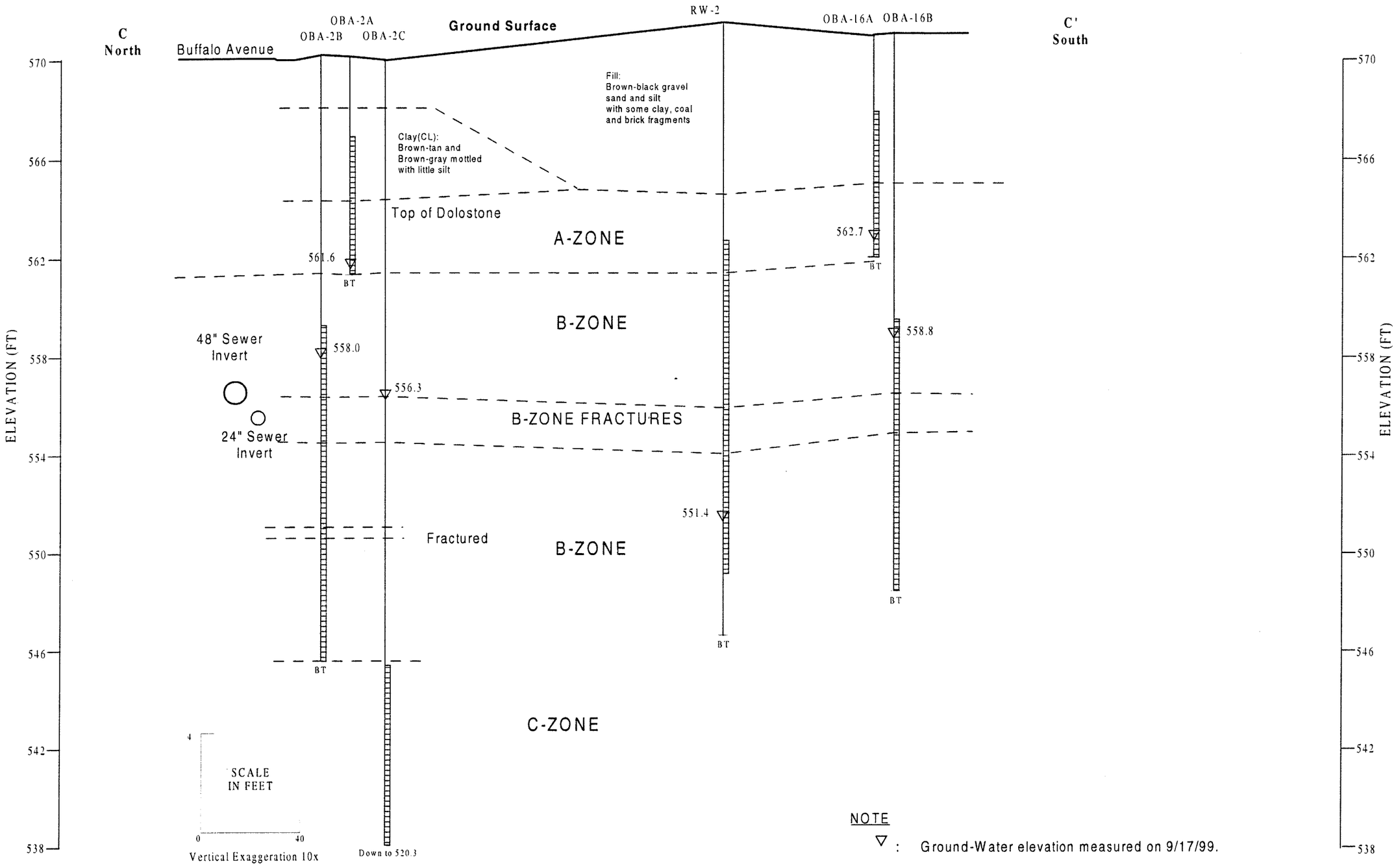
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

Hydrogeologic Cross Section BB'

Job Number 12000-8-0030

Figure A4-3



NOTE

▽ : Ground-Water elevation measured on 9/17/99.

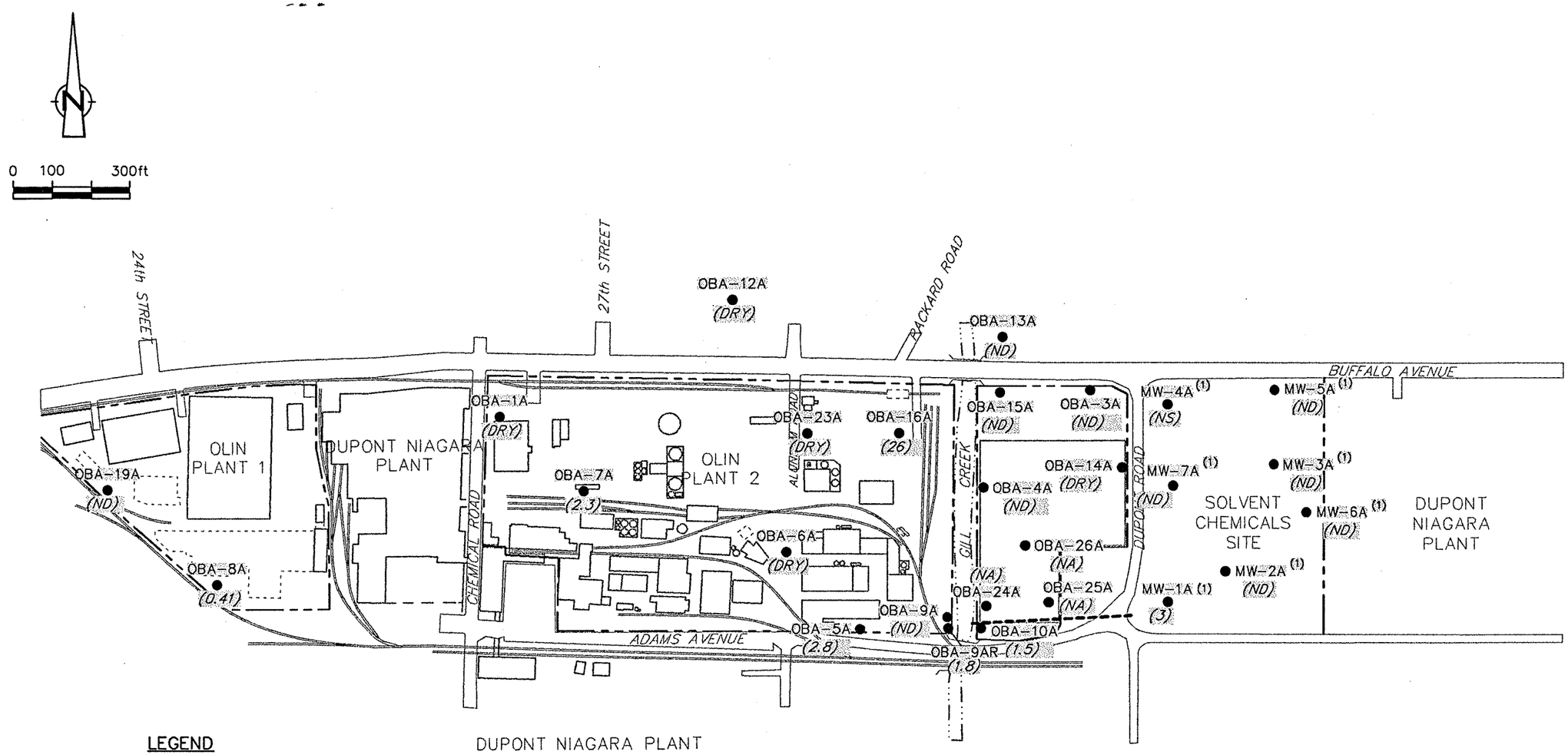
OLIN CHEMICAL
NIAGARA FALLS, NEW YORK

LAW
LAWGIBB Group Member

Hydrogeologic Cross Section CC'

