



Infrastructure, buildings, environment, communications

Pamela Mylotta
Bureau of Remediation and Redevelopment
Department of Natural Resources
2300 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin 53212

Subject:
Remedial Activities Progress Report and Work Plan for Supplemental Remediation,
Former Norge Village Cleaners/Norman Getz Property, 6854 West Beloit Road,
West Allis, Wisconsin, BRRTS# 02-41-271535

Dear Ms. Mylotta:

The purpose of this letter is to provide you with a summary of the results of remedial activities that have been performed to date at the Former Norge Village Cleaners (Norman Getz) property (the Site). ARCADIS is proceeding with remedial actions in accordance with the "Addendum to Alternative Proposal for Site Remediation Services" dated January 15, 2003, and approved by the Wisconsin Department of Natural Resources (WDNR) in February 2003.

A summary of the remedial excavation and groundwater sample results collected through March 2005 is presented below. Based on a review of the analytical results, the carbon injections have been successful at reducing the concentration of tetrachloroethene (PCE) in groundwater. ARCADIS recommends the completion of additional injection events with concurrent groundwater monitoring to allow the reductive dechlorination process to continue toward completion. Therefore, a work plan and cost estimate for the recommended supplemental remediation activities is also presented herein.

Status of Remediation Activities

Remediation activities were initiated at the subject site in May 2003. A groundwater remediation pilot study was conducted between May and December 2003. The results of the pilot study were summarized in a letter submitted to the WDNR on January 26, 2004. The pilot study confirmed that the proposed groundwater remediation strategy using enhanced biodegradation was a feasible remedial strategy.

ARCADIS G&M Inc
126 North Jefferson Street
Suite 400
Milwaukee
Wisconsin 53202
Tel 414 276 7742
Fax 414 276 7603

ENVIRONMENT

Date:
8 June 2005

Contacts
Jim Bannantine
Mike Maierle

Phone:
414 276 7742

Email:
jbannantine@arcadis-us.com

Rec'd WDNR/SER
06/08/05
EIO 241287200
Action: 112

ARCADIS

Soil Excavation

Following completion of the pilot study, approximately 650 tons of PCE-impacted soil was excavated from two areas beneath the Site building in February and March, 2004. The purpose of the soil excavation was to remove the most highly impacted soils to protect human health and remove the source area for continuing groundwater impact. Prior to backfilling the soil excavations, ARCADIS collected soil confirmation samples from the base and sidewalls of each excavation area. The soil excavation areas, sampling locations, and PCE confirmation results are summarized on Figure 1. ARCADIS estimates approximately 30 to 35 pounds of PCE were removed from beneath the building as a result of the soil excavation activities. Residual PCE soil concentrations ranged from 11,000 micrograms per kilogram ($\mu\text{g}/\text{kg}$) to 24,400 $\mu\text{g}/\text{kg}$ in Excavation Area 1, and from 51 to 964 $\mu\text{g}/\text{kg}$ in Excavation Area 2. The soil confirmation results are summarized in Table 1.

During the soil backfilling activities, ARCADIS installed an injection gallery at the base of Excavation Area 1 to provide a delivery system for the carbon amendment solution beneath the building. The injection gallery consisted of sections of slotted horizontal piping that were laid at the base of the excavation, as shown on Figure 1. The horizontal piping was then plumbed to vertical injection ports that extended to the surface to provide access to the injection gallery once the excavation was backfilled. In addition, a passive soil vapor collection system was installed within the excavation beneath the concrete slab of the building. The vent system piping was connected to a passive wind turbine and discharges to the outside of the building to facilitate the removal of potential vapors from beneath the building.

Injection Activities

Enhanced biodegradation is being utilized to address the groundwater constituents at the Site. Application of a carbon amendment solution was initiated at the property in March 2004 to stimulate the biodegradation of PCE and its daughter products to the innocuous end products ethene and ethane. As indicated above, an infiltration gallery and passive vent system were installed within the larger interior excavation (Area 1). In addition, 11 vertical injection wells were installed outside the building to treat groundwater impacts. The Site layout and the locations of all injection and monitoring wells are shown on Figure 2. Approximately 1,000 gallons of carbon amendment solution has been applied to the infiltration gallery and injection wells at 4 to 6 week intervals. Quarterly sampling has been conducted to evaluate the progress of remediation.

Table 2 presents a summary of the 12 injection activities that have been completed to date. The first injection event was completed on March 1, 2004, and the most recent injection event was completed in May 2005. During each injection event,

ARCADIS

approximately 10 to 50 gallons of a dilute solution of water and molasses was injected into each of the injection wells, and 350 to 600 gallons was injected into the injection gallery. As of May 10, 2005, approximately 11,000 gallons of solution have been injected via the injection gallery and wells during the injection events.

Analytical Results

Analytical results for the groundwater samples collected during the baseline monitoring (February 2004) and the subsequent groundwater sampling events are presented in Table 3, and a subset of the results are shown on Figure 3. Field measurements collected during the groundwater sampling events are also presented in Table 3.

Based on the analytical results, the enhanced biodegradation stimulated by the carbon amendment solution has been effective at reducing the concentration of PCE by over 90 percent (from 13,000 micrograms per liter [$\mu\text{g/L}$] to 960 $\mu\text{g/L}$) in Monitoring Well MW-3, which historically contained the highest levels of PCE. Concentrations of PCE in other impacted wells decreased approximately 99 percent in MW-2, and 98 percent in MW-11. As expected, the concentrations of PCE degradation products produced via dechlorination (trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, vinyl chloride, ethane, and ethene) have increased during the remediation activities. These compounds degrade sequentially as dechlorination occurs. The concentration of each degradation product should decrease as the previous compound in the sequence is depleted. Evidence of complete dechlorination is observed in the elevated concentrations of ethene and ethane. For example, in MW-3, the ethene concentration increased from a pre-remedial concentration of 2.6 $\mu\text{g/L}$ in September 2003 to 7,100 $\mu\text{g/L}$ in November 2004.

As the PCE concentrations have decreased, the cumulative concentration of total chlorinated volatile organic compound (CVOC) daughter products have increased over time, indicating that significant reductive dechlorination is occurring. The cumulative concentrations of CVOCs and ethene are shown on Figure 4 for select monitoring wells. As Figure 4 indicates, the cumulative CVOC and ethene concentrations (converted to micromoles per liter) exceed the initial PCE concentrations. The increase in total CVOC concentrations over time is due to significant desorption from the soil to the groundwater that typically occurs with the application of the carbon amendment solution. The desorption phenomena fosters remediation of sorbed-phase constituents as dissolution of the sorbed constituents occurs. The dissolved constituents then proceed through the reductive dechlorination process, ultimately producing the benign end-products ethene and ethane.

ARCADIS

Analytical results for monitoring wells located downgradient and sidegradient of the injection area have remained essentially unchanged. Chlorinated hydrocarbons have not been detected at the downgradient well (MW-9), the sidegradient wells (MW-5, MW-6, MW-7, and MW-8), or the piezometer (PZ-1). These wells continue to define the extent of impacts and suggest that the remediation activities have not caused a significant change in the downgradient plume margin.

Recommendations and Work Plan for Supplemental Remediation

Based on a review of the analytical results, the carbon injections have been successful at reducing PCE concentrations by over 90 percent in most wells. However, additional injection events will be needed to reduce the concentrations of PCE and degradation products to levels that can be managed through natural attenuation. ARCADIS recommends the completion of one additional year of injection events and supplemental groundwater monitoring. The following is a brief summary of the recommended supplemental remediation activities:

- Up to 12 enhanced biodegradation carbon applications will be completed to continue to drive reductive dechlorination to decrease the PCE mass and degradation products. These applications will be completed in accordance with the previous work plan and injection permit. The injection events are anticipated to be completed over the course of 14 to 18 months, assuming the events are conducted every 5 to 6 weeks. If the groundwater data indicates favorable conditions are achieved with fewer than 12 injection events, ARCADIS will discontinue the injection activities and proceed with post-remediation monitoring.
- Five quarters of groundwater monitoring will be completed concurrently with the injection activities. In addition to the five quarters of monitoring, supplemental sampling of total organic carbon (TOC) will be conducted periodically as needed. The supplemental TOC samples will be collected because the TOC concentration is a key indicator of efficient biodegradation. Once the injection activities are completed, 1 year of post remediation groundwater monitoring will be completed to demonstrate that the residual groundwater concentrations can be managed through natural attenuation.
- At least three of the protective well vaults sustained damage over the winter months and are in need of maintenance. Three wells will be repaired under this scope of work concurrent with the completion of other site work.
- ARCADIS will review the groundwater data on a regular basis to assess the status of the supplemental injection activities. In the event supplemental

ARCADIS

injection wells and/or monitoring wells are needed, ARCADIS will install, develop, and sample the additional wells as warranted.

