DOE–LM/GJ694–2004

Pinellas Environmental Restoration Project

Quarterly Progress Report
4.5 Acre Site
April Through June 2004

July 2004

U.S. Department of Energy

Work Performed Under DOE Contract No. DE–AC01–02GJ79491
for the U.S. Department of Energy Office of Legacy Management.

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N0075700

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Acronyms and Abbreviations

bls	below land surface
COPC	contaminants of potential concern
DCE	dichloroethene
DO	dissolved oxygen
DOE	U.S. Department of Energy
DP	direct push
DPE	dual-phase extraction
FDEP	Florida Department of Environmental Protection
ft	feet
IRA	Interim Remedial Action
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
MCL	maximum contaminant level
mg/L	milligrams per liter
mV	millivolts
NGVD	national geodetic vertical datum
NTU	Nephelometric Turbidity Units
ORP	oxidation/reduction potential
RPD	relative percent difference
STAR Center	Young - Rainey Science, Technology, and Research Center
TCE	trichloroethene
TCOPC	total contaminants of potential concern
VC	vinyl chloride
VOCs	volatile organic compounds
WWNA	Wastewater Neutralization Area

1.0 Introduction

The *Pinellas Environmental Restoration Project Quarterly Progress Report for the 4.5 Acre Site* describes environmental restoration activities for the Pinellas 4.5 Acre Site located in Pinellas County, Largo, Florida. The former U.S. Department of Energy (DOE) Pinellas Plant facility consisted of the 4.5 Acre Site and the Young - Rainey Science, Technology, and Research Center (STAR Center) (Figure 1). The facility was constructed in the mid-1950s as part of a nationwide nuclear weapons research, development, and production complex. Production of weapons-related components ceased in September 1994. However, as a result of these operations, contamination exists in the surficial ground water beneath the Site.

Administration of DOE activities at the 4.5 Acre Site is the responsibility of the DOE Idaho Operations Office. Responsibility for environmental restoration activities at the 4.5 Acre Site was transferred from DOE's Pinellas Area Office to DOE's Grand Junction Office in October 1997. S.M. Stoller Corporation (Stoller), a prime contractor to DOE's Office of Legacy Management at Grand Junction (formerly DOE's Grand Junction Office), provides technical support to DOE for remediation and closure of all active solid-waste management units on site and for the 4.5 Acre Site.

The 4.5 Acre Site is located to the northwest of the STAR Center, northeast quarter of Section 13, Township 30 South, Range 15 East (Figure 2). This parcel was owned by DOE from 1957 to 1972, at which time it was sold to a private landowner. During the period of DOE ownership, the property was used for disposal of drums of waste resins and solvents. As a result of this practice, the surficial aquifer was impacted by volatile organic compounds (VOCs), primarily vinyl chloride (VC), toluene, trichloroethene (TCE), and 1,2-dichloroethene (DCE). DOE completed a source removal in 1985.

An Interim Remedial Action (IRA) consisting of ground water extraction and treatment via air stripping, and a routine ground water monitoring program were initiated in May 1990. In July 1997, a modification of the IRA involving installation of dual-phase extraction (DPE) wells provided a more aggressive system to remove ground water contamination. In November 1999, the DPE/air-stripping system was replaced with an in-situ biosparge treatment system.

Currently, ground water cleanup is proceeding according to provisions in the document *Remediation Agreement for the Four and One-Half Acre Site in Largo, Pinellas County, Florida* (Remediation Agreement) (FDEP 2001), an agreement between DOE and the Florida Department of Environmental Protection (FDEP); and in accordance with applicable portions of "Corrective Actions for Contamination Site Cases," an appendix to FDEP's *Enforcement Manual* (FDEP 1999).

The *4.5 Acre Site Biosparge System Integration Plan* (DOE 2000) was approved by FDEP on January 17, 2001. This plan states that performance monitoring would be undertaken on a quarterly basis. Therefore, in April 2001, performance monitoring of the remedial system through the use of direct push (DP) technology was undertaken. However, the biosparge systems were shut off in May 2003 with no plans to restart them and no performance monitoring data have been collected since April 2003. Subsequent monitoring will be adapted to fit the new remediation scenario and performance monitoring as defined in the *Interim Remedial Action Plan for Ground Water Recovery at the 4.5 Acre Site* (DOE 2003).

The IRA Plan for Ground Water Recovery at the 4.5 Acre Site was submitted to FDEP on August 29, 2003, and approved by FDEP on September 19, 2003. Implementation of the IRA Plan commenced on March 8, 2004, when construction activities began on the IRA treatment system. The treatment system consists of an extraction well field (three recovery wells), pumps and associated piping, transmission water pipeline, utility connection, a low profile tray air stripper unit, and effluent piping. The new IRA system began operations on April 26, 2004.

The new IRA system is a temporary measure that was outlined in the Remedial Action Plan as a contingency option in the event that biosparging resulted in extending the contaminant plume. The final, long-term remedy selection and conceptual design is planned for submittal to FDEP by December 1, 2004, and when approved, will become an addendum to the Remedial Action Plan.

This document is the quarterly progress report for the 4.5 Acre Site for April through June 2004, as requested by FDEP. The results of monitoring activities and a summary of ongoing and projected work are provided in this report.

1.1 Site Update

The design of an IRA ground water treatment system within the 4.5 Acre Site was submitted to FDEP in mid-December 2003. In late January 2004, five monitoring wells and three recovery wells were installed. In early March 2004, construction work on the IRA treatment system began. The system consists of an extraction well field (three extraction wells), pumps and associated piping, transmission water pipeline, utility connection, an air stripper unit, and effluent piping to the Wastewater Neutralization Area (WWNA). The new IRA treatment system began operations on April 26, 2004, and ground water and treatment system sampling indicates the treatment system is functioning effectively. Section 3.0 discusses IRA treatment system operations.

In addition to routine quarterly sampling for VOCs, ground water samples were collected from 10 wells at the 4.5 Acre Site in April 2004 and analyzed for a broad suite of geochemical and microbiological parameters. The purpose of this sampling was to begin a baseline evaluation of whether subsurface conditions are currently suitable for enhanced bioremediation, and, if not, to provide recommendations to develop a remedial strategy for the site. The April sampling event represents a “dry season” data set and a “wet season” sampling event is scheduled for July 2004. As part of the enhanced bioremediation evaluation, microcosm testing will be conducted from July to November 2004. A report summarizing these two sampling events and the microcosm test, along with recommendations for the Remedial Action Plan addendum due in December 2004, will be prepared in November 2004.