Job Number 12000-8-0030

Figure A4-4



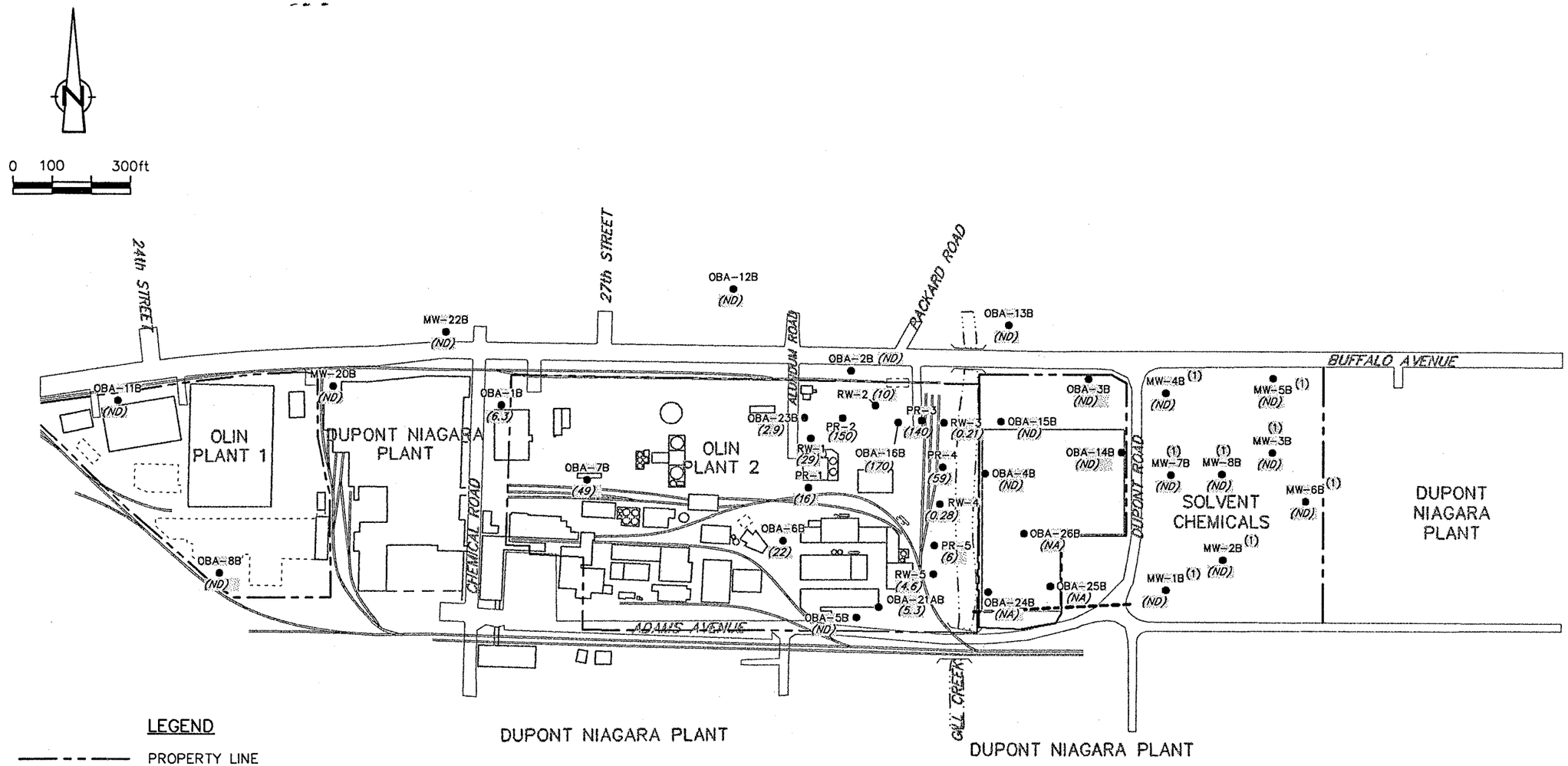
LEGEND

——— - - ———	PROPERTY LINE
OBA-13A ●	A-ZONE MONITORING WELL
----------	SOLVENT CHEMICALS SEWER LOCATION (APPROXIMATE)
(590)	CONCENTRATION (ug/L)
(DRY)	WELL DRY OR INSUFFICIENT RECOVERY AFTER PURGING
(NS)	NOT SAMPLED DUE TO PRESENCE OF DNAPL
(ND)	NOT DETECTED
(NA)	NOT ANALYZED
(1)	SOLVENT CHEMICAL WELLS SAMPLED IN 1997

DISTRIBUTION OF TOTAL MERCURY IN A-ZONE GROUNDWATER, MAY 1999
OLIN CORPORATION
Niagara Falls, New York

CRA

06548-00(010)GN-NF028 OCT 26/1999



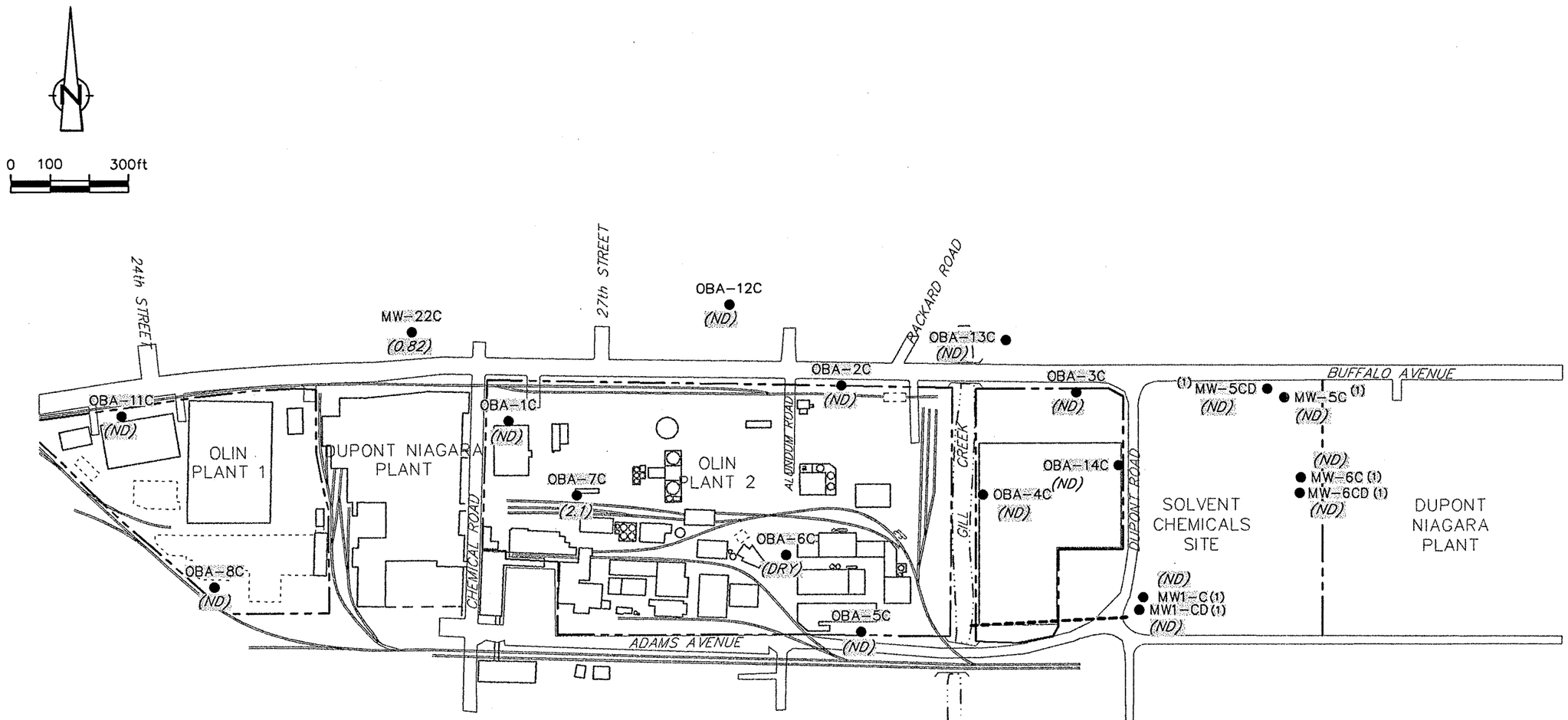
LEGEND

——— - - ———	PROPERTY LINE
OBA-13B ●	B-ZONE MONITORING WELL
----------	SOLVENT CHEMICALS SEWER LOCATION (APPROXIMATE)
(160)	CONCENTRATION (ug/L)
(DRY)	WELL DRY OR INSUFFICIENT RECOVERY AFTER PURGING
(NS)	NOT SAMPLED DUE TO PRESENCE OF DNAPL
(ND)	NOT DETECTED
(NA)	NOT ANALYZED
(1)	SOLVENT CHEMICAL WELLS SAMPLED IN 1997