- One annual report will be prepared at the end of the first year of the supplemental injection and monitoring events. A final remedial action and closure report will be prepared upon completion of the post-remediation groundwater monitoring.
- The injection gallery and all monitoring and injection wells will be abandoned in accordance with NR 141 upon completion of the remediation activities, after site closure is granted.

Estimated Cost

The estimated cost for completing the supplemental remediation scope of work outlined herein is \$95,675. Table 4 provides a summary of the estimated cost for each task. Please note that the unit rates are consistent with the rates provided in the initial scope of work dated January 15, 2003. The unit rates are provided in accordance with Chapter NR 169, Wis. Adm. Code.

Schedule

ARCADIS will implement the supplemental remediation activities upon receiving approval of the scope of work and budget from the WDNR. The next injection event would be scheduled for June 2005.

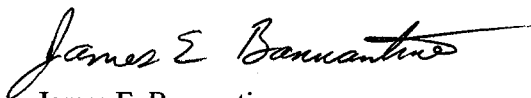
ARCADIS

Closing

We appreciate your assistance with this project. Should you have any questions regarding the enclosed information or require additional information, please call us at your convenience.

Sincerely,

ARCADIS G&M, Inc.



James E. Bannantine
Senior Hydrogeologist



Michael S. Maierle, PE
Area Manager

Copies:

Donald P. Gallo - Reinhart, Boerner, Van Deuren
Norman Getz
Kristi Johnson - City of West Allis

ARCADIS

Table 1. Summary of Soil Excavation Confirmation Analytical Results, Getz Property, West Allis, Wisconsin.

Boring	B-1	B-2	B-3	SW-1	SW-2	SW-4	SW-5	SW-6	SW-7	SW-8
Sample Depth	9'	9'	9'	5-6'	5-6'	5'	6'	5'	5'	7'
Sample Date	2/24/04	2/24/04	2/26/04	2/24/04	2/24/04	2/24/04	2/26/04	2/26/04	2/26/04	2/26/04
cis-1,2-Dichloroethylene	<28	<28	<29	<31	<33	<29	<30	<28	<29	<30
Tetrachloroethylene	16,900	16,900	51	11,800	14,600	24,400	170	964	956	143
Trichloroethylene	135	<28	<29	<31	41	<29	<30	<28	<29	<30

All results are in micrograms per kilogram ($\mu\text{g}/\text{kg}$).

ARCADIS

Table 2. Summary of Carbon Amendment Solution Injected Through May 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Date of Injection	Amount Injected (Gallons of Solution)												Infiltration Gallery	Total Gallons
	IW-1	IW-2	IW-3	IW-4	IW-5*	MW-10*	IW-6	IW-7	IW-8	IW-9	IW-10	IW-11		
3/1/04	50	50	3	17	9	0	50	20	21	22	16	16	657	931
3/25/04	46	44	50	51	40	0	49	48	43	50	45	47	503	1,016
4/22/04	30	30	50	71	50	0	75	50	78	64	50	50	347	945
5/20/04	39	40	50	76	50	0	75	45	76	75	38	36	438	1038
6/21/04	30	33	50	75	70	0	75	50	61	75	55	50	350	974
7/28/04	30	0	50	75	0	60	90	45	60	90	50	50	360	960
9/3/04	30	0	50	76	0	70	90	25	30	90	50	50	467	1,028
10/14/04	30	0	50	80	0	80	90	20	20	90	50	50	440	1,000
11/24/04	20	10	15	50	0	50	50	10	10	50	25	25	0	315
1/12/05	30	10	30	50	0	50	55	0	25	55	25	25	500	855
3/21/05	30	0 (buried)	30	50	0	31	50	30	0 (buried)	50	30	30	620	951
5/10/05	30	15	30	50	0	50	50	45	50	50	30	50	547	997
Totals	395	232	458	721	219	391	799	388	474	761	464	479	5,229	11,010

Not billed

* Due to concerns with the distribution of the molasses solution, Well MW-10 was converted to an injection well, and IW-5 converted to monitoring well in July 2004.

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Well Name Sample Date	NR 140		MW-1				MW-2			
	PAL	ES	2/2/04	5/19/04	8/17/04	10/29/04	2/3/04	3/22/04	4/21/04	5/18/04
VOC (µg/L)										
1,1-Dichloroethylene	0.7	7	<0.50	<0.50	<0.50	<0.50	<0.50	<80	<10	<5.0
1,2-Dichlorobenzene	60	600	<0.20	<0.20	<0.20	<0.20	1.4	<32	<4.0	<2.0
1,4-Dichlorobenzene	15	75	<0.20	<0.20	<0.20	<0.20	0.29	<32	<4.0	<2.0
Benzene	0.5	5	<0.20	<0.20	<0.20	<0.20	<0.20	<32	<4.0	<2.0
Chlorobenzene	NE	NE	<0.20	<0.20	<0.20	<0.20	0.7	<32	<4.0	<2.0
Chloroform	0.6	6	<0.20	<0.20	<0.20	<0.20	0.28	<32	<4.0	<2.0
Chloromethane	0.3	3	<0.20	<0.20	<0.20	<0.20	<0.20	<32	<4.0	<2.0
cis-1,2-Dichloroethylene	7	70	<0.50	<0.50	<0.50	<0.50	<100	<80	150	370
Isopropylbenzene	NE	NE	<0.20	<0.20	<0.20	<0.20	<0.20	<32	<4.0	<2.0
Methylene Chloride	0.5	5	<1.0	1.9 L	<1.0	<1.0	<1.0	<160	<20	<10
Methyl-t-butyl ether	12	60	<0.50	<0.50	<0.50	<0.50	<0.50	<80	<10	<5.0
Naphthalene	8	40	<0.25	<0.25	<0.25	<0.25	<0.25	83	7	2.9
n-Propylbenzene	NE	NE	<0.50	<0.50	<0.50	<0.50	<0.50	<80	<10	<5.0
sec-Butylbenzene	NE	NE	<0.25	<0.25	<0.25	<0.25	<0.25	<40	<5.0	3.6
Tetrachloroethylene	0.5	5	<0.50	<0.50	<0.50	<0.50	30,000	7,100	970	160
Toluene	200	1,000	<0.20	<0.20	<0.20	<0.20	0.24	<32	<4.0	<2.0
trans-1,2-Dichloroethylene	20	100	<0.50	<0.50	<0.50	<0.50	<0.50	<80	<10	7.5
Trichloroethylene	0.5	5	<0.20	<0.20	<0.20	<0.20	7.7	<32	190	290
Trimethylbenzenes (Total)	96	480	<0.4	<0.4	<0.4	<0.4	<0.4	99	<8	9.9
Vinyl Chloride	0.02	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<32	<4.0	<2.0
Xylenes, Total	1,000	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	120	<10	<5.0
Total Organic Carbon (mg/L)	NE	NE	1.9 B	NA	NA	NA	3.0 B	41	9.3 M	10 M
Dissolved Gases										
Ethane (ng/L)	NE	NE	<5	NA	NA	NA	<5	88	100	35
Ethene (ng/L)	NE	NE	<5	NA	NA	NA	<5	180	120	1,100
Methane (µg/L)	NE	NE	0.27	NA	NA	NA	0.29	3.6	6	11
Field Parameters										
Dissolved Oxygen (mg/L)	NE	NE	4.52	6.57	5.21	NA	3.06	2.53	0.05	0.02
ORP (mV)	NE	NE	165.1	200	49.2	NA	135.9	47.8	-175.5	-86.4
pH	NE	NE	6.8	6.74	6.71	NA	7.06	6.93	6.76	6.51
Specific Conductance (uS/cm)	NE	NE	4,510	4,577	4,662	NA	1,184	945	1,212	1,444
Temperature (C)	NE	NE	11.28	11.32	15.64	NA	11.21	9.96	9.56	10.35

Footnotes on Page 9.