In late June 2004, five new monitoring wells were installed in the plume areas to delineate the plume center area and to replace monitoring wells that have been abandoned in plume areas. Figure 3 depicts the location of these new monitoring wells and the following table summarizes monitoring well construction information:

New 4.5 Acre Site Monitoring Well Construction Information

Location ID	Depth of Well (ft bls)	Well Diameter (inches)	Screen Interval (ft bls)	Date Established
M060	28	1.0	18−28	7/1/04
M061	30	1.0	20−30	7/1/04
M062	30	1.0	20−30	7/1/04
M063	29.5	1.0	19.5−29.5	7/1/04
M064	25	1.0	15−25	7/1/04

1.2 Quarterly Site Activities

- Obtained water-level measurements from all monitoring wells on April 14, 2004.
- Conducted the annual sampling event (i.e., collected ground water samples from 39 monitoring wells) in April 2004. The wells were sampled for VOCs and analyzed using Method SW-8260.
- Conducted a one time sampling event. Ad Hoc PIN-AS was conducted to collect soil cores and ground water for microcosm testing.
- Reported the results of quarterly sampling events (this document).

2.0 Monitoring Data

2.1 Ground Water Elevations and Flow

Within a 2-hour period on April 14, 2004, depth-to-water measurements were taken in all monitoring wells at the 4.5 Acre Site as part of the sitewide annual sampling event. The depth to water in each well was measured with an electronic water-level indicator. The April ground water elevation data for the 4.5 Acre Site are listed in Table 1. The data and information from deep wells were used to construct contours of water levels in the deep surficial aquifer in Figure 3.

The interpretative contours on Figure 3 show ground water flow generally to the northwest. These flow patterns are consistent with those previously observed at the site (i.e., flow to the west-northwest) when the aquifer is under static, non-pumping conditions. These flow patterns have been observed for the past five quarters following shutdown of the biosparging system in May 2003.

The water table ranged from about 2 to 5.5 feet below land surface (ft bls), with ground water elevations that ranged from a high of 16.38 ft at PIN20–TE01 to a low of 13.37 ft at PIN20−M38D. The hydraulic gradient across the site was approximately 0.004 feet per foot. This gradient is very similar to that observed the previous four quarters. Using Darcy's Law, along with approximations of 1 ft/day for hydraulic conductivity and 0.3 for effective porosity, ground water at the site is estimated to move about 5 ft/year. This velocity is consistent with previously observed velocities of 3 to 10 ft/year.

2.2 Ground Water Sampling

Thirty-nine monitoring and recovery wells were sampled by Stoller personnel in April 2004 for VOCs.

All samples were collected in accordance with the *Pinellas Environmental Restoration Project Sampling Procedures for the Young - Rainey STAR Center* (DOE 2002) using FDEP procedures. All samples collected were submitted to Accutest Laboratory for analysis. Accutest is accredited by the Florida Department of Health in accordance with the National Environmental Laboratory Accreditation Conference, certification number E83510. VOCs were analyzed using U.S. Environmental Protection Agency Method SW-8260B

All but three of the monitoring wells were micropurged with dedicated bladder pumps and samples were collected when the field measurements stabilized. The wells, PIN20−M053, −M22D, and −M056, used standard peristaltic pump purging (three casing volumes) due to influence of recovery well drawdown during low-flow sampling. The monitoring wells were sampled using Teflon tubing. Extraction wells were sampled using their associated flowlines with dedicated sampling ports. Table 2 lists measurements of pH, specific conductance, dissolved oxygen, oxidation/reduction potential (ORP), turbidity, and temperature recorded at the time each sample was collected. These measurements were collected using a flow cell and multiparameter meter.

2.3 Ground Water Analytical Results

Individual contaminants of potential concern (COPC) and total COPCs (TCOPCs) concentrations in samples collected from wells at the 4.5 Acre Site are included in Table 3. The previous four quarters of results are included in Table 3 for comparison. Figure 4 shows the TCOPCs concentrations for April 2004.

No COPCs were detected in samples from the 19 sample locations listed below (results listed in Table 3).

PIN20–0503	PIN20–M011	PIN20–M025	PIN20–M054	PIN20–M41D
PIN20–M003	PIN20–M012	PIN20–M028	PIN20–M38D	PIN20–MWL5
PIN20–M005	PIN20–M023	PIN20–M035	PIN20–M40D	PIN20–MWL6
PIN20–M007	PIN20–M024	PIN20–M036	PIN20–M40S	

Samples from 20 sample locations listed below contained COPCs at detectable levels (results listed in Table 3).

PIN20–0502	PIN20–M049	PIN20–M057	PIN20–M22D	PIN20–MWL4
PIN20–M001	PIN20–M053	PIN20–M058	PIN20–MWL1	PIN20–RW01
PIN20–M015	PIN20–M055	PIN20–M059	PIN20–MWL2	PIN20–RW02
PIN20–M019	PIN20–M056	PIN20–M18D	PIN20–MWL3	PIN20–RW03

The maximum TCOPCs value detected was 1,295 micrograms per liter (µg/L) at PIN20−MWL4. The compound detected at the highest concentration in PIN20−MWL4 was cis-1,2-DCE at a concentration of 873 µg/L. Reported "J" values are not considered in the TCOPC analyte concentrations.

Laboratory reports for quarterly samples collected in April 2004 are provided in Appendix A. IRA treatment system influent, effluent, and recovery well analytical results are provided in Appendix B.

2.4 Quality Assurance/Quality Control

Two duplicate samples were compared to their paired sample and the relative percent differences (RPDs) between the results were calculated. Results of analyses for each duplicate sample are listed in Table 4. From the two duplicate samples, 72 individual compounds were analyzed. All analytes met the RPD guideline. All data are considered Class A level, indicating that the data may be appropriately used for quantitative and qualitative purposes.

According to the Stoller Sampling Procedures, duplicate samples should be collected at a frequency of one duplicate for every 20 or less samples. There were 39 ground water VOCs and two duplicate samples. Therefore, the duplicate criteria were met.

Four trip blanks and one equipment blank were submitted for analysis. All blanks were non-detect.

No significant deficiencies were found in this quarter's validation of the field data collected during the quarterly sampling event. A software module for identifying and tracking anomalous ground water data points within the SEEPro database was implemented during January 2004. The program reports which of the COPC values lie outside of historical minimum and maximums for that location. No anomalies requiring further tracking were found.