DISTRIBUTION OF TOTAL MERCURY IN B-ZONE GROUNDWATER, MAY 1999
OLIN CORPORATION
Niagara Falls, New York

CRA

06548-00(010)GN-NF029 OCT 26/1999



LEGEND

——— - - ———	PROPERTY LINE
OBA-7C ●	C-ZONE MONITORING WELL
----------	SOLVENT CHEMICALS SEWER LOCATION (APPROXIMATE)
(31)	CONCENTRATION (ug/L)
(DRY)	WELL DRY OR INSUFFICIENT RECOVERY AFTER PURGING
(NS)	NOT SAMPLED DUE TO PRESENCE OF DNAPL
(ND)	NOT DETECTED
(NA)	NOT ANALYZED
(1)	SOLVENT CHEMICAL WELLS SAMPLED IN 1997

DISTRIBUTION OF TOTAL MERCURY IN C-ZONE GROUNDWATER, MAY 1999
OLIN CORPORATION
Niagara Falls, New York

CRA

06548-00(010)GN-NF030 OCT 26/1999

N

0 100 300ft

24th STREET

27th STREET

BACKARD ROAD

BUFFALO AVENUE

OLIN PLANT 1

DUPONT NIAGARA PLANT

OLIN PLANT 2

CHEMICAL ROAD

ALDEN ROAD

GILL CREEK

DUEBER ROAD

ADAMS AVENUE

SOLVENT CHEMICALS SITE

DUPONT NIAGARA PLANT

OBA-12A (DRY)

OBA-13A (0.31)

OBA-1A (DRY)

OBA-23A (DRY)

OBA-16A (23)

OBA-15A (0.87)

OBA-3A (39.9)

MW-4A (1) (NA)

MW-5A (1) (ND)

OBA-19A (ND)

OBA-7A (0.51)

OBA-14A (DRY)

MW-7A (1) (0.479)

MW-3A (1) (NA)

OBA-4A (.095)

OBA-6A (DRY)

MW-6A (1) (NA)

OBA-26A (NA)

OBA-8A (0.423)

MW-2A (1) (NA)

OBA-24A (NA)

OBA-25A (NA)

MW-1A (1) (0.597)

OBA-9A (12)

OBA-5A (134)

OBA-10A (520)

OBA-9AR (544)

DUPONT NIAGARA PLANT

DUPONT NIAGARA PLANT

LEGEND

PROPERTY LINE

OBA-13A ● A-ZONE MONITORING WELL

SOLVENT CHEMICALS SEWER LOCATION (APPROXIMATE)

(590) CONCENTRATION (ug/L)