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Well Name	MW-2 (continued)				MW-3					
	8/16/04	10/14/04	11/17/04	3/2/05	9/4/03	12/3/03	2/3/04	3/22/04	4/21/04	5/19/04
VOC (µg/L)										
1,1-Dichloroethylene	6.7	NA	<160	<250	<50	<160	25	<160	<120	<120
1,2-Dichlorobenzene	<1.6	NA	<64	<100	<25	<64	<0.20	<64	<50	<50
1,4-Dichlorobenzene	<1.6	NA	<64	<100	<25	<64	<0.20	<64	<50	<50
Benzene	<1.6	NA	<64	<100	<25	<64	<0.20	<64	<50	<50
Chlorobenzene	<1.6	NA	<64	<100	<25	<64	<0.20	<64	<50	<50
Chloroform	<1.6	NA	<64	<100	<25	<64	<0.20	<64	<50	<50
Chloromethane	<1.6	NA	<64	<100	<25	<64	<0.20	<64	<0.20	<50
cis-1,2-Dichloroethylene	20,000	NA	33,000	65,000	230	24,000	24,000	19,000	19,000	34,000
Isopropylbenzene	<1.6	NA	<64	<100	<25	<64	<0.20	<64	<50	<50
Methylene Chloride	16 L	NA	<320	<500	<100	<320	<1.0	<320	<250	<250
Methyl-t-butyl ether	<4.0	NA	<160	<250	<50	<160	<0.50	<160	<120	<120
Naphthalene	2.2	NA	<80	<120	<25	<80	<0.25	<80	<62	88
n-Propylbenzene	<4.0	NA	<160	<250	<50	<160	<0.50	<160	<120	<120
sec-Butylbenzene	<2.0	NA	<80	<120	<25	<80	<0.25	<80	<62	<62
Tetrachloroethylene	28	NA	<160	<250	13,000	2,900	4,800	5,900	8,600	6,700
Toluene	<1.6	NA	<64	<100	<25	<64	<0.20	<64	<50	<50
trans-1,2-Dichloroethylene	190	NA	370	740	<50	610	300	200	260	450
Trichloroethylene	16	NA	<64	<100	100	2,200	750	1,000	620	650
Trimethylbenzenes (Total)	<3.2	NA	<128	<200	<50	<128	<0.4	<128	<100	140
Vinyl Chloride	350	NA	3,800	3,000	<25	<64	640	1,200	780	380
Xylenes, Total	<4.0	NA	<160	<250	<50	<160	<0.50	<160	<120	<120
Total Organic Carbon (mg/L)	74	280	340	74	1.6	NA	7.1 B	460	230	250
Dissolved Gases										
Ethane (ng/L)	160	NA	330	NA	3,200	1,600	3,800	6,600	4,300	23,000
Ethene (ng/L)	78,000	NA	500,000	NA	2,600	3,800	28,000	84,000	220,000	1,600,000
Methane (µg/L)	74	NA	980	NA	0.75	81	420	870	630	2,600
Field Parameters										
Dissolved Oxygen (mg/L)	0.12	NA	0.64	0.26	0.08	NM	1.21	2.68	0.13	0.03
ORP (mV)	-145.7	NA	-89.1	-88.3	-34	-304.7	-176.6	-108.9	-146.4	-96.9
pH	6.65	NA	6.35	6.39	6.95	6.46	6.72	6.24	6.5	6.66
Specific Conductance (uS/cm)	1,508	NA	2,137	649	8,269	5,937	6,419	7,078	6,957	6,547
Temperature (C)	15.19	NA	14.69	9.45	14.7	13.11	10.98	6.6	8.89	9.69

Footnotes on Page 9.

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Well Name	MW-3 (continued)				MW-4					
	8/17/04	10/14/04	11/17/04	3/11/05	9/4/03	12/3/03	2/4/04	2/4/04 (dup)	3/23/04	5/19/04
VOC (µg/L)										
1,1-Dichloroethylene	<400	NA	<400	<250	<0.50	<0.50	<0.50	<0.50	<0.50	11
1,2-Dichlorobenzene	<160	NA	<160	<100	<0.25	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	<160	NA	<160	<100	<0.25	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	<160	NA	<160	<100	<0.25	0.58	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	<160	NA	<160	<100	<0.25	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	<160	NA	<160	<100	<0.25	<0.20	<0.20	<0.20	<0.20	<0.20
Chloromethane	<160	NA	<160	<100	<0.25	<0.20	<0.20	<0.20	<0.20	0.34
cis-1,2-Dichloroethylene	70,000	NA	25,000	120,000	0.72	0.74	1.9	2	1.4	21,000
Isopropylbenzene	<160	NA	<160	<100	<0.25	<0.20	<0.20	<0.20	<0.20	<0.20
Methylene Chloride	1,700 L	NA	<800	<500	1.5 L	<1.0	<1.0	<1.0	<1.0	6
Methyl-t-butyl ether	<400	NA	<400	<250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	230	NA	280	<120	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
n-Propylbenzene	<400	NA	<400	<250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
sec-Butylbenzene	<200	NA	<200	<120	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Tetrachloroethylene	<400	NA	<400	960	15	6.2	2.1	2.1	1.8	6.4
Toluene	<160	NA	<160	<100	<0.25	0.71	<0.20	<0.20	<0.20	<0.20
trans-1,2-Dichloroethylene	690	NA	490	560	<0.50	<0.50	0.79	<0.50	<0.50	260
Trichloroethylene	<160	NA	<160	350	0.47	0.44	2.7	0.66	0.44	24
Trimethylbenzenes (Total)	<320	NA	<320	<200	<0.5	<0.4	<0.4	<0.4	<0.4	0.32
Vinyl Chloride	17,000	NA	36,000	36,000	<0.25	<0.20	1.2	<0.20	<0.20	1
Xylenes, Total	<400	NA	<400	<250	<0.50	0.55	<0.50	<0.50	<0.50	<0.50
Total Organic Carbon (mg/L)	390	360	230	390 M	3.2	NA	6.6 B	NA	3.3	260
Dissolved Gases										
Ethane (ng/L)	7,700	NA	7,500	NA	14	68	<5	NA	62	16
Ethene (ng/L)	2,000,000	NA	7,100,000	NA	15	48	<5	NA	97	240
Methane (µg/L)	4,400	NA	5,600	NA	2.7	15	0.44	NA	2.4	12
Field Parameters										
Dissolved Oxygen (mg/L)	0.11	NA	1.26	0.3	0.05	0.31	5.23	NA	4.51	5.15
ORP (mV)	-61	NA	-136.6	-94.5	-116.2	-34	59.7	NA	120.2	178.3
pH	6.52	NA	7	6.51	7.13	7.24	7.04	NA	7.12	6.68
Specific Conductance (uS/cm)	4,157	NA	3,127	949	1,065	1,028	1,008	NA	1,019	1,614
Temperature (C)	15.97	NA	14.84	8.49	13.61	12.88	10.6	NA	8.54	10.02

Footnotes on Page 9.

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Well Name Sample Date	MW-4 (continued)				MW-5	MW-6			
	5/19/04 (dup)	6/21/04	8/17/04	11/18/04	10/29/04	2/2/04	5/19/04	8/17/04	10/29/04
VOC (µg/L)									
1,1-Dichloroethylene	<20	<80	<25	<25	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	<8.0	<32	<10	<10	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	<8.0	<32	<10	<10	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	<8.0	<32	<10	<10	5.3	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	<8.0	<32	<10	<10	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	<8.0	<32	<10	<10	<0.20	<0.20	<0.20	<0.20	<0.20
Chloromethane	13	<32	<10	<10	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,2-Dichloroethylene	20,000	10,000	3,100	1,200	<0.50	<0.50	<0.50	<0.50	<0.50
Isopropylbenzene	<8.0	<32	<10	<10	2.5	<0.20	<0.20	<0.20	<0.20
Methylene Chloride	<40	<160	<50	<50	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl-t-butyl ether	<20	<80	<25	<25	2.6	<0.50	<0.50	<0.50	<0.50
Naphthalene	<10	<40	46	<12	<0.25	<0.25	<0.25	<0.25	<0.25
n-Propylbenzene	<20	<80	<25	<25	1.7	<0.50	<0.50	<0.50	<0.50
sec-Butylbenzene	<10	<40	<12	<12	0.87	<0.25	<0.25	<0.25	<0.25
Tetrachloroethylene	<20	<80	<25	<25	<0.50	<0.50	0.52	<0.50	<0.50
Toluene	<8.0	<32	<10	<10	<0.20	<0.20	<0.20	<0.20	<0.20
trans-1,2-Dichloroethylene	240	120	62	30	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	30	<32	<10	<10	<0.20	0.51	<0.20	<0.20	<0.20
Trimethylbenzenes (Total)	<16	<64	<20	<20	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl Chloride	<8.0	<32	77	42	<0.20	0.22	<0.20	<0.20	<0.20
Xylenes, Total	<20	<80	<25	<25	<0.50	<0.50	<0.50	<0.50	<0.50
Total Organic Carbon (mg/L)	NA	220	24	7.3	NA	3.3 B	NA	NA	NA
Dissolved Gases									
Ethane (ng/L)	NA	NA	32	120	NA	5.7	NA	NA	NA
Ethene (ng/L)	NA	NA	42,000	100,000	NA	<5	NA	NA	NA
Methane (µg/L)	NA	NA	350	550	NA	0.52	NA	NA	NA
Field Parameters									
Dissolved Oxygen (mg/L)	NA	3.75	1.1	1.28	NA	4.59	6.71	4.16	NA
ORP (mV)	NA	28.8	-59.3	-63.8	NA	152.6	214.6	86.5	NA
pH	NA	6.78	6.85	7.96	NA	6.97	6.89	6.82	NA
Specific Conductance (uS/cm)	NA	1,087	1,102	372	NA	2,077	2,821	2,490	NA
Temperature (C)	NA	11.29	13.42	13.1	NA	11.11	10.83	13.47	NA

Footnotes on Page 9.