3.0 Treatment System and Recovery Well Operations

The 4.5 Acre Site IRA ground water treatment system and recovery wells began operation the week of April 20. The treatment system is a small skid-mounted assembly that contains a low-profile air stripper, a blower, and two transfer pumps. The air stripper contains four shallow trays to strip the VOCs from the ground water. The treatment system and a surge tank reside on a concrete containment pad. The following picture shows the new treatment system. The recovery wellfield consists of three recovery wells with electric submersible pumps in each well. The recovery wells are installed along the western boundary of the 4.5 Acre Site.

During initial commissioning, the system and wells were operated for just a few hours to allow for sampling of the effluent and they were shut down after the sample was collected. This allowed time to review the analytical results to verify the air stripper was operating efficiently and in accordance with regulatory limits.

Based on the treatment system's effluent analytical results, which were non-detect, the new system and wells began continuous operations on Monday, April 26. The system experienced some downtime during the following weeks as initial operational glitches were worked through and adjustments were made.

From April 1 through June 30, 2004, the treatment system processed 377,709 gallons of ground water. Figures 5, 6, and 7 present the monthly volume of ground water recovered during April through June 2004 from the 4.5 Acre Site recovery wells.

A summary of analytical results for samples collected at the 4.5 Acre Site treatment system during this quarter is provided in Table 5. Treatment system influent and effluent samples were analyzed for VOCs and the effluent discharge volume was recorded to comply with the Pinellas County wastewater permit. In the effluent samples, all volatile organic aromatic concentrations were under the Pinellas County regulatory limit of 50 µg/L. The new treatment system was sampled daily for a week, weekly for a month, and monthly thereafter to allow adequate initial evaluation of the air stripper's efficiency.

Table 6 presents the average monthly concentration and the calculated mass of selected analytes processed by the 4.5 Acre Site treatment system for each month of this quarter. These monthly results are based on the measured system influent concentration and ground water flow.

In a similar application to the old Northeast Site treatment system, FeRemede® is being utilized at the new 4.5 Acre Site treatment system to control the deposition of iron and hardness salts in the air stripper. Additionally, sodium hypochlorite is also being utilized as a microbiocide to control biological growth in the air stripper.

4.0 Data Interpretation

This data interpretation section is added to the April to June quarterly report each year to aid in evaluating remediation progress. This section consists of plots showing contaminant concentrations trends (Section 4.1), plume maps (Section 4.2), and a discussion of site geochemistry (Section 4.3).

4.1 Contaminant Concentration Trends

The entire data set was evaluated and selected wells and COPCs were chosen for presentation as time versus concentration plots to evaluate remediation progress and potential plume movement.

In previous quarterly reports, contaminant concentration trends were shown for two of the locations that were sampled using DP technology. However, following shut down of the biosparging system, DP was no longer used to collect ground water samples. The last DP ground water sample collection event occurred in July 2003, and since this time only monitoring and recovery wells have been sampled. Therefore, contaminant concentration trends are now shown for monitoring wells located near the former DP locations.

Last year, contaminant concentrations trends demonstrating plume movement were shown for ground water sampling location DP32. Monitoring well 0502, located approximately 30 ft hydraulically downgradient from the former DP32 location, was chosen to replace this discontinued sampling location. Figure 8 shows the cis-1,2-DCE and VC concentration trends in this well. Concentrations of these two COPCs have increased steadily in this well since the April 2002 sampling event, likely indicating that the contaminant plume originating in the area of the MWL wells is moving downgradient. Figure 9 shows nearly identical trends for the same contaminants in well M001, located approximately 135 ft south of well 0502. Although well M001 is located closer to the central plume area, the concentration increases in this well began in January and April 2003, several months later than in well 0502. This difference may be due to contaminant transport along natural preferential pathways, or possibly along the old horizontal well bores.

Last year, contaminant concentrations trends demonstrating remediation progress were shown for ground water sampling location DP07. Monitoring well MWL4, located 34 ft east of the former DP07 location, was chosen to replace this sampling location. Figure 10 shows TCE concentrations trends and Figure 11 shows cis-1,2-DCE and VC concentration trends in this well. Clearly the concentrations of TCE and DCE have decreased significantly over the last year and a half, while VC concentrations increased initially and then returned to approximately the same level. The biosparging system was shut down in May 2003, but concentrations have continued to decrease, indicating that the biosparging probably was not the cause of the concentration decreases. Based on the associated geochemical data from these wells, as discussed in Section 4.3, it appears likely that naturally occurring reductive dechlorination is the cause of these concentration decreases. Based on a review of site data from the last couple of years, it is hypothesized that the “stirring” effect of the biosparging system likely resulted in mobilization of much of the mass of contamination that was sorbed to the soil, making it bioavailable to the dechlorinating microorganisms, who in turn degraded the contaminants. The transient increase in DCE concentration is likely due to conversion of TCE to DCE, and the VC increase is likely due to conversion of DCE to VC.

4.2 Plume Maps

Plume maps were generated for TCOPCs (Figure 4) and the individual site COPCs: VC (Figure 12), cis-1,2-DCE (Figure 13), TCE (Figure 14), and benzene (Figure 15). A plume map for trans-1,2-DCE is not shown because this COPC was not detected in April 2004. Note that two sets of data are shown on the VC and DCE plume maps: one set from the current sampling event in April 2004 and one set consisting of data from samples collected from DP samples collected in July 2003. July 2003 was the last time DP ground water samples were collected, and part of the purpose of that event was to sample a few new DP locations to define plume boundaries. Typically, plume maps are constructed based solely on the data from each April sampling event when most site wells are sampled, but because these data were not collected until

July 2003, they were not used to construct the April 2003 plume maps. Therefore, these data are being used in conjunction with the April 2004 data to construct plume maps.

The inferred TCOPCs plume boundary (i.e., the dashed contour lines) includes all detected concentrations of all COPCs. The inferred plume boundaries for the individual compounds are the respective maximum contaminant levels (MCLs) of the compounds. Concentrations that are below the MCL are not included in the individual compound plumes. The plume maps also show the plume boundary from last year to show any changes over the last year.

Last year, the TCOPCs plume consisted of two parts: an eastern plume and a western plume (Figure 4). However, this year, based on benzene and VC data collected during the July 2003 DP sampling where low levels of VC and benzene were present in the center of the site (Figures 12 and 15), these two plume areas have been combined.