(DRY) WELL DRY OR INSUFFICIENT RECOVERY AFTER PURGING

(NS) NOT SAMPLED DUE TO PRESENCE OF DNAPL

(ND) NOT DETECTED

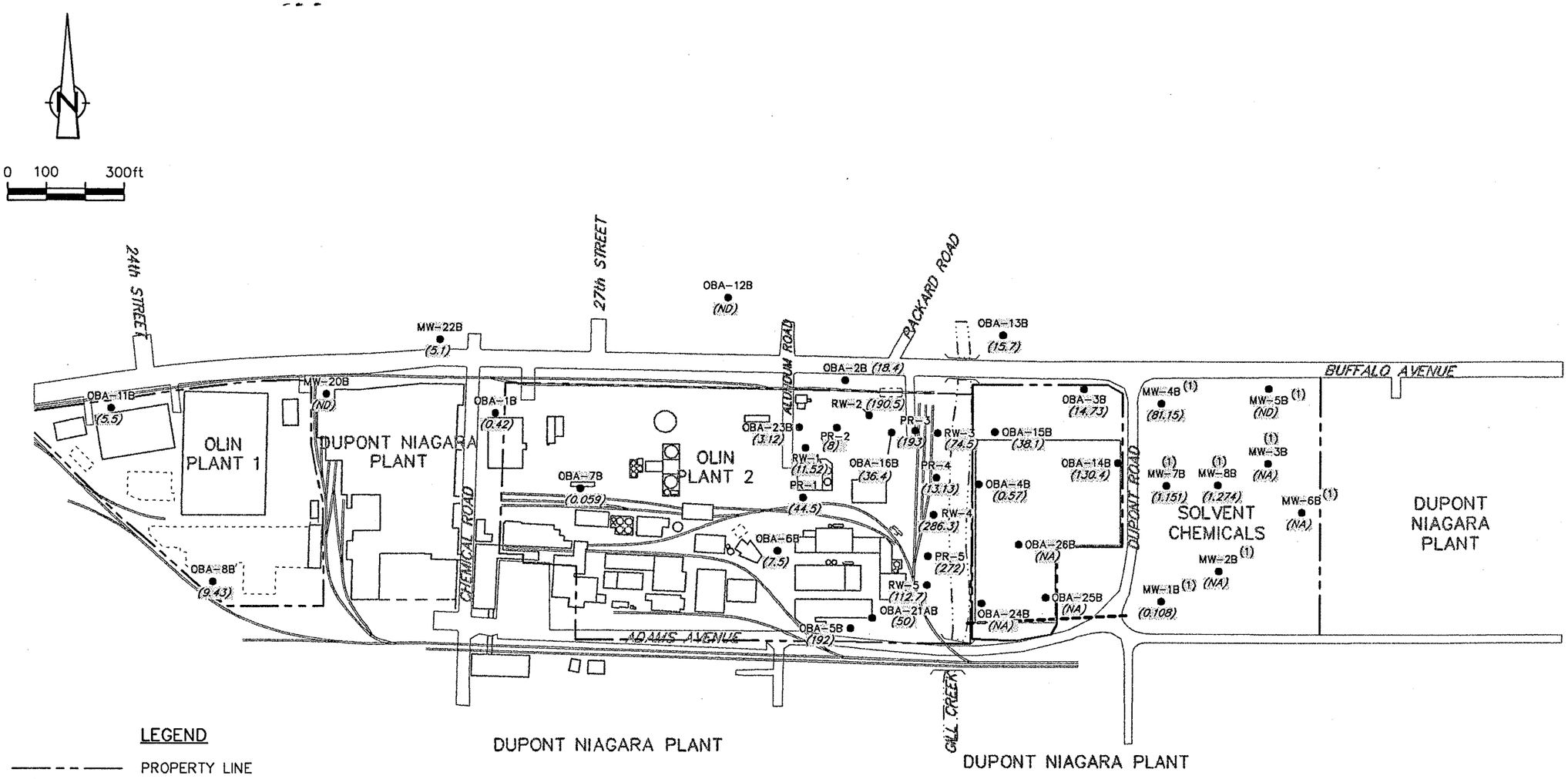
(NA) NOT ANALYZED

(1) SOLVENT CHEMICAL WELLS SAMPLED IN 1997

DISTRIBUTION OF TOTAL BHCS IN A-ZONE GROUNDWATER, MAY 1999
OLIN CORPORATION
Niagara Falls, New York

CRA

06548-00(010)GN-NF031OCT 26/1999



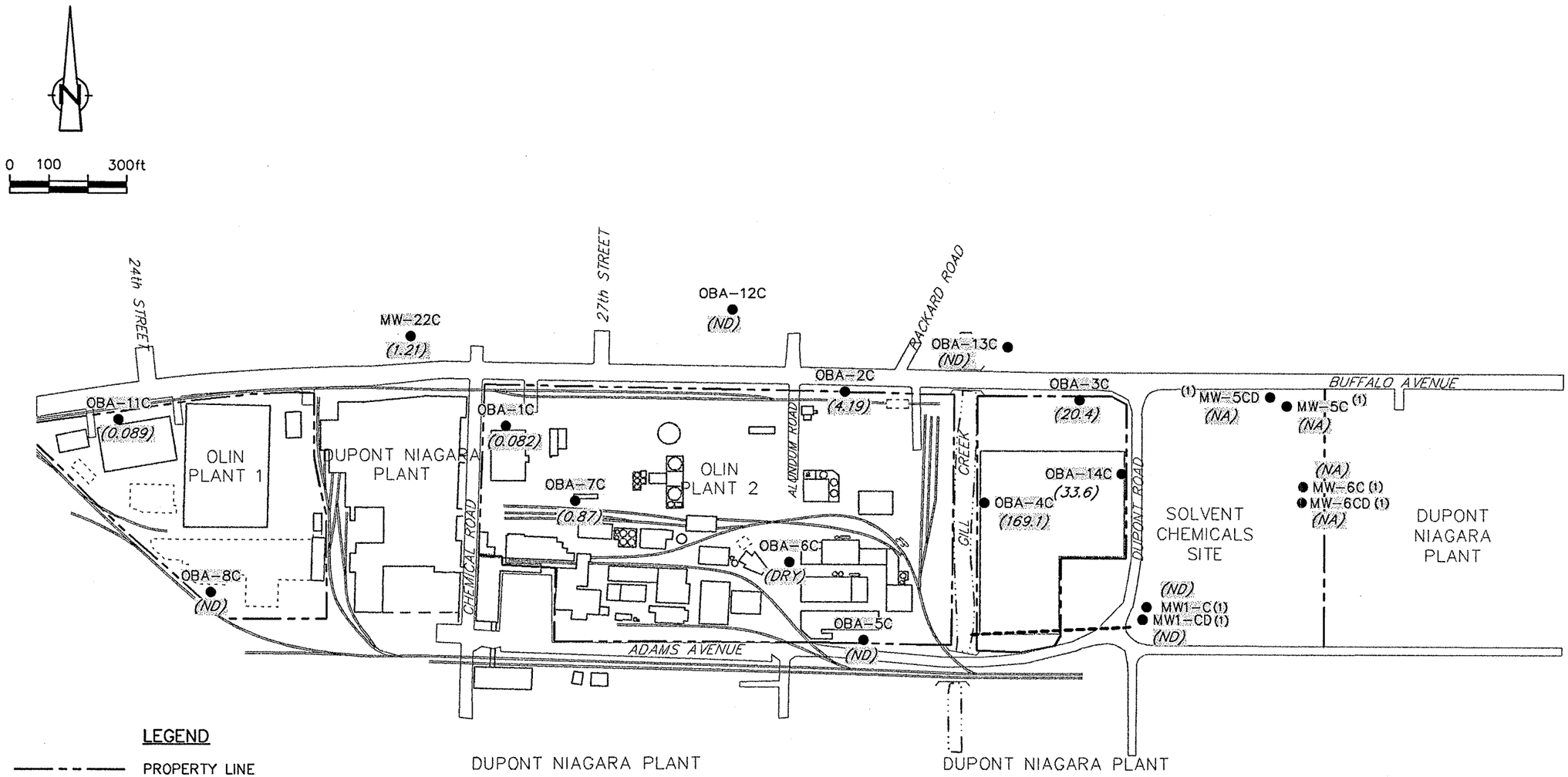
LEGEND

——— - - ———	PROPERTY LINE
OBA-13B ●	B-ZONE MONITORING WELL
----------	SOLVENT CHEMICALS SEWER LOCATION (APPROXIMATE)
(160)	CONCENTRATION (ug/L)
(DRY)	WELL DRY OR INSUFFICIENT RECOVERY AFTER PURGING
(NS)	NOT SAMPLED DUE TO PRESENCE OF DNAPL
(ND)	NOT DETECTED
(NA)	NOT ANALYZED
(1)	SOLVENT CHEMICAL WELLS SAMPLED IN 1997

DISTRIBUTION OF TOTAL BHCS IN B-ZONE GROUNDWATER, MAY 1999
OLIN CORPORATION
Niagara Falls, New York

CRA

06548-00(010)GN-NF032 OCT 26/1999



LEGEND

——— - - ———	PROPERTY LINE
OBA-7C ●	C-ZONE MONITORING WELL
----------	SOLVENT CHEMICALS SEWER LOCATION (APPROXIMATE)
(31)	CONCENTRATION (ug/L)
(DRY)	WELL DRY OR INSUFFICIENT RECOVERY AFTER PURGING
(NS)	NOT SAMPLED DUE TO PRESENCE OF DNAPL
(ND)	NOT DETECTED
(NA)	NOT ANALYZED
(1)	SOLVENT CHEMICAL WELLS SAMPLED IN 1997

DISTRIBUTION OF TOTAL BHCS IN C-ZONE GROUNDWATER, MAY 1999
OLIN CORPORATION
Niagara Falls, New York

CRA

06548-00(010)GN-NF033 OCT 26/1999

Olin Niagara Falls
Plant 2 Area Remediation

Summary: Contaminant Mass and Groundwater Extracted

Quarter	organics lb	Annual Tot.	mercury lb	Annual Tot.	pesticides lb	Annual Tot.	groundwater extracted gal	Annual 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	2,051	0.1	0.8	5.2	12	4,054,996	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	
		3,040		0.20		24		13,444,312
TOTAL	**5091**		**1**		**36**		**21,468,266**	

Olin - Niagara Falls
OMNX Systems Check
Summary of Total Flow, Average System Flow Rates, and Average Ground-Water Elevations

Period	Total Flow (gal/month)	Total Quarterly Flow (gal)	Average Flow Rate (gpm)						Flow Contribution Per Well (gal/month)					Notes
			RW-1	RW-2	RW-3	RW-4	RW-5	Total	RW-1	RW-2	RW-3	RW-4	RW-5	
Dec-97	60,000		0.1	0.0	0.4	0.4	0.4	1.3	4,720	810	19,098	18,902	16,471	1,3
4th Qtr 97		60,000												
Jan-98	60,000		0.1	0.0	0.4	0.4	0.4	1.3	4,720	810	19,098	18,902	16,471	1,3
Feb-98	45,000		0.1	0.0	0.4	0.4	0.3	1.1	3,540	607	14,323	14,176	12,353	1,3
Mar-98	45,000		0.1	0.0	0.3	0.3	0.3	1.0	3,540	607	14,323	14,176	12,353	1,3
1st Qtr 98		150,000												
Apr-98	365,297		0.7	0.1	2.7	2.7	2.3	8.5	28,735	4,931	116,271	115,080	100,280	1,3
May-98	334,862		0.6	0.1	2.4	2.4	2.1	7.5	26,341	4,520	106,584	105,492	91,925	2,3
Jun-98	475,640		0.9	0.1	3.5	3.5	3.0	11.0	37,415	6,421	151,393	149,841	130,570	2,3
2nd Qtr 98		1,175,799												
Jul-98	921,665		1.6	0.3	6.6	6.5	5.7	20.6	72,501	12,441	293,359	290,353	253,011	2,3
Aug-98	526,034		0.1	0.6	3.7	3.8	3.4	11.6	5,554	26,894	169,255	172,032	152,300	2, 4
Sep-98	1,135,460		2.4	2.5	7.0	7.1	7.1	26.0	104,479	107,966	306,316	309,076	307,623	2, 4
3rd Qtr 98		2,583,159												
Oct-98	1,252,945		0.4	1.1	6.8	10.1	9.7	28.1	18,288	48,816	302,400	451,872	431,568	2, 4
Nov-98	1,408,950		2.2	0.7	5.0	14.4	10.5	32.8	94,806	31,590	213,858	618,408	450,288	2, 4
Dec-98	1,393,101		0.3	1.0	4.5	15.4	9.8	31.1	15,642	44,072	203,121	691,082	439,185	2, 4
4th Qtr 98		4,054,996												
Jan-99	1,295,192		0.02	0.41	3.6	17.2	7.8	29.0	860	18,178	162,181	767,148	346,826	2, 4
Feb-99	1,362,751		2.9	3.1	4.2	18.0	5.6	33.8	117,795	123,770	171,019	725,571	224,596	2, 4
Mar-99	1,575,578		3.0	5.1	4.1	18.7	4.4	35.3	134,877	229,745	181,540	833,892	195,524	2, 4
1st Qtr 99		4,233,521												
Apr-99	1,419,313		2.8	5.5	3.0	18.2	3.3	32.8	123,042	237,750	129,803	785,958	142,761	2, 4
May-99	1,394,656		2.6	4.8	2.3	17.8	3.7	31.2	116,709	213,374	102,340	796,659	165,574	2, 4
Jun-99	1,177,615		2.6	1.6	2.0	17.3	3.6	27.3	112,803	70,596	87,762	748,818	157,637	2, 4
2nd Qtr 99		3,991,584												
Jul-99	1,195,224		1.2	2.8	3.1	14.9	4.8	26.8	53,137	122,975	140,305	663,996	214,812	2, 4
Aug-99	1,847,659		0.0	5.0	6.2	20.3	9.8	41.4	863	222,431	278,727	908,309	437,328	2, 4
Sep-99	2,176,325		1.4	3.6	7.3	20.2	17.8	50.4	59,270	157,635	316,791	872,352	770,276	2, 4
3rd Qtr 99		5,219,207							113,271	503,041	735,823	2,444,657	1,422,416	
Average	975,830		1.2	1.8	3.6	10.5	5.3	22.3	56,950	99,545	192,531	568,943	295,098	
Total	21,468,265								1,252,907	2,189,979	4,235,686	12,516,752	6,492,148	

1. Estimated total flow
2. Monthly flow totalizer data
3. Average % for totalized flow for Dec-97 through Jul-98.
4. % flow calculated from monthly totalizer data
- Data not available.