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Well Name Sample Date	MW-7				MW-8				MW-9	
	2/2/04	5/19/04	8/17/04	11/18/04	2/2/04	5/19/04	8/17/04	11/18/04	2/3/04	3/23/04
VOC (µg/L)										
1,1-Dichloroethylene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloromethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,2-Dichloroethylene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Isopropylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methylene Chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl-t-butyl ether	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
n-Propylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
sec-Butylbenzene	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Tetrachloroethylene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	<0.20	<0.20	<0.20	0.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
trans-1,2-Dichloroethylene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	0.32	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trimethylbenzenes (Total)	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl Chloride	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Organic Carbon (mg/L)	3.4 B	4.4 M	4.4 M	NA	2.9 B	NA	NA	NA	4.3 B	4.9 M
Dissolved Gases										
Ethane (ng/L)	7.8	5	27	NA	<5	NA	NA	NA	<5	34
Ethene (ng/L)	<5	15	<5	NA	<5	NA	NA	NA	<5	200
Methane (µg/L)	0.64	0.49	1.7	NA	0.62	NA	NA	NA	0.47	2.5
Field Parameters										
Dissolved Oxygen (mg/L)	3.38	8	5.31	1.37	3.81	7.92	6.05	0.93	4.63	8.69
ORP (mV)	-185.8	163.9	87.4	139.1	-134.7	177.3	90.4	194.6	157.7	117
pH	6.67	6.62	6.61	5.42	7.24	7.12	7.04	4.38	7.02	6.83
Specific Conductance (uS/cm)	6,325	7,281	7,127	5,441	1,215	1,533	1,348	1,259	2,571	2,544
Temperature (C)	10.94	11.02	16.43	15.95	11.72	12.02	16.1	16.66	10.79	9.59

Footnotes on Page 9.

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Well Name Sample Date	MW-9 (continued)				MW-10					MW-11	
	4/21/04	5/19/04	8/17/04	11/18/04	2/4/04	3/23/04	4/21/04	5/19/04	6/21/04	2/27/04	3/22/04
VOC (µg/L)											
1,1-Dichloroethylene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<2.0	<2.0	0.64	<0.50
1,2-Dichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	<0.20	<0.20
1,4-Dichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	<0.20	<0.20
Benzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	<0.20	<0.20
Chlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	<0.20	<0.20
Chloroform	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	<0.20	<0.20
Chloromethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	<0.20	<0.20
cis-1,2-Dichloroethylene	<0.50	<0.50	<0.50	<0.50	2.2	2.8	<20	<2.0	<2.0	1,600	740
Isopropylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	<0.20	<0.20
Methylene Chloride	<1.0	2.4 L	<1.0	<1.0	<1.0	<1.0	<40	<4.0	<4.0	<1.0	<1.0
Methyl-t-butyl ether	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<2.0	<2.0	<0.50	<0.50
Naphthalene	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<10	<1.0	<1.0	<0.25	<0.25
n-Propylbenzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<2.0	<2.0	<0.50	<0.50
sec-Butylbenzene	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<10	<1.0	<1.0	<0.25	<0.25
Tetrachloroethylene	<0.50	<0.50	<0.50	<0.50	96	300	1,700	190	530	5,200	1,600
Toluene	<0.20	0.22	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	0.35	<0.20
trans-1,2-Dichloroethylene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<2.0	<2.0	8.6	6.3
Trichloroethylene	<0.20	<0.20	<0.20	<0.20	2	2.3	8.4	2.7	2.3	170	110
Trimethylbenzenes (Total)	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<16	<1.6	<1.6	0.22	<0.4
Vinyl Chloride	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<8.0	<0.80	<0.80	32	16
Xylenes, Total	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<2.0	<2.0	<0.50	<0.50
Total Organic Carbon (mg/L)	6.5 M	11 M	8.2 M	7.7 M	2.0 B	1.4 M	1.7 M	1.1	1.7 M	1.6 M	1.8 M
Dissolved Gases											
Ethane (ng/L)	13	5	<5	14	15	44	8.8	5	NA	48	94
Ethene (ng/L)	100	6.6	88	1400	8.8	60	30	13	NA	510	260
Methane (µg/L)	1.1	0.34	0.71	4.2	0.36	1.7	0.58	0.41	NA	3.1	3.6
Field Parameters											
Dissolved Oxygen (mg/L)	5.84	7.83	5.68	1.39	5.15	9.82	7.36	4.26	7.79	4.82	4.95
ORP (mV)	38.6	202.4	110.7	155.1	104.2	166.1	53.8	204.7	330.1	208.4	181.3
pH	7.05	6.96	6.86	4.92	6.98	6.82	7.1	7.18	7.23	7.33	7.04
Specific Conductance (uS/cm)	2,508	2,477	2,545	2,069	4,177	3,984	2,378	1,241	336	6,018	5,847
Temperature (C)	10.77	11.85	15.98	16.54	10.29	9.11	9.81	11.5	13.22	9.86	9.2

Footnotes on Page 9.

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Well Name Sample Date	MW-11 (continued)						PZ-1				
	4/21/04	5/18/04	6/17/04	8/17/04	11/17/04	3/2/05	2/4/04	3/23/04	5/19/04	8/17/04	11/18/04
VOC (µg/L)											
1,1-Dichloroethylene	<50	<50	<1000	<200 P	<250	<100	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	<20	<20	<400	<80 P	<100	<40	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	<20	<20	<400	<80 P	<100	<40	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	<20	<20	<400	<80 P	<100	<40	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	<20	<20	<400	<80 P	<100	<40	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	<20	<20	<400	<80 P	<100	<40	<0.20	<0.20	<0.20	<0.20	<0.20
Chloromethane	<20	<20	<400	<80 P	<100	<40	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,2-Dichloroethylene	6,100	87,000	86,000	28,000 P	110,000	8,300	<0.50	<0.50	<0.50	<0.50	<0.50
Isopropylbenzene	<20	<20	<400	<80 P	<100	<40	<0.20	<0.20	<0.20	<0.20	<0.20
Methylene Chloride	<100	<100	<2000	<400 P	<500	<200	<1.0	<1.0	1.5 L	<1.0	<1.0
Methyl-t-butyl ether	<50	<50	<1000	<200 P	<250	<100	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	<25	<25	<500	<100 P	<120	<50	<0.25	<0.25	<0.25	<0.25	<0.25
n-Propylbenzene	<50	<50	<1000	<200 P	<250	<100	<0.50	<0.50	<0.50	<0.50	<0.50
sec-Butylbenzene	<25	<25	<500	<100 P	<120	<50	<0.25	<0.25	<0.25	<0.25	<0.25
Tetrachloroethylene	2,300	<50	<1000	<200 P	<250	<100	2.4	<0.50	<0.50	<0.50	<0.50
Toluene	<20	<20	<400	<80 P	<100	<40	<0.20	0.34	<0.20	<0.20	0.3
trans-1,2-Dichloroethylene	<50	490	1,600	<200 P	600	<100	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	350	280	<400	350 P	<100	<40	<0.20	<0.20	<0.20	<0.20	<0.20
Trimethylbenzenes (Total)	<40	<40	<800	<160 P	<200	<80	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl Chloride	43	150	<400	100 P	20,000	11,000	<0.20	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	<50	<50	<1000	<200 P	<250	<100	<0.50	<0.50	<0.50	<0.50	<0.50
Total Organic Carbon (mg/L)	20 M	420	540	2,400	2,400	150 M	7.4 B	5.8	NA	NA	NA
Dissolved Gases											
Ethane (ng/L)	420	1,200	NA	850	2,500	NA	<5	41	NA	NA	NA
Ethene (ng/L)	2,300	17,000	NA	33,000	1,200,000	NA	<5	59	NA	NA	NA
Methane (µg/L)	33	53	NA	400	1,900	NA	0.18	1.6	NA	NA	NA
Field Parameters											
Dissolved Oxygen (mg/L)	0.1	0.07	0.05	0.11	1.1	0.19	4.83	5.83	6.55	1.19	3.85
ORP (mV)	-286	-473.8	-236.9	-99.4	-37.6	-122.2	45.9	79.2	169.4	-49.4	-47.8
pH	6.69	6.07	5.99	5.49	5.76	6.21	7.84	7.97	7.99	7.9	7.46
Specific Conductance (uS/cm)	5,373	5,261	4,990	7,332	4,390	5,043	365	406	409	436	373
Temperature (C)	8.83	10.1	11.49	15.3	15.3	8.67	13.14	12.53	13.47	12.97	12.82

Footnotes on Page 9.