The VC plume (Figure 12) is slightly larger than the 2003 plume, based mainly on the July 2003 DP data and the data from the recently installed wells along the western property boundary. The cis-1,2-DCE plume (Figure 13) is also slightly larger than the 2003 plume and extends slightly farther to the northwest due to cis-1,2-DCE concentrations greater than the 70 µg/L MCL in well 0502. TCE was not detected in any well sampled in April 2004, but the TCE plume from last year has been brought forward as the TCE plume for 2004 (Figure 14) because the 2003 plume was based mainly on data from DP locations that were not sampled in 2004. New wells M060, M061, and M063 were installed in late June 2004 at former DP locations where TCE was detected, and will provide data that will confirm or refute the continued presence of TCE at these locations. The benzene plume (Figure 15) is considerably larger than the 2003 plume, but this is likely a result of the additional data from the DP locations sampled in July 2003 instead of plume expansion.

In summary, the total plume area at the 4.5 Acre Site is slightly larger than in 2003, due mainly to data from locations that were not previously sampled. However, it appears that some plume movement is occurring toward the north as evidenced by increasing DCE and VC concentration trends in wells 0502 and M001. Concurrently, TCE concentrations appear to be decreasing sitewide, probably due to natural degradation processes. TCE degrades mainly to cis-1,2-DCE and VC, both of which are transported more quickly than TCE in the subsurface and are more resistant to natural degradation, a phenomenon that could be facilitating apparent plume movement to some degree.

4.3 Geochemical Parameters

Geochemical parameters measured in the field in all wells at the 4.5 Acre Site during April 2004 are listed in Table 2. Dissolved oxygen (DO) concentrations ranged from 0.17 to 1.67 milligrams per liter (mg/L) with an average of 0.68 mg/L. ORP values ranged from 58 to –210 millivolts (mV) with an average of –82 mV. These parameters indicate a generally reducing environment. Optimal conditions for complete reductive dechlorination of TCE, DCE, and VC to ethane are DO <0.5 mg/L and ORP in the range of –180 to –200 mV. The slightly higher than ideal DO and ORP values correlate with the persistence of DCE and VC in the subsurface. Under ambient conditions, TCE is relatively susceptible to reductive dechlorination, but the degradation rates of DCE and particularly VC are considerably slower. This factor, combined with the relatively quicker transport of DCE and VC, explains the relatively larger size of the DCE and VC plumes.

Ground water pH values ranged from 6.24 to 7.05 with an average of 6.78, and ground water temperatures ranged from 21.8 to 25.9 with an average of 23.6. These pH and temperature ranges indicate that subsurface conditions are conducive to microbial activity.

5.0 Tasks to be Performed Next Quarter

The following tasks are scheduled during the next quarter (July through September 2004).

- Quarterly sampling and analysis of ground water and water level measurements in early July.
- Continue monitoring of the new IRA treatment system for short-term ground water recovery action.
- Conduct microbiological, dissolved gas, and geochemical testing to develop an enhanced bioremediation conceptual model.
- Begin preparation of an addendum to the Remedial Action Plan.

6.0 References

Florida Department of Environmental Protection (FDEP), 1999. "Corrective Actions for Contamination Site Cases," Appendix to FDEP *Enforcement Manual*, May.

———, 2001. *Remediation Agreement for the Four and One-Half Acre Site in Largo, Pinellas County, Florida*, U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, January.

U.S. Department of Energy, 2000. *4.5 Acre Site Biosparge System Integration Plan*, GJO–2000–182–TAR, MAC–PIN 25.5.1.1, prepared by U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, December.

U.S. Department of Energy, 2002. *Pinellas Environmental Restoration Project Sampling Procedures for the Young - Rainey STAR Center,* GJO−2001−206−TAR, MAC–PIN 2.4-1, prepared by U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, July.

———, 2003. *Pinellas Environmental Restoration Project Interim Remedial Action Plan for Ground Water Recovery at the 4.5 Acre Site*, GJO-2003-480-TAC, prepared by U.S. Department of Energy, Grand Junction Office, Grand Junction, Colorado, August.