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

ORGANICS **Q3-99**

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	70.4	3.8	2.20E-06	0.00058854	1190476.19	113,271	66.66
RW2	4.8	3.8	2.20E-06	0.00003979	1190476.19	503,041	20.02
RW3	6.0	3.8	2.20E-06	0.00005024	1190476.19	735,823	36.97
RW4	15.2	3.8	2.20E-06	0.00012707	1190476.19	2,444,657	310.65
RW5	63.4	3.8	2.20E-06	0.00053002	1190476.19	1,422,416	753.91
TOTAL							**1188.2**

MERCURY **Q3-99**

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	0.013	3.8	2.20E-06	0.00000011	1190476.19	113,271	0.01
RW2	0.008	3.8	2.20E-06	0.00000006	1190476.19	503,041	0.03
RW3	0.007	3.8	2.20E-06	0.00000006	1190476.19	735,823	0.04
RW4	0.0009	3.8	2.20E-06	0.00000001	1190476.19	2,444,657	0.02
RW5	0.0000	3.8	2.20E-06	0.00000000	1190476.19	1,422,416	0.00
TOTAL							**0.10**

PESTICIDES **Q3-99**

WELL	conc [A] mg/l	conv liter / gal	conv lb /mg	conversion lb/gallon	conversion gal/lb	flow gal/qtr	MASS lb/qtr
RW1	0.052	3.8	2.20E-06	0.00000043	1190476.19	113,271	0.05
RW2	0.072	3.8	2.20E-06	0.00000060	1190476.19	503,041	0.30
RW3	0.111	3.8	2.20E-06	0.00000093	1190476.19	735,823	0.68
RW4	0.299	3.8	2.20E-06	0.00000250	1190476.19	2,444,657	6.11
RW5	0.133	3.8	2.20E-06	0.00000111	1190476.19	1,422,416	1.58
TOTAL							**8.7**

[A] = TOTAL OF PARAMETER GROUP IN QUARTERLY GRAB SAMPLE FROM DISCHARGE HEADER

OLIN NIAGARA
THIRD QUARTERLY 1999
HEADER SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate	SUBTOTAL
RW-1	Metals, Dissolved	MERCURY	0.0087		MG/L	0.0002	9/20/99	
RW-1	Metals, Total	MERCURY	0.013		MG/L	0.0006	9/20/99	0.013
RW-1	Pesticide/PCB	ALPHA BHC	41		UG/L	5	9/20/99	
RW-1	Pesticide/PCB	BETA BHC	11		UG/L	5	9/20/99	
RW-1	Pesticide/PCB	DELTA BHC		ND	UG/L	5	9/20/99	
RW-1	Pesticide/PCB	GAMMA BHC (LINDANE)		ND	UG/L	5	9/20/99	52
RW-1	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	1,1,2,2-TETRACHLOROETHANE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	1,2,4-TRICHLOROBENZENE	4500		UG/L	2000	9/20/99	
RW-1	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	BENZENE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	CHLOROBENZENE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	CHLOROMETHANE		ND	UG/L	4000	9/20/99	
RW-1	Volatiles	cis-1,2-DICHLOROETHYLENE	2800		UG/L	2000	9/20/99	
RW-1	Volatiles	METHYLENE CHLORIDE	3800		UG/L	2000	9/20/99	
RW-1	Volatiles	TETRACHLOROETHENE (PCE)	7300		UG/L	2000	9/20/99	
RW-1	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	2000	9/20/99	
RW-1	Volatiles	TRICHLOROETHYLENE (TCE)	52000		UG/L	2000	9/20/99	
RW-1	Volatiles	VINYL CHLORIDE		ND	UG/L	4000	9/20/99	
								70400

OLIN NIAGARA
THIRD QUARTERLY 1999
HEADER SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate	SUBTOTAL
RW-2	Metals, Dissolved	MERCURY	0.0016	J	MG/L	0.0002	9/27/99	
RW-2	Metals, Total	MERCURY	0.0075	J	MG/L	0.0002	9/27/99	0.0075
RW-2	Pesticide/PCB	ALPHA BHC	33		UG/L	2	9/27/99	
RW-2	Pesticide/PCB	BETA BHC	3.7		UG/L	2	9/27/99	
RW-2	Pesticide/PCB	DELTA BHC	5		UG/L	2	9/27/99	
RW-2	Pesticide/PCB	GAMMA BHC (LINDANE)	30		UG/L	2	9/27/99	71.7
RW-2	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	1,1,2,2-TETRACHLOROETHANE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	1,2,4-TRICHLOROBENZENE	450		UG/L	170	9/27/99	
RW-2	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	BENZENE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	CHLOROBENZENE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	CHLOROMETHANE		ND	UG/L	330	9/27/99	
RW-2	Volatiles	cis-1,2-DICHLOROETHYLENE	460		UG/L	170	9/27/99	
RW-2	Volatiles	METHYLENE CHLORIDE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	TETRACHLOROETHENE (PCE)	650		UG/L	170	9/27/99	
RW-2	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	170	9/27/99	
RW-2	Volatiles	TRICHLOROETHYLENE (TCE)	3200		UG/L	170	9/27/99	
RW-2	Volatiles	VINYL CHLORIDE		ND	UG/L	330	9/27/99	
								4760

OLIN NIAGARA
THIRD QUARTERLY 1999
HEADER SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate	SUBTOTAL
RW-3	Metals, Dissolved	MERCURY		ND	MG/L	0.0002	9/20/99	
RW-3	Metals, Total	MERCURY	0.0066		MG/L	0.0002	9/20/99	0.0066
RW-3	Pesticide/PCB	ALPHA BHC	51		UG/L	5	9/20/99	
RW-3	Pesticide/PCB	BETA BHC		ND	UG/L	5	9/20/99	
RW-3	Pesticide/PCB	DELTA BHC	9.1		UG/L	5	9/20/99	
RW-3	Pesticide/PCB	GAMMA BHC (LINDANE)	51		UG/L	5	9/20/99	111.1
RW-3	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	1,1,2,2-TETRACHLOROETHANE	190		UG/L	100	9/20/99	
RW-3	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	1,2,4-TRICHLOROBENZENE	710		UG/L	100	9/20/99	
RW-3	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	1,3-DICHLOROBENZENE	150		UG/L	100	9/20/99	
RW-3	Volatiles	1,4-DICHLOROBENZENE	160		UG/L	100	9/20/99	
RW-3	Volatiles	BENZENE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	CHLOROBENZENE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	CHLOROMETHANE		ND	UG/L	200	9/20/99	
RW-3	Volatiles	cis-1,2-DICHLOROETHYLENE	500		UG/L	100	9/20/99	
RW-3	Volatiles	METHYLENE CHLORIDE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	TETRACHLOROETHENE (PCE)	2200		UG/L	100	9/20/99	
RW-3	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	100	9/20/99	
RW-3	Volatiles	TRICHLOROETHYLENE (TCE)	2100		UG/L	100	9/20/99	
RW-3	Volatiles	VINYL CHLORIDE		ND	UG/L	200	9/20/99	
								6010