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

Well Name	IW-4	IW-5			
Sample Date	2/27/04	8/17/04	10/14/04	11/18/04	3/2/05
VOC (µg/L)					
1,1-Dichloroethylene	<0.50	<1.0	NA	<1.0	<1.0
1,2-Dichlorobenzene	<0.20	<0.40	NA	<0.40	<0.40
1,4-Dichlorobenzene	<0.20	<0.40	NA	<0.40	<0.40
Benzene	<0.20	<0.40	NA	<0.40	<0.40
Chlorobenzene	<0.20	<0.40	NA	<0.40	<0.40
Chloroform	<0.20	<0.40	NA	<0.40	<0.40
Chloromethane	<0.20	<0.40	NA	<0.40	<0.40
cis-1,2-Dichloroethylene	0.58	130	NA	13	3.9
Isopropylbenzene	<0.20	<0.40	NA	<0.40	<0.40
Methylene Chloride	<1.0	2.4 L	NA	<2.0	<2.0
Methyl-t-butyl ether	<0.50	<1.0	NA	<1.0	<1.0
Naphthalene	<0.25	<0.50	NA	<0.50	<0.50
n-Propylbenzene	<0.50	<1.0	NA	<1.0	<1.0
sec-Butylbenzene	<0.25	<0.50	NA	<0.50	<0.50
Tetrachloroethylene	58	65	NA	4	75
Toluene	<0.20	<0.40	NA	<0.40	<0.40
trans-1,2-Dichloroethylene	<0.50	<1.0	NA	<1.0	<1.0
Trichloroethylene	0.9	12	NA	1.3	3
Trimethylbenzenes (Total)	<0.4	<0.8	NA	<0.8	<0.8
Vinyl Chloride	<0.20	<0.40	NA	4.4	2.2
Xylenes, Total	<0.50	<1.0	NA	<1.0	<1.0
Total Organic Carbon (mg/L)	2.5	16	240	160	2.7 M
Dissolved Gases					
Ethane (ng/L)	19	<5	NA	77	NA
Ethene (ng/L)	36	65	NA	2,700	NA
Methane (µg/L)	1.1	110	NA	16,000	NA
Field Parameters					
Dissolved Oxygen (mg/L)	NA	5.06	NA	0.1	0.53
ORP (mV)	NA	12.1	NA	-111.9	-89
pH	NA	6.82	NA	6.14	6.44
Specific Conductance (uS/cm)	NA	911	NA	2,225	708
Temperature (C)	NA	15.68	NA	14.81	10.25

Footnotes on Page 9.

ARCADIS

Table 3. Summary of Groundwater Analytical Results through March 2005, Former Norge Village Cleaners, West Allis, Wisconsin.

100	Concentration exceeds the NR 140 Enforcement Standard (ES).
100	Concentration exceeds the NR 140 Preventive Action Limit (PAL).
B	Blank is contaminated.
C	Celsius.
L	Common lab solvent and contaminant.
M	Matrix interference.
mV	Millivolts.
mg/L	Milligrams per liter.
µg/L	Micrograms per liter.
µS/cm	Microsiemens per centimeter.
NA	Not analyzed.
NE	Not established.
ng/L	Nanograms per liter.
Q	Result is between the limit of detection and the limit of quantitation.
VOCs	Volatile organic compounds.

**Table 4. Cost Estimate for Supplemental Remediation Services, Former Norge Village Cleaners,
6854 West Beloit Road, West Allis, Wisconsin.**

ARCADIS Services

Carbon Amendment Solution Injections (12 Events)

Scientist II	120	Hrs	@	\$78 /Hr	\$9,360
Project Scientist	24	Hrs	@	\$110 /Hr	\$2,640
Senior Engineer I	12	Hrs	@	\$125 /Hr	\$1,500
Equipment and Expenses					\$12,000
					Subtotal \$25,500

Remediation Groundwater Monitoring (5 Quarterly Events)

(5 wells four quarters, 9 wells one quarter)

Scientist II	90	Hrs	@	\$78 /Hr	\$7,020
Project Scientist	25	Hrs	@	\$110 /Hr	\$2,750
Senior Engineer I	5	Hrs	@	\$125 /Hr	\$625
Project Assistant	10	Hrs	@	\$62 /Hr	\$620
Equipment and Expenses					\$3,500
					Subtotal \$14,515

Post Remediation Groundwater Monitoring (4 Quarterly Events)

Scientist II	72	Hrs	@	\$78 /Hr	\$5,616
Project Scientist	20	Hrs	@	\$110 /Hr	\$2,200
Senior Engineer I	4	Hrs	@	\$125 /Hr	\$500
Project Assistant	8	Hrs	@	\$62 /Hr	\$496
Equipment and Expenses					\$2,800
					Subtotal \$11,612

Supplemental Well Installation/Development/Sampling

(2 wells, four semi-annual events)

Scientist II	40	Hrs	@	\$78 /Hr	\$3,120
Project Scientist	4	Hrs	@	\$110 /Hr	\$440
Equipment and Expenses					\$700
					Subtotal \$4,260

Annual O&M Project Status Report

Project Scientist	20	Hrs	@	\$110 /Hr	\$2,200
Senior Engineer I	4	Hrs	@	\$125 /Hr	\$500
Project Assistant	4	Hrs	@	\$62 /Hr	\$248
Draftsperson	6	Hrs	@	\$62 /Hr	\$372
					Subtotal \$3,320

Final Status Report/Closure Document Preparation

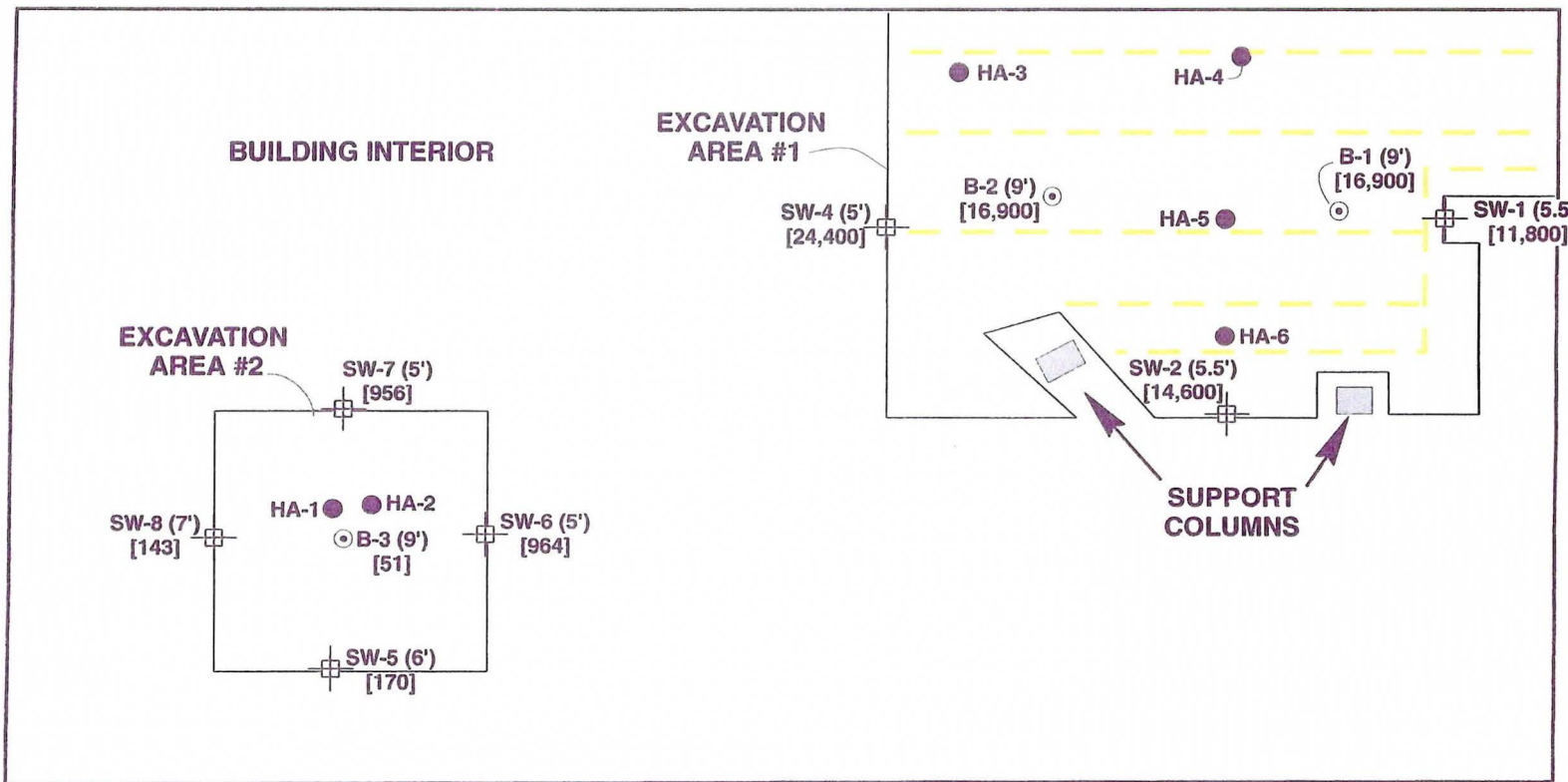
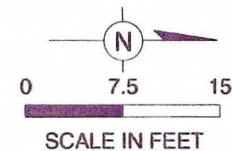
Scientist II	20	Hrs	@	\$78 /Hr	\$1,560
Project Scientist	40	Hrs	@	\$110 /Hr	\$4,400
Senior Engineer I	8	Hrs	@	\$125 /Hr	\$1,000
Project Assistant	6	Hrs	@	\$62 /Hr	\$372
Draftsperson	8	Hrs	@	\$62 /Hr	\$496
DNR Fees**					\$1,200
					Subtotal \$9,028