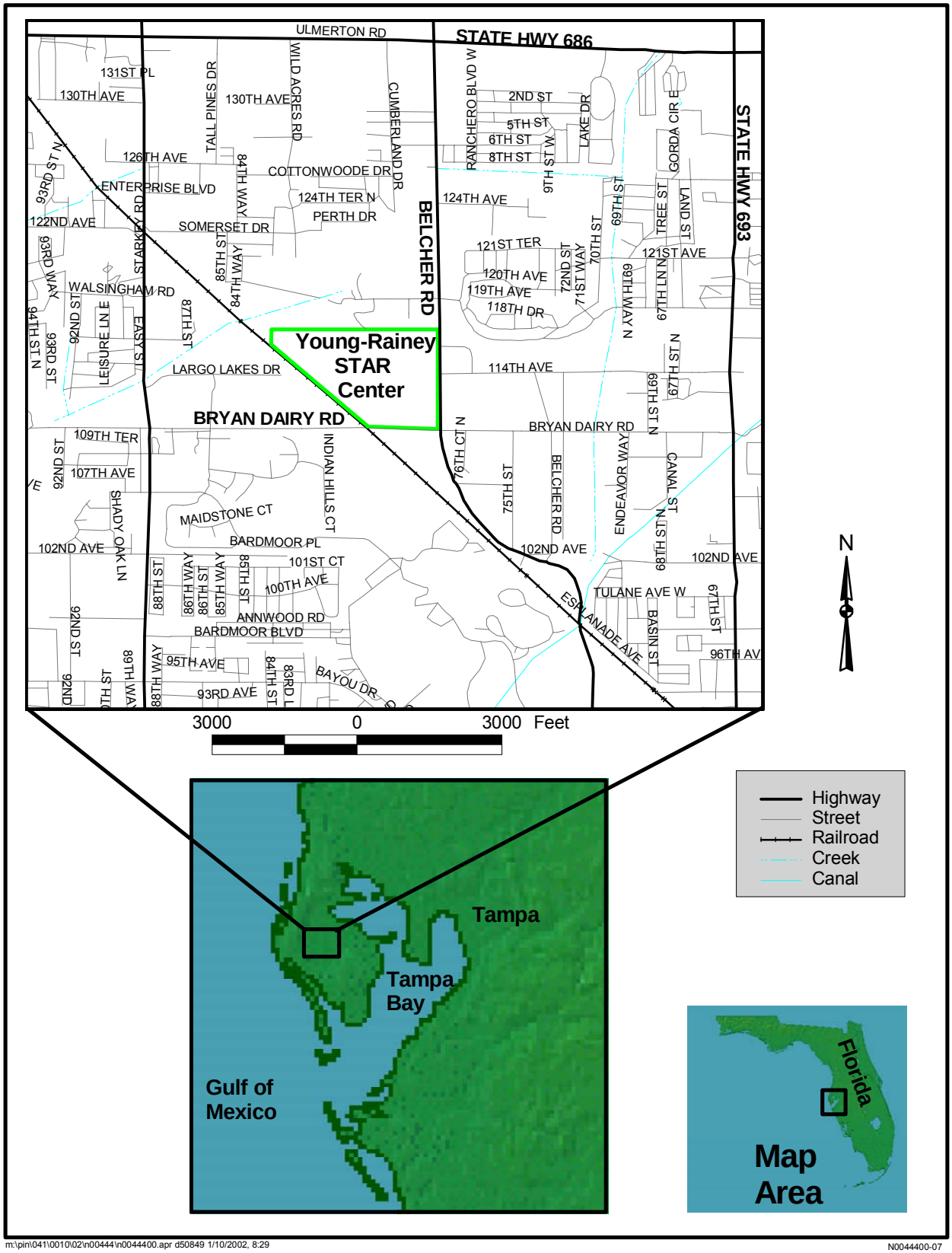

Figure 1. Young - Rainey STAR Center Location

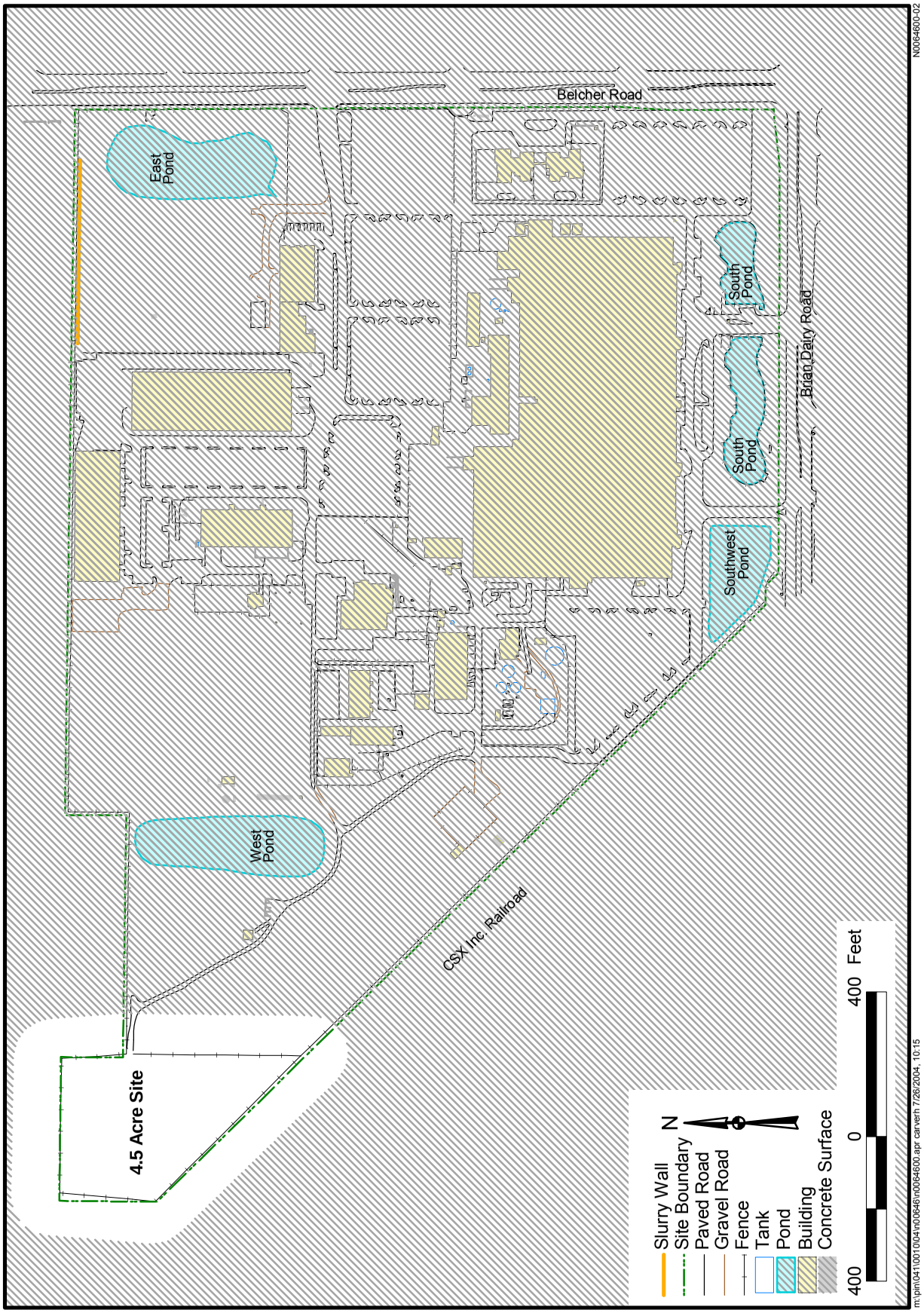

Figure 2. 4.5 Acre Site Location