OLIN NIAGARA
THIRD QUARTERLY 1999
HEADER SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate	SUBTOTAL
RW-3 DUP	Metals, Dissolved	MERCURY	0.00054	J	MG/L	0.0002	9/20/99	
RW-3 DUP	Metals, Total	MERCURY	0.0042	J	MG/L	0.0002	9/20/99	0.0042
RW-3 DUP	Pesticide/PCB	ALPHA BHC	44		UG/L	2.5	9/20/99	
RW-3 DUP	Pesticide/PCB	BETA BHC	4.5		UG/L	2.5	9/20/99	
RW-3 DUP	Pesticide/PCB	DELTA BHC	8.1		UG/L	2.5	9/20/99	
RW-3 DUP	Pesticide/PCB	GAMMA BHC (LINDANE)	44		UG/L	2.5	9/20/99	100.6
RW-3 DUP	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	100	9/20/99	
RW-3 DUP	Volatiles	1,1,2,2-TETRACHLOROETHANE	180		UG/L	100	9/20/99	
RW-3 DUP	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	100	9/20/99	
RW-3 DUP	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	100	9/20/99	
RW-3 DUP	Volatiles	1,2,4-TRICHLOROBENZENE	620		UG/L	100	9/20/99	
RW-3 DUP	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	100	9/20/99	
RW-3 DUP	Volatiles	1,3-DICHLOROBENZENE	140		UG/L	100	9/20/99	
RW-3 DUP	Volatiles	1,4-DICHLOROBENZENE	140		UG/L	100	9/20/99	
RW-3 DUP	Volatiles	BENZENE		ND	UG/L	100	9/20/99	
RW-3 DUP	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	100	9/20/99	
RW-3 DUP	Volatiles	CHLOROBENZENE		ND	UG/L	100	9/20/99	
RW-3 DUP	Volatiles	CHLOROMETHANE		ND	UG/L	200	9/20/99	
RW-3 DUP	Volatiles	cis-1,2-DICHLOROETHYLENE	430		UG/L	100	9/20/99	
RW-3 DUP	Volatiles	METHYLENE CHLORIDE	110		UG/L	100	9/20/99	
RW-3 DUP	Volatiles	TETRACHLOROETHENE (PCE)	1900		UG/L	100	9/20/99	
RW-3 DUP	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	100	9/20/99	
RW-3 DUP	Volatiles	TRICHLOROETHYLENE (TCE)	1800		UG/L	100	9/20/99	
RW-3 DUP	Volatiles	VINYL CHLORIDE		ND	UG/L	200	9/20/99	
								5320

OLIN NIAGARA
THIRD QUARTERLY 1999
HEADER SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate	SUBTOTAL
RW-4	Metals, Dissolved	MERCURY		ND	MG/L	0.0002	9/20/99	
RW-4	Metals, Total	MERCURY	0.00085		MG/L	0.0002	9/20/99	0.00085
RW-4	Pesticide/PCB	ALPHA BHC	150		UG/L	5	9/20/99	
RW-4	Pesticide/PCB	BETA BHC	8		UG/L	5	9/20/99	
RW-4	Pesticide/PCB	DELTA BHC	21		UG/L	5	9/20/99	
RW-4	Pesticide/PCB	GAMMA BHC (LINDANE)	120		UG/L	5	9/20/99	299
RW-4	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	1,1,2,2-TETRACHLOROETHANE	590		UG/L	250	9/20/99	
RW-4	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	1,2,4-TRICHLOROBENZENE	1700		UG/L	250	9/20/99	
RW-4	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	BENZENE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	CHLOROBENZENE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	CHLOROMETHANE		ND	UG/L	500	9/20/99	
RW-4	Volatiles	cis-1,2-DICHLOROETHYLENE	1200		UG/L	250	9/20/99	
RW-4	Volatiles	METHYLENE CHLORIDE	310		UG/L	250	9/20/99	
RW-4	Volatiles	TETRACHLOROETHENE (PCE)	6000		UG/L	250	9/20/99	
RW-4	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	250	9/20/99	
RW-4	Volatiles	TRICHLOROETHYLENE (TCE)	5400		UG/L	250	9/20/99	
RW-4	Volatiles	VINYL CHLORIDE		ND	UG/L	500	9/20/99	
								15200

OLIN NIAGARA
THIRD QUARTERLY 1999
HEADER SAMPLING

LocationID	ConstituentClass	ParameterName	Result	Qualifier	Units	DetectionLimit	SampleDate	SUBTOTAL
RW-5	Metals, Dissolved	MERCURY		ND	MG/L	0.0002	9/20/99	
RW-5	Metals, Total	MERCURY		ND	MG/L	0.0002	9/20/99	0
RW-5	Pesticide/PCB	ALPHA BHC	65		UG/L	2.5	9/20/99	
RW-5	Pesticide/PCB	BETA BHC	5.5		UG/L	2.5	9/20/99	
RW-5	Pesticide/PCB	DELTA BHC	11		UG/L	2.5	9/20/99	
RW-5	Pesticide/PCB	GAMMA BHC (LINDANE)	51		UG/L	2.5	9/20/99	132.5
RW-5	Volatiles	1,1,1-TRICHLOROETHANE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	1,1,2,2-TETRACHLOROETHANE	4100		UG/L	1000	9/20/99	
RW-5	Volatiles	1,1,2-TRICHLOROETHANE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	1,1-DICHLOROETHENE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	1,2,4-TRICHLOROBENZENE	2500		UG/L	1000	9/20/99	
RW-5	Volatiles	1,2-DICHLOROBENZENE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	1,3-DICHLOROBENZENE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	1,4-DICHLOROBENZENE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	BENZENE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	CARBON TETRACHLORIDE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	CHLOROBENZENE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	CHLOROMETHANE		ND	UG/L	2000	9/20/99	
RW-5	Volatiles	cis-1,2-DICHLOROETHYLENE	5600		UG/L	1000	9/20/99	
RW-5	Volatiles	METHYLENE CHLORIDE	1200		UG/L	1000	9/20/99	
RW-5	Volatiles	TETRACHLOROETHENE (PCE)	21000		UG/L	1000	9/20/99	
RW-5	Volatiles	trans-1,2-DICHLOROETHENE		ND	UG/L	1000	9/20/99	
RW-5	Volatiles	TRICHLOROETHYLENE (TCE)	29000		UG/L	1000	9/20/99	
RW-5	Volatiles	VINYL CHLORIDE		ND	UG/L	2000	9/20/99	
								63400

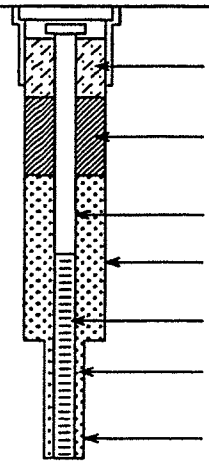
STRATIGRAPHIC AND INSTRUMENTATION LOG

(WL-07)
Page 1 of 1

PROJECT NAME: OLIN BUFFALO AVE. PLANT
PROJECT NUMBER: 6548
CLIENT: OLIN CHEMICAL
LOCATION: SW CORNER OF GILL CREEK LOT

HOLE DESIGNATION: OBA-24A
DATE COMPLETED: MAY 06, 1999
DRILLING METHOD: HQ CORE/WET ROTARY
CRA SUPERVISOR: F. GARBE

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*569.7* *569.35*					
	ASPHALT PAVEMENT AND BASE	*569.23*		1SS		30	0
2.5	ML/GM-SILT and GRAVEL (FILL), some black cinders, gray brown to dark brown silt, gray gravel		CEMENT/ BENTONITE GROUT	2SS		11	0
5.0	- intermixed dark yellow brown to black silty clay (fill)		BENTONITE SEAL	3SS		22	0
7.5	- dark red brown sandy clay and light gray gravel with inc. clay, wet (till)		2" Ø PVC PIPE 6" Ø BOREHOLE	4SS		8	0
		561.23	WELL SCREEN	5SS		-	0
10.0	DOLOSTONE (LOCKPORT FORMATION): light to medium gray to dark gray, fine to medium grained dolostone, highly fractured and weathered first 0.2ft, occasional small solutional vugs, some with calcite infilling		SAND PACK				
		558.23	3 7/8" Ø COREHOLE				
12.5	END OF HOLE @ 11.5ft BGS						
15.0							
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							



SCREEN DETAILS
Screened interval:
6.3 to 11.3ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #20
Material: PVC
Sand Pack:
4.3 to 11.5ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

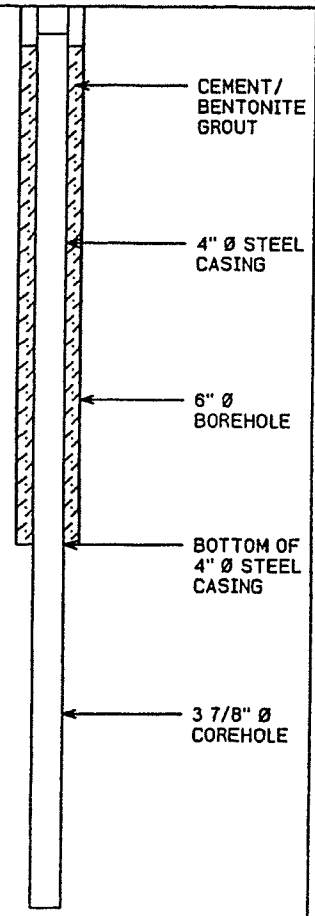
STRATIGRAPHIC AND INSTRUMENTATION LOG

(WL-08)
Page 1 of 1

PROJECT NAME: OLIN BUFFALO AVE. PLANT
PROJECT NUMBER: 6548
CLIENT: OLIN CHEMICAL
LOCATION: SW CORNER OF GILL CREEK LOT

HOLE DESIGNATION: OBA-24B
DATE COMPLETED: MAY 06, 1999
DRILLING METHOD: HQ CORE/WET ROTARY
CRA SUPERVISOR: F. GARBE

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*569.7* *569.28*					
	ASPHALT PAVEMENT and BASE	*569.23*					
	ML-SILT and GRAVEL (FILL), some black cinders, gray-brown, gray gravel						
	– clay with gravel, wet (till)	*561.63*					
	DOLOSTONE (Lockport Formation): light to dark gray, fine to medium grained dolostone, weathered first 0.5ft; some small (0.02cm) to medium (0.02 to 1.0 cm) solutional vugs, some with calcite infilling; numerous, weathered fractures (17.0 to 17.4ft BGS)						
	END OF HOLE @ 22.9ft BGS	*546.83*					
	NOTE: Lost water recirculation at 17.2ft BGS during HQ coring.						