Table 4. Cost Estimate for Supplemental Remediation Services, Former Norge Village Cleaners, 6854 West Beloit Road, West Allis, Wisconsin.

<u>Well and Injection Gallery Abandonment</u>						
Scientist II	16	Hrs	@	\$78 /Hr		\$1,248
Project Engineer	4	Hrs	@	\$110 /Hr		\$440
Senior Engineer I	1	Hrs	@	\$125 /Hr		\$125
					Subtotal	\$1,813
 <u>Project Management Activities</u> (budget management, client communication, project meetings)						
Project Scientist	24	Hrs	@	\$110 /Hr		\$2,640
Senior Engineer I	12	Hrs	@	\$125 /Hr		\$1,500
Project Assistant	6	Hrs	@	\$62 /Hr		\$372
					Subtotal	\$4,512
					<i>Subtotal, ARCADIS Services</i>	<u>\$74,560</u>
 Subcontractor Services						
<u>Groundwater Analytical Laboratory Services (9 sampling events)</u>						
Volatile organic compounds	61	samples	@	\$75 /each		\$4,575
Total organic carbon	76	samples	@	\$30 /each		\$2,280
Ethene, ethane, methane	61	samples	@	\$80 /each		\$4,880
QA/QC samples	9	samples	@	\$75 /each		\$675
					Subtotal	\$12,410
 <u>Monitoring Well/Injection Well Repair</u>						
Drill Rig Mobilization/Demob				Lump Sum		\$250
Well Vault Repair	3	Wells	@	\$225 /Well		\$675
					Subtotal	\$925
 <u>Supplemental Well Installation/Development</u>						
Mobilization/Demobilization				Lump Sum		\$250
Well Drilling/Installation	30	Feet	@	\$25 /foot		\$750
Flush Mount Covers	2	Wells	@	\$140 /each		\$280
Soil Drums	4	Drums	@	\$40 /each		\$160
Drum Disposal/Transport	4	Drums	@	\$110 /each		\$440
Decontamination				Lump Sum		\$200
					Subtotal	\$2,080
 <u>Well and Injection Gallery Abandonment</u>						
Mobilization/Demobilization				Lump Sum		\$250
Protective cover removal	20	Wells	@	\$75 /each		\$1,500
Well Abandonment	325	Feet	@	\$6 /foot		\$1,950
Gallery Abandonment				Lump Sum		\$2,000
					Subtotal	\$5,700
					<i>Subtotal, Subcontractor Services</i>	<u>\$21,115</u>
Total Estimated Cost for Supplemental Remediation						\$95,675

**Wisconsin Department of Natural Resource Fees are ineligible for reimbursement under the Dry Cleaner Environmental Response Fund (DERF).

SOUTH 69TH STREET



LEGEND

- PRE-REMEDIAL HAND AUGER BORING LOCATION [170] Tetrachloroethene (PCE) Soil Concentration (ug/kg) --- INJECTION GALLERY
- ⊠ (5') EXCAVATION SIDEWALL SAMPLE (DEPTH) No sidewall sample was collected from west sidewall of Excavation #1 because foundation wall extended to base of excavation.
- ⊙ (9') EXCAVATION BASE SAMPLE (DEPTH)



EXCAVATION SAMPLE LOCATIONS AND POST-REMEDIAL PCE SOIL CONCENTRATIONS

NORMAN GETZ PROPERTY
6854 W. BELOIT ROAD
WEST ALLIS, WISCONSIN

FIGURE

1

DRAFTER: LMB

APPROVED:

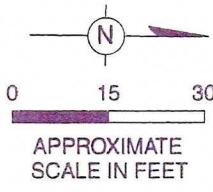
CHECKED: DMG

DRAWING: MW_IW.AI

FILE NO.: GRAPHICS

PN:REINHART\W1027\GETZ

DWG DATE: 13MAY05



FILIPPO'S RESTAURANT
6915 W. LINCOLN AVE.

KRUETER'S
6900 W. LINCOLN AVE.

SOUTH 69TH STREET

SOUTH 69TH STREET (60' R.O.W.)

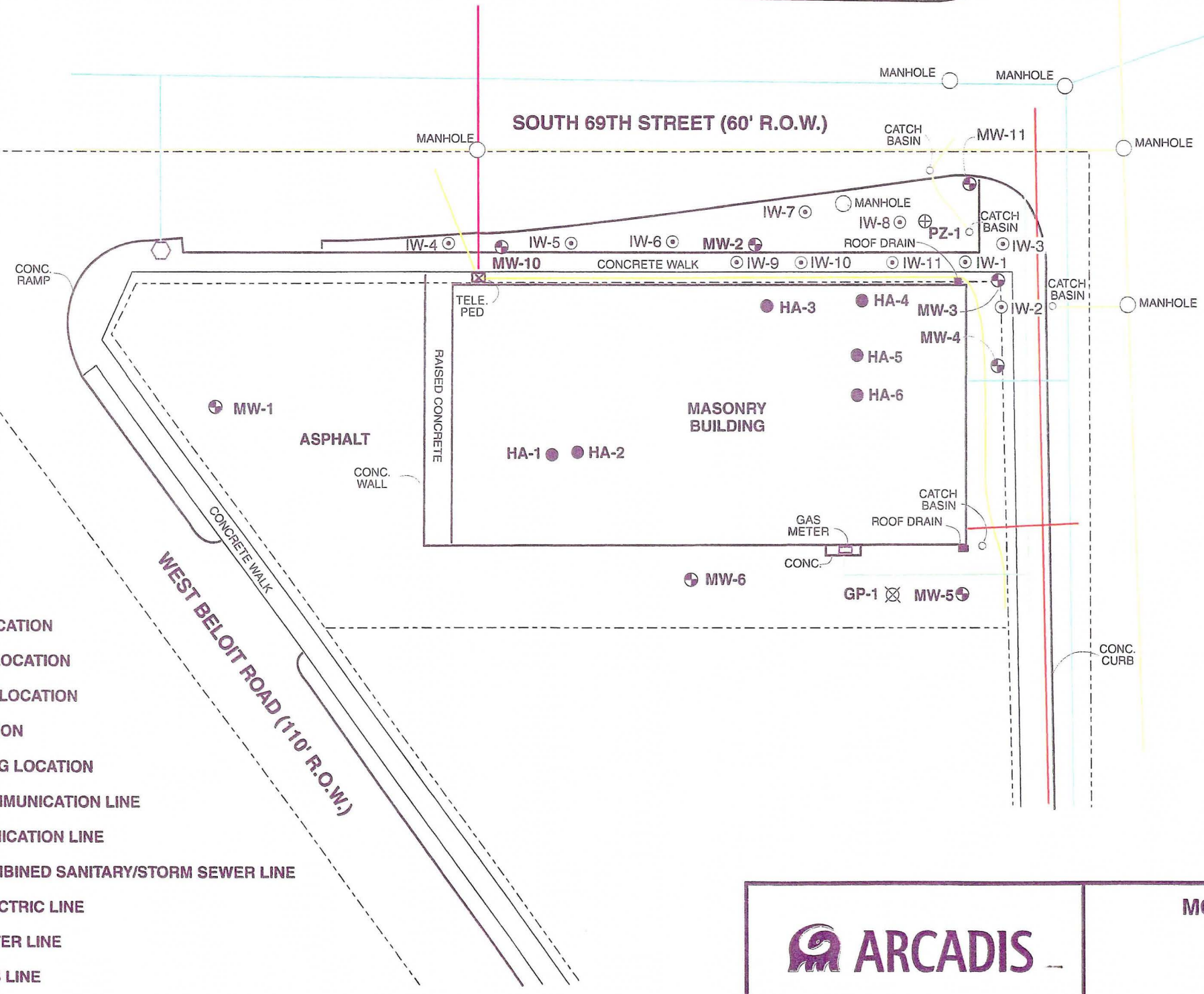
COLLECTORS EDGE
6854 W. LINCOLN AVE.