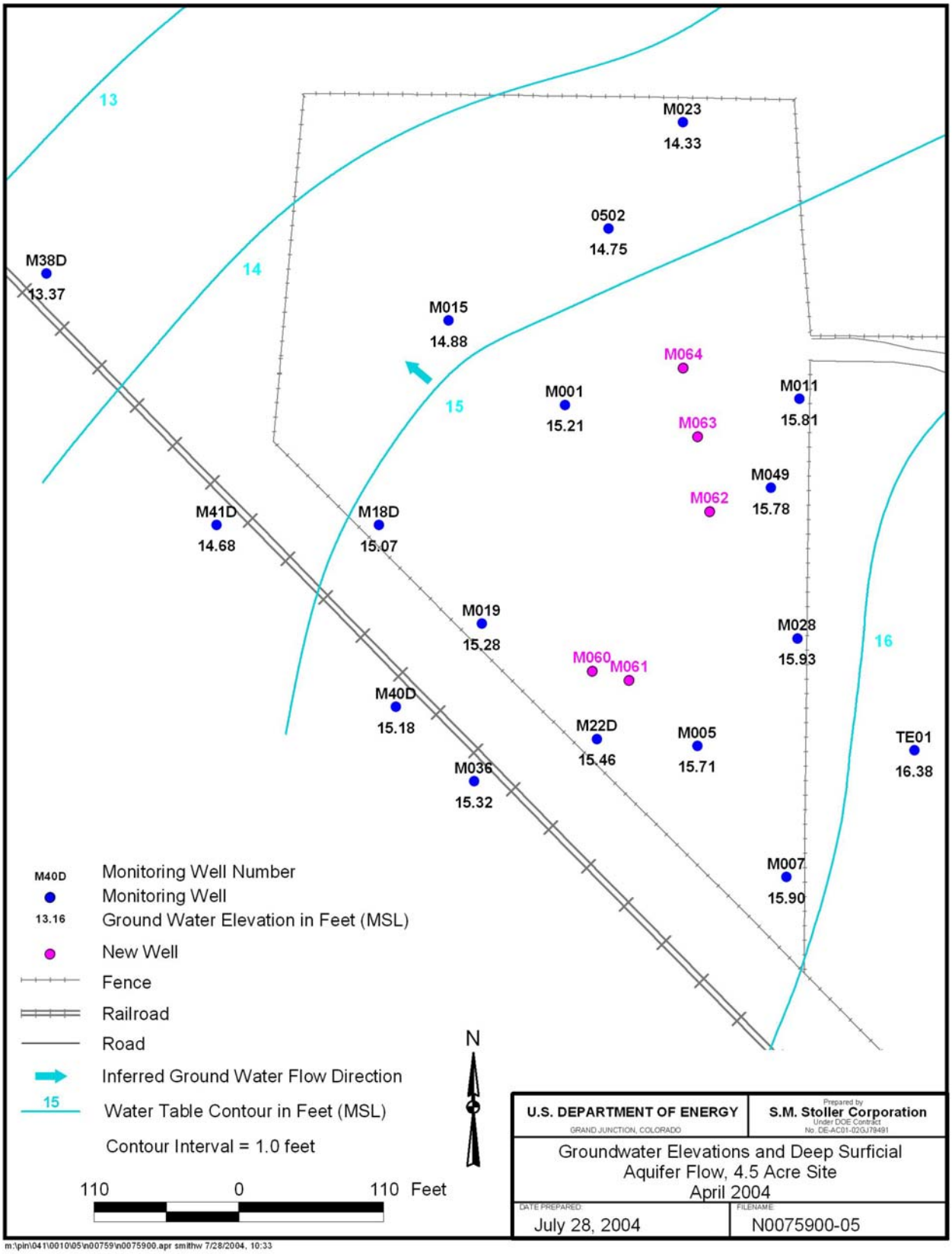

Figure 3. Ground Water Elevations and Deep Surficial Aquifer Flow, 4.5 Acre Site, April 2004