-2.5
-5.0
-7.5
-10.0
-12.5
-15.0
-17.5
-20.0
-22.5
-25.0
-27.5
-30.0
-32.5

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

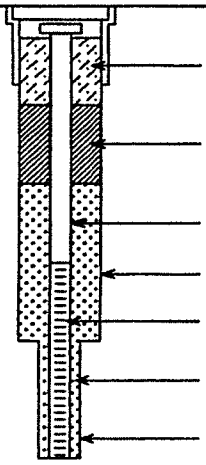
STRATIGRAPHIC AND INSTRUMENTATION LOG

(WL-09)
Page 1 of 1

PROJECT NAME: OLIN BUFFALO AVE. PLANT
PROJECT NUMBER: 6548
CLIENT: OLIN CHEMICAL
LOCATION: SE CORNER OF GILL CREEK LOT

HOLE DESIGNATION: OBA-25A
DATE COMPLETED: MAY 11, 1999
DRILLING METHOD: HQ CORE/WET ROTARY
CRA SUPERVISOR: F. GARBE

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*569.9* *569.47*					
	ASPHALT PAVEMENT AND BASE	*569.44*		1SS			0
-2.5	ML/GM-SILT and GRAVEL (FILL), sandy, light gray to dark brown to black						
	- some coal/cinder fragments (fill)			2SS			0
-5.0	- some cinders, increasing purple-red silt mottled with black ash and silty clay (fill)			3SS			0
-7.5	- dark brown to black silty clay, wet			4SS			0
	DOLOSTONE (LOCKPORT DOLOMITE): light gray to dark gray, fine to medium grained dolostone, numerous small to medium sized vugs from 9.5 to 9.9ft and 10.6 to 11.1ft BGS	*561.44*		5SS		-	0
-10.0							
	END OF HOLE @ 11.5ft BGS	*558.44*					
-12.5							
-15.0							
-17.5							
-20.0							
-22.5							
-25.0							
-27.5							
-30.0							
-32.5							



SCREEN DETAILS
Screened interval:
6.5 to 11.5ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #20
Material: PVC
Sand Pack:
4.5 to 11.5ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

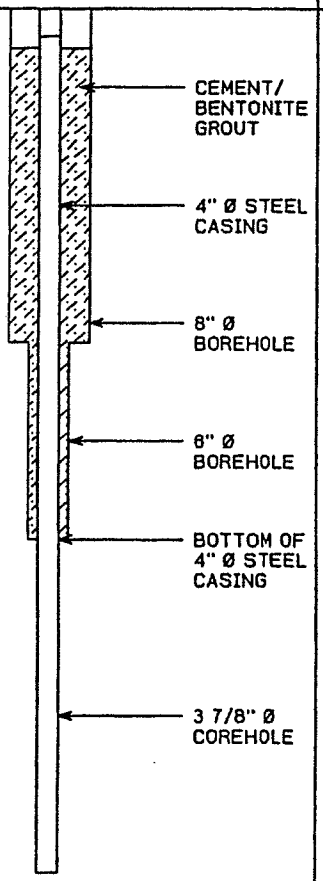
STRATIGRAPHIC AND INSTRUMENTATION LOG

(WL-10)
Page 1 of 1

PROJECT NAME: OLIN BUFFALO AVE. PLANT
PROJECT NUMBER: 6548
CLIENT: OLIN CHEMICAL
LOCATION: SE CORNER OF GILL CREEK LOT

HOLE DESIGNATION: OBA-25B
DATE COMPLETED: MAY 12, 1999
DRILLING METHOD: HQ CORE/WET ROTARY
CRA SUPERVISOR: F. GARBE

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*570.1* *569.45*					
	ASPHALT PAVEMENT and BASE	*569.55*					
	ML-SANDY SILT and GRAVEL (FILL), light gray to dark brown to black						
-2.5	- some coal and cinder fragments (fill)						
-5.0	- dark red brown, dark red yellow and purple brown sand, gravel and slag, some silt, wet (fill)						
-7.5	- dark brown to black silty clay, wet	*561.75*					
	DOLOSTONE (Lockport Dolomite): light to dark gray, fine to medium grained dolostone, weathered first 0.2ft, much solutional pitting and numerous vugs, especially from 9.3 to 9.8ft BGS and 11.0 to 11.8ft BGS						
-10.0							
-12.5							
-15.0	- weathered, fractured zone						
-17.5							
-20.0	- fossiliferous						
-22.5	END OF HOLE @ 22.0ft BGS	*548.05*					
	NOTE: Lost water recirculation at 17.0ft BGS during HQ coring.						
-25.0							
-27.5							
-30.0							
-32.5							



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

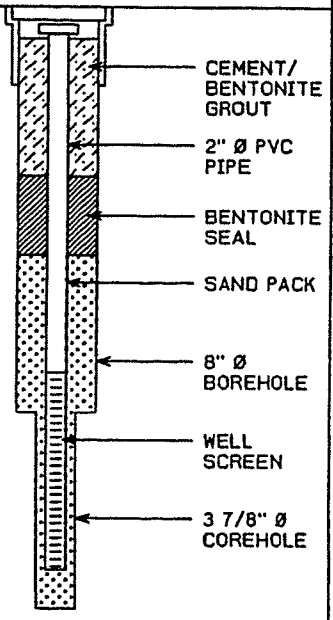
STRATIGRAPHIC AND INSTRUMENTATION LOG

PROJECT NAME: OLIN BUFFALO AVE. PLANT
PROJECT NUMBER: 6548
CLIENT: OLIN CHEMICAL
LOCATION: CENTER OF GILL CREEK LOT

HOLE DESIGNATION: OBA-26A
DATE COMPLETED: MAY 10, 1999
DRILLING METHOD: HQ CORE/WET ROTARY
CRA SUPERVISOR: F. GARBE

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*570.5* *570.04*
	ASPHALT PAVEMENT AND BASE	*569.95*
-2.5	FILL, light brown silt intermixed with gray gravel	
-5.0	- black silt and coal/cinders, some gravel, some yellow-brown silt and cinders (fill)	
-7.5	- yellow-brown clayey silt and dark gray gravel, firm/stiff, wet (till)	
-10.0	DOLOSTONE (LOCKPORT FORMATION): light to dark gray, fine to medium grained dolostone, occasional small solutional vugs some with calcite infilling, very weathered and fractured first 0.8ft (9.7 to 10.3ft BGS)	*560.75*
-12.5		
-15.0	END OF HOLE @ 15.3ft BGS	*555.15*
-17.5		
-20.0		
-22.5		
-25.0		
-27.5		
-30.0		
-32.5		

MONITOR INSTALLATION



SCREEN DETAILS
Screened Interval:
9.3 to 14.3ft BGS
Length: 5.0ft
Diameter: 2"
Slot Size: #20
Material: PVC
Sand Pack:
6.3 to 15.3ft BGS
Material: Silica Sand