WEST LINCOLN AVENUE (VAR. R.O.W.)

WEST BELOIT ROAD (110' R.O.W.)

LEGEND

- ⊙ INJECTION WELL LOCATION
- ⊕ MONITORING WELL LOCATION
- ⊗ GEOPROBE BORING LOCATION
- ⊕ PIEZOMETER LOCATION
- HAND AUGER BORING LOCATION
- UNDERGROUND COMMUNICATION LINE
- OVERHEAD COMMUNICATION LINE
- UNDERGROUND COMBINED SANITARY/STORM SEWER LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND GAS LINE



MONITORING AND INJECTION
WELL LOCATIONS

NORMAN GETZ PROPERTY
6854 W. BELOIT ROAD
WEST ALLIS, WISCONSIN

FIGURE

2

DRAFTER: LMB

APPROVED:

CHECKED: DMG

DRAWING: VOC CON_0305.AI

FILE NO.: GRAPHICS

PN:REINHART\W11027\GETZ

DWG DATE: 23MAY05

MW-8		
	2/2/04	11/18/04
cis-DCE	<0.5	<0.5
trans-DCE	<0.5	<0.5
PCE	<0.5	<0.5
TCE	<0.2	<0.2
VC	<0.2	<0.2
Ethene	<5	NA

MW-3									
	9/4/03	12/3/03	2/3/04	3/22/04	4/21/04	5/19/04	8/17/04	11/17/04	3/11/05
cis-DCE	230	24,000	24,000	19,000	19,000	34,000	70,000	25,000	120,000
trans-DCE	<50	610	300	200	260	450	690	490	560
PCE	13,000	2,900	4,800	5,900	8,600	6,700	<400	<400	960
TCE	100	2,200	750	1,000	620	650	<160	<160	350
VC	<25	<64	640	1,200	780	380	17,000	36,000	36,000
Ethene	2,600	3,800	28,000	84,000	220,000	1,600,000	2,000,000	7,100,000	NA

KRUETER'S
6900 W. LINCOLN AVE.

MW-2							
	2/3/04	3/22/04	4/21/04	5/18/04	8/16/04	11/17/04	3/2/05
cis-DCE	<100	<80	150	370	20,000	33,000	65,000
trans-DCE	<0.50	<80	<10	7.5	190	370	740
PCE	30,000	7,100	970	160	28	<160	<250
TCE	7.7	<32	190	290	16	<64	<100
VC	<0.20	<32	<4.0	<2.0	350	3,800	3,000
Ethene	<5	180	120	1,100	78,000	500,000	NA

MW-7		
	2/2/04	11/18/04
cis-DCE	<0.5	<0.5
trans-DCE	<0.5	<0.5
PCE	<0.5	<0.5
TCE	0.32	<0.2
VC	<0.2	<0.2
Ethene	<5	NA

MW-11								
	2/27/04	3/22/04	4/21/04	5/18/04	6/17/04	8/17/04	11/17/04	3/2/05
cis-DCE	1,600	740	6,100	87,000	86,000	28,000	110,000	8,300
trans-DCE	8.6	6.3	<50	490	1,600	<200	600	<100
PCE	5,200	1,600	2,300	<50	<1,000	<200	<250	<100
TCE	170	110	350	280	<400	350	<100	<40
VC	32	16	43	150	<400	100	20,000	11,000
Ethene	510	260	2,300	17,000	NA	33,000	1,200,000	NA

COLLECTORS EDGE
6854 W. LINCOLN AVE.

MW-10					
	2/4/04	3/23/04	4/21/04	5/19/04	6/21/04
cis-DCE	2.2	2.8	<20	<2.0	<2.0
trans-DCE	<0.50	<0.50	<20	<2.0	<2.0
PCE	96	300	1700	190	530
TCE	2	2.3	8.4	2.7	2.3
VC	<0.20	<0.20	<8.0	<0.80	<0.80
Ethene	8.8	60	30	13	NA

IW-5			
	8/17/04	11/18/04	3/2/05
cis-DCE	130	13	3.9
trans-DCE	<1.0	<1.0	<1.0
PCE	65	4	75
TCE	12	1.3	3
VC	<0.40	4.4	2.2
Ethene	65	2,700	NA

PZ-1					
	2/4/04	3/23/04	5/19/04	8/17/04	11/18/04
cis-DCE	<0.50	<0.50	<0.50	<0.50	<0.50
trans-DCE	<0.50	<0.50	<0.50	<0.50	<0.50
PCE	2.4	<0.50	<0.50	<0.50	<0.50
TCE	<0.20	<0.20	<0.20	<0.20	<0.20
VC	<0.20	<0.20	<0.20	<0.20	<0.20

MW-9		
	2/3/04	11/18/04
cis-DCE	<0.5	<0.5
trans-DCE	<0.5	<0.5
PCE	<0.5	<0.5
TCE	<0.2	<0.2
VC	<0.2	<0.2
Ethene	<5	1,400

MW-1		
	2/2/04	10/29/04
cis-DCE	<0.5	<0.5
trans-DCE	<0.5	<0.5
PCE	<0.5	<0.5
TCE	<0.2	<0.2
VC	<0.2	<0.2
Ethene	<5	NA

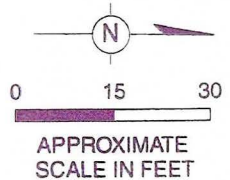
MW-6				
	2/2/04	5/19/04	8/17/04	10/29/04
cis-DCE	<0.5	<0.50	<0.50	<0.50
trans-DCE	<0.5	<0.50	<0.50	<0.50
PCE	<0.5	0.52	<0.50	<0.50
TCE	0.51	<0.20	<0.20	<0.20
VC	0.22	<0.20	<0.20	<0.20
Ethene	<5	NA	NA	NA

MW-4						
	2/4/04	3/23/04	5/19/04	6/21/04	8/17/04	11/18/04
cis-DCE	1.9	1.4	21,000	10,000	3,100	1,200
trans-DCE	0.79	<0.50	260	120	62	30
PCE	2.1	1.8	6.4	<80	<25	<25
TCE	2.7	0.44	24	<32	<10	<10
VC	1.2	<0.20	1	<32	77	42
Ethene	<5	97	240	NA	42,000	100,000

MW-5	
	10/29/04
cis-DCE	<0.50
trans-DCE	<0.50
PCE	<0.50
TCE	<0.20
VC	<0.20
Ethene	NA

- LEGEND**
- cis-DCE cis-1,2-Dichloroethene
 - trans-DCE trans-1,2-Dichloroethene
 - PCE Tetrachloroethene
 - TCE Trichloroethene
 - VC Vinyl Chloride
 - NA Not Analyzed
 - ⊕ MONITORING WELL LOCATION
 - ⊕ PIEZOMETER LOCATION
 - UNDERGROUND COMMUNICATION LINE
 - OVERHEAD COMMUNICATION LINE
 - UNDERGROUND COMBINED SANITARY/STORM SEWER LINE
 - UNDERGROUND ELECTRIC LINE
 - UNDERGROUND WATER LINE
 - UNDERGROUND GAS LINE
 - 1,070 CONCENTRATION EXCEEDS NR 140 ES
 - 1.25 CONCENTRATION EXCEEDS NR 140 PAL

Note: Pilot study injection near MW-3 occurred on November 7, 2003. Full scale injections were initiated on March 1, 2004. Baseline groundwater samples collected in February 2004.