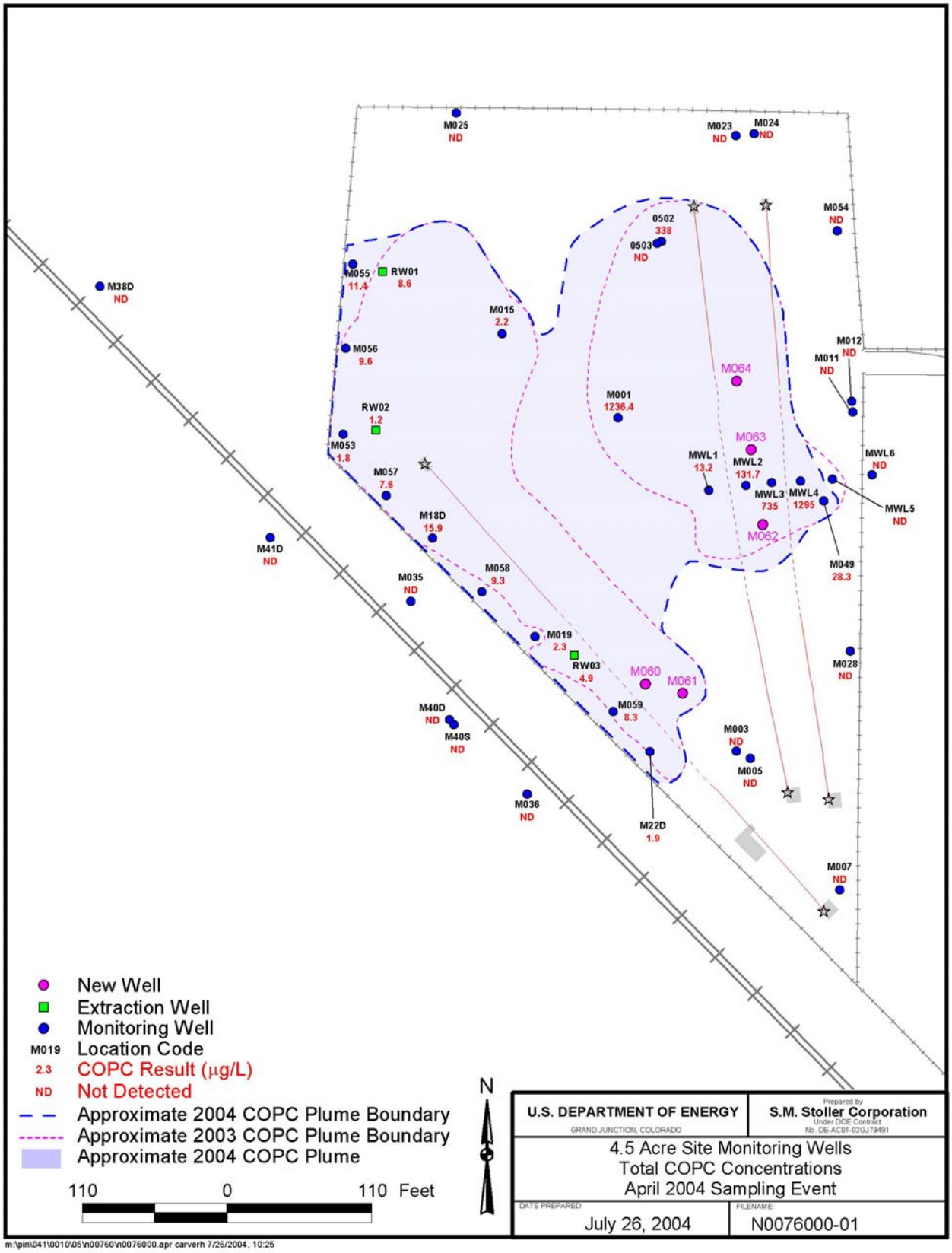

Figure 4. TCOPC Plume Map

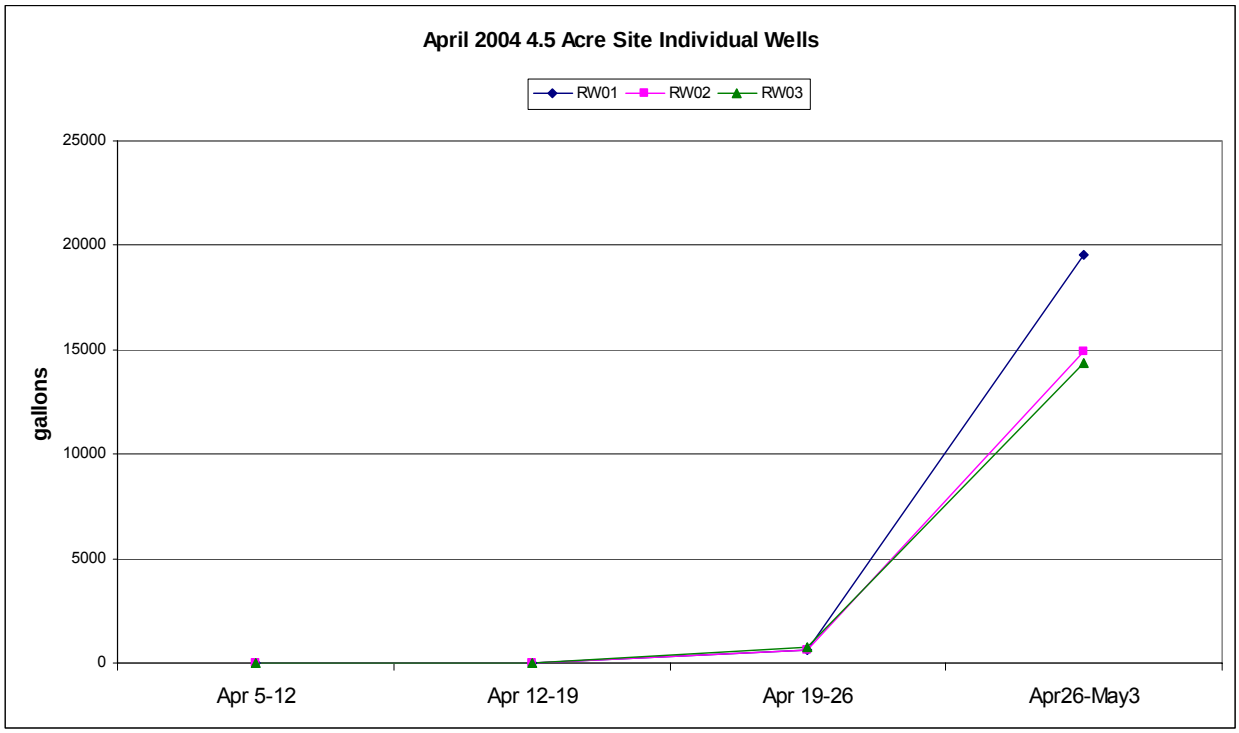

Figure 5. April 2004 4.5 Acre Site Ground Water Recovery

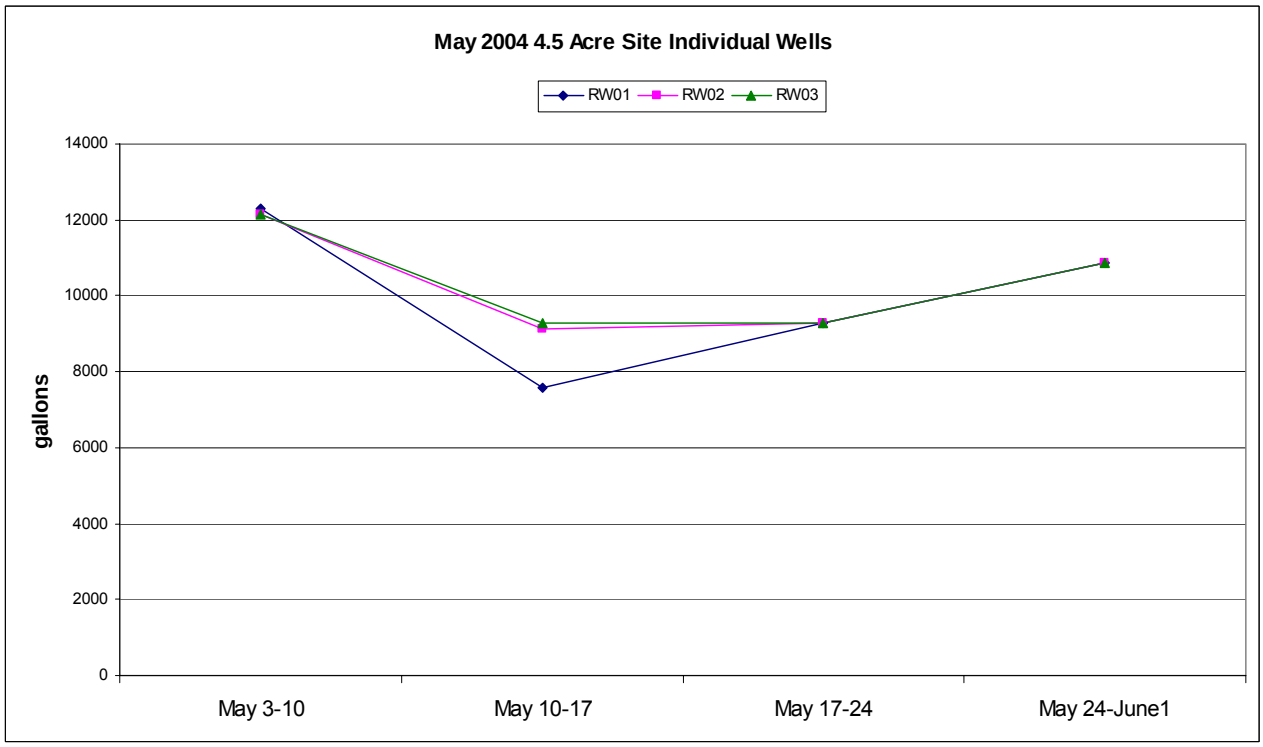