SAMPLE NUMBER	STATE	'N' VALUE	PID (ppm)
1SS		47	0
2SS		20	0
3SS		6	0
4SS		5	0
5SS		18	0

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▽ STATIC WATER LEVEL ▼

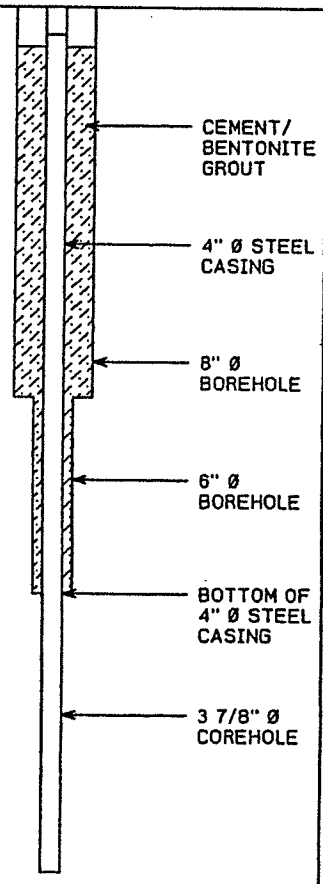
STRATIGRAPHIC AND INSTRUMENTATION LOG

(WL-12)
Page 1 of 1

PROJECT NAME: OLIN BUFFALO AVE. PLANT
PROJECT NUMBER: 6548
CLIENT: OLIN CHEMICAL
LOCATION: CENTER OF GILL CREEK LOT

HOLE DESIGNATION: OBA-26B
DATE COMPLETED: MAY 10, 1999
DRILLING METHOD: HQ CORE/WET ROTARY
CRA SUPERVISOR: F. GARBE

DEPTH ft. BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft. AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE PID (ppm)
	GROUND SURFACE REFERENCE POINT (Top of Riser)	*570.5* *570.04*					
	ASPHALT PAVEMENT and BASE	*569.95*					
	ML/SM-SILT and SAND (FILL), intermixed with gravel, light brown						
-2.5							
	- dark brown to black silty clay and sand intermixed with coal/cinders/ash and occasional brick fragments, moist (fill)						
-5.0							
-7.5							
	- yellow-brown sandy clay, occasional black mottling, wet (fill)						
-10.0		*560.95*					
	DOLOSTONE (Lockport Formation): light to dark gray, fine to medium grained dolostone; occasional to numerous small solutional cavities, some with calcite infilling; occasional remnant fossils (Rugose corals) and remnant biostromes; numerous weathered fractures from from 16.1 to 16.9ft BGS						
-12.5							
-15.0							
-17.5							
-20.0							
-22.5	END OF HOLE @ 22.0ft BGS	*548.45*					
	NOTE: Lost water recirculation at 16.4ft BGS during HQ coring.						
-25.0							
-27.5							
-30.0							
-32.5							



NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼ STATIC WATER LEVEL ▼

New Wells East Property
GW Quality data June-99

	Units	Location ID: / Collection Date:	OBA-26A 06/02/99		OBA-26B 06/02/99		OBA-25B 06/02/99		OBA-25B 06/02/99		OBA-25A 06/02/99		OBA-24B 06/02/99	
Volatiles														
Benzene	mg/L		ND	1.0	ND	17		5.0	ND	5.0	ND	1.0		140
Carbon tetrachloride	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0	ND	1.0	ND	50
Chlorobenzene	mg/L		ND	1.0		160		21		19		1.1	ND	50
Chloromethane	mg/L		ND	2.0	ND	33	ND	10	ND	10	ND	2.0	ND	100
1,2-Dichlorobenzene	mg/L		ND	1.0		100	ND	5.0	ND	5.0	ND	1.0		94
1,3-Dichlorobenzene	mg/L		ND	1.0		78	ND	5.0	ND	5.0	ND	1.0	ND	50
1,4-Dichlorobenzene	mg/L		ND	1.0		200		11		12	ND	1.0		88
1,1-Dichloroethene	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0	ND	1.0	ND	50
cis-1,2-Dichloroethene	mg/L			2.2		100	ND	5.0	ND	5.0		3.7		660
trans-1,2-Dichloroethene	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0	ND	1.0	ND	50
Methylene chloride	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0	ND	1.0	ND	50
1,1,2,2-Tetrachloroethane	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0	ND	1.0	ND	50
Tetrachloroethene	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0		1.1		170
1,2,4-Trichlorobenzene	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0	ND	1.0		340
1,1,1-Trichloroethane	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0	ND	1.0	ND	50
1,1,2-Trichloroethane	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0	ND	1.0	ND	50
Trichloroethene	mg/L		ND	1.0	ND	17	ND	5.0	ND	5.0		2.8		530
Vinyl chloride	mg/L		ND	2.0		190	ND	10	ND	10	ND	2.0		120
2-Hexanone	mg/L		ND			74		83		89	ND		ND	

Notes:
Dup. Field Duplicate.
ND Non-detect at associated value.

Olin

P.O. BOX 248, 1186 LOWER RIVER ROAD, NW, CHARLESTON, TN 37310-0248
(423) 336-4000 FAX: (423) 336-4183

October 4, 1999

Mr. William Wertz
New York State Dept. of Environmental. Conservation
Division of Solid Waste Management
50 Wolf Road
Albany, New York 12233

re: Monitoring Program: Olin Chemicals
Buffalo Ave. Facility, Niagara Falls, NY

Dear Mr. Wertz:

This is to request a modification in the current monitoring program for Olin's Niagara Falls Facility, currently being implemented to verify the effectiveness of our active remediation system.

The remedial system will have been online for two years as of December, 1999. As we approach the two years on-line timeframe, we look back at the first two years of operation. In that timeframe, we have the system running under control, and, while there are maintenance issues, there are no maintenance surprises. The system is being run on a routine basis with routine maintenance and occasional trouble-shooting. Hydraulic capture has been achieved. Our groundwater monitoring data have given us a good characterization of the groundwater quality.

Having achieved an operational status in which the system runs routinely and well, Olin believes that, at this time, it is appropriate to request a modification of some monitoring tasks, as performed over the first two years of operation.

Olin requests that, beginning in the first quarter of yr2000, the frequency of piezometric monitoring be reduced from monthly to quarterly. If this request is granted, we will provide control of capture effectiveness, during the two months per quarter in which full piezometric data are not taken, by closely monitoring the drawdown target level in each recovery well via our automated OMNX system. This will ensure that the head level in each recovery well is kept at a level which has historically provided hydraulic capture, as measured by sitewide piezometric readings. Of course, the quarterly piezometric readings and plots will serve as a direct indicator of groundwater capture. We believe that we have reached a level of confidence in our system maintenance to produce higher flows on a consistent basis. Note that the installation of acid and Calsperse drip systems and the physical well cleaning in 1999 has enhanced the yield and total flows from the system. The table below summarizes the increases in system flow totals. The detailed well yield and flow data are included in each quarterly report.

Summary: Groundwater Volume Removed

Quarter	groundwater extracted gal	annual total gal
Startup/Q1-98 [est]	210,000	
Q2-98	1,175,799	
Q3-98	2,583,159	
Q4-98	4,054,996	8,023,954
Q1-99	4,233,521	
Q2-99	3,991,584	
Q3-99	5,219,207	
	year to date	13,444,312
TOTAL	**21,468,266**	

Olin requests that, beginning in the yr2000, the parameters barium, copper, cyanide, lead, zinc, methanol and the semivolatile compound trichlorophenol be removed from the analytical parameter list. This removal would be done with the understanding that, at such time as the remedial system approaches it's end point, these parameters may be re-instated to ensure full remediation compliance.

Results to date for all of these parameters are included on the attached diskette. As the data show, none of these parameters represents a significant portion of the contamination onsite.

- Trichlorophenol has been detected at only one well at 14 ug/l
- Methanol was detected in several wells upon system startup , but has not been detected since then.
- Barium has not been detected at levels greater than the MCL in any sample to date (total and dissolved).
- Copper has not been detected at levels greater than the MCL in any sample to date (total and dissolved).
- Cyanide has had 5 detected MCL exceedences in all samples to date, each of which were at or less than 1 mg/l.
- Lead (dissolved) has had 4 MCL exceedences in all samples to date, each of which were on the order of far less than one mg/l.
- Zinc (total and dissolved) has had one MCL exceedence in all samples to date.

We believe that the elimination of these parameters would not adversely affect the tracking of system effectiveness. Of course, Olin will continue to sample for the contaminants of primary concern: mercury, pesticides and volatile organic compounds.

We believe that we have made significant progress since system startup in running the remediation system efficiently and effectively. We will continue to improve the system and monitor its effectiveness. Kindly respond at your earliest convenience, so that we may plan our monitoring program for the year 2000.

Please direct any questions or comments to me at 423/336-4587. Thank you.

Sincerely,

Michael J. Bellotti

Michael J. Bellotti

OLIN CORPORATION