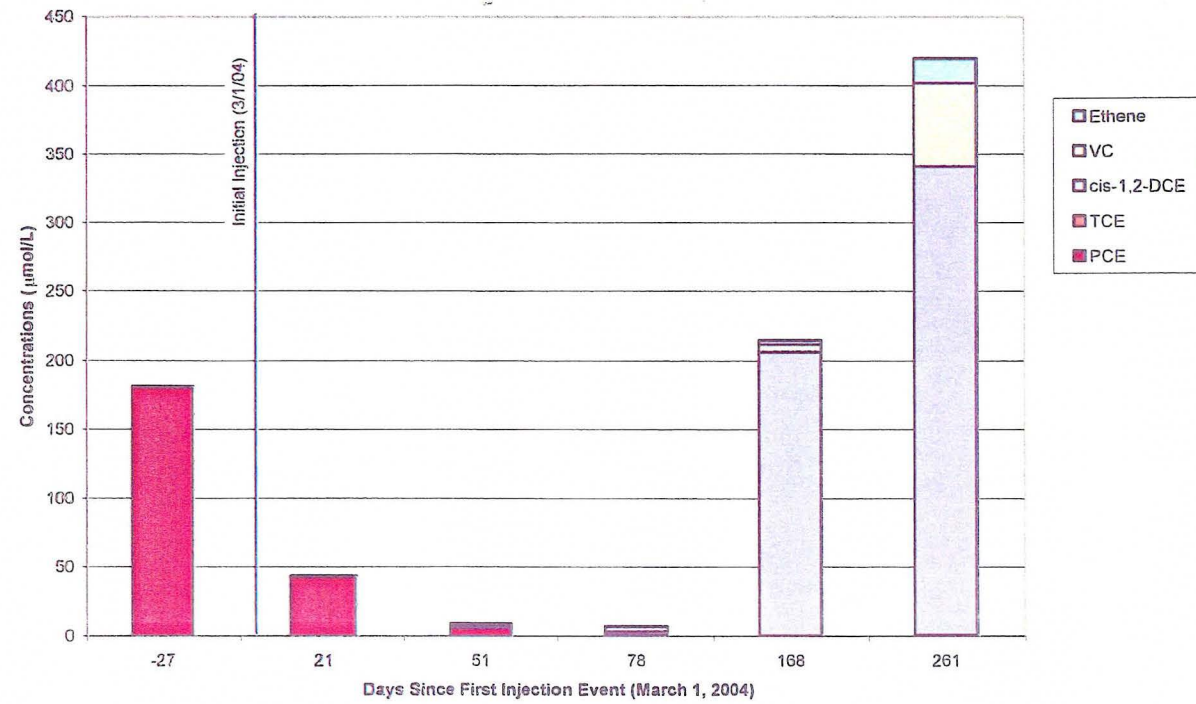
**CHLORINATED VOC AND ETHENE
GROUNDWATER CONCENTRATIONS OVER TIME**

6854 W. BELOIT ROAD
WEST ALLIS, WISCONSIN

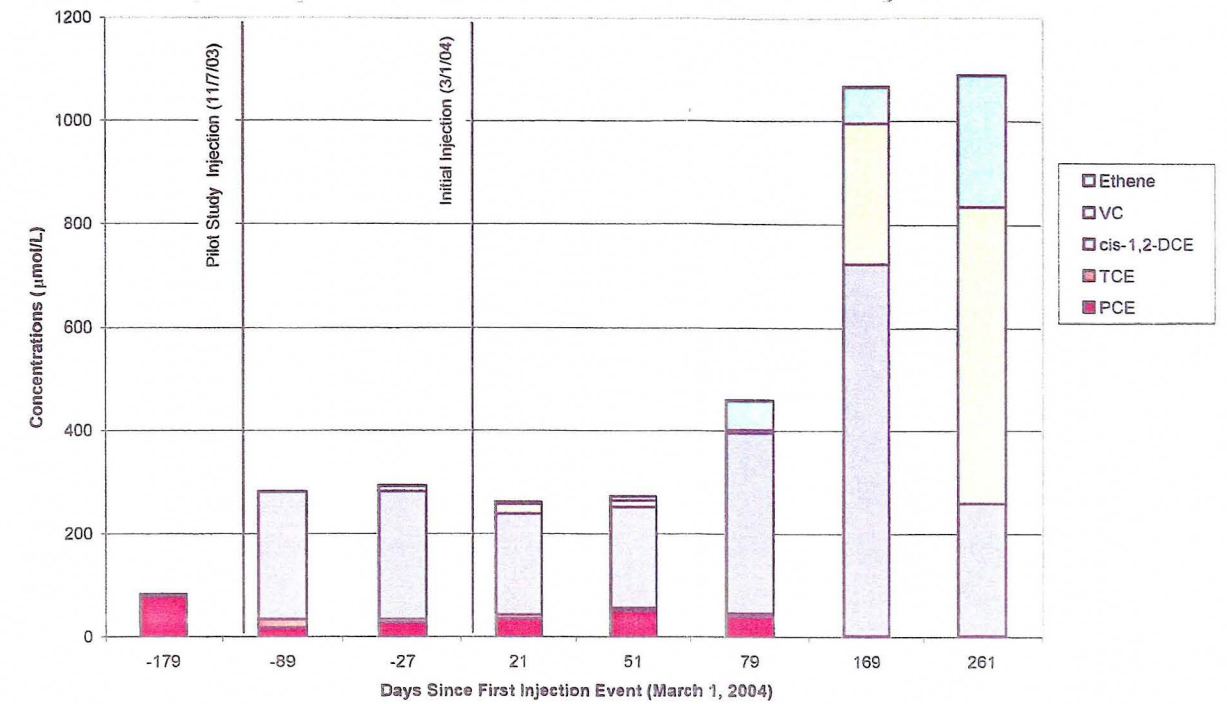
FIGURE
3

ALL CONCENTRATIONS EXCEPT ETHENE EXPRESSED IN MICROGRAMS PER LITER (ug/l),
ETHENE CONCENTRATIONS IN NANOGRAMS PER LITER.

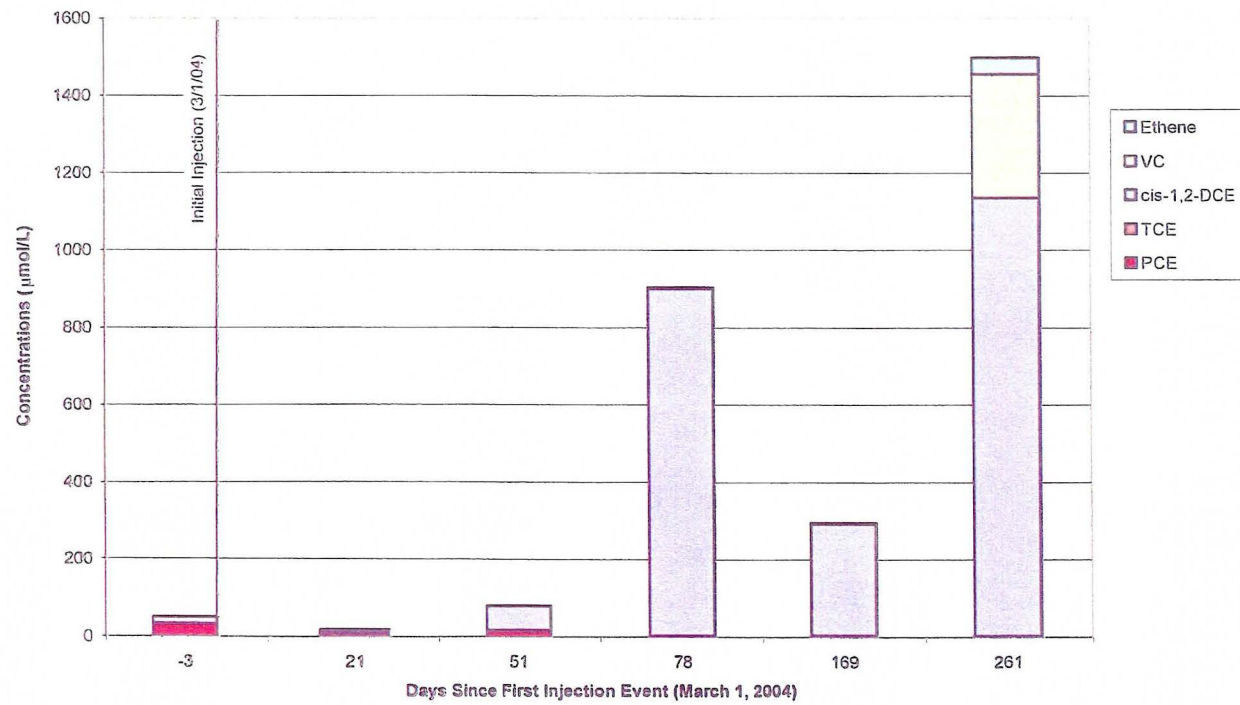
MW-2 Groundwater Concentrations



MW-3 Groundwater Concentrations



MW-11 Groundwater Concentrations



Dechlorination Sequence
PCE → TCE → DCE → VC → Ethene



GROUNDWATER REMEDIATION
PERFORMANCE MONITORING DATA

6854 W. BELOIT ROAD
WEST ALLIS, WISCONSIN

FIGURE

4