Figure 6. May 2004 4.5 Acre Site Ground Water Recovery

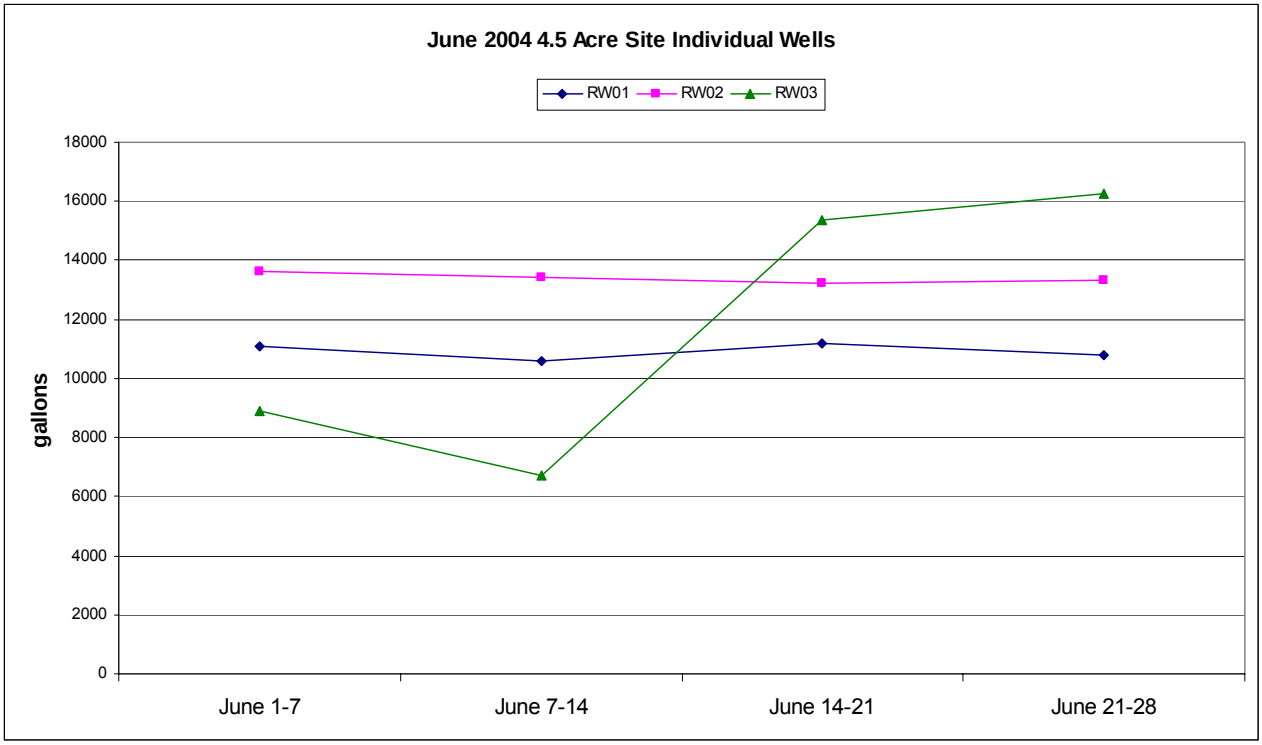

Figure 7. June 2004 4.5 Acre Site Ground Water Recovery

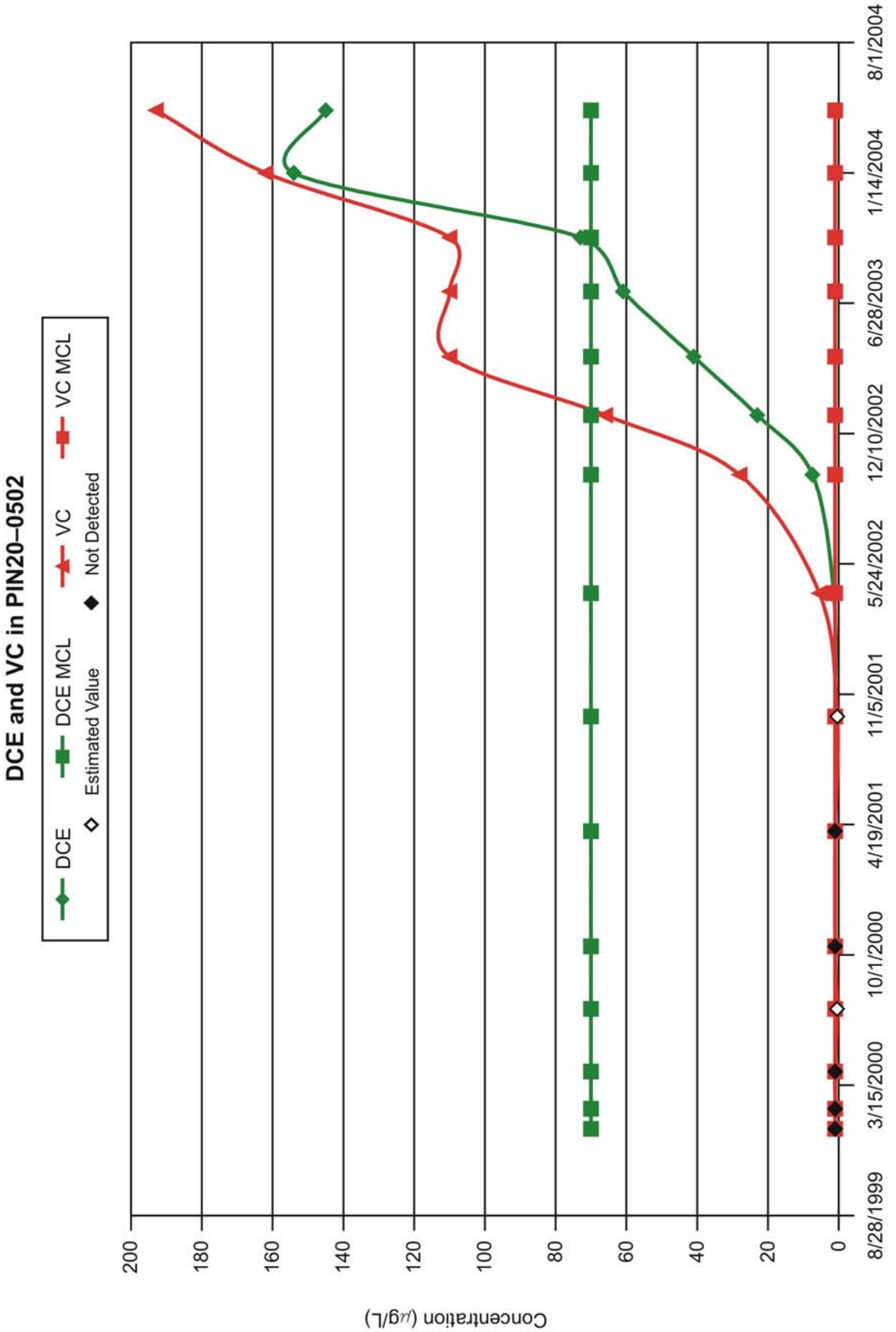

Figure 8. cis-1,2-DCE and VC Trends in PIN20–0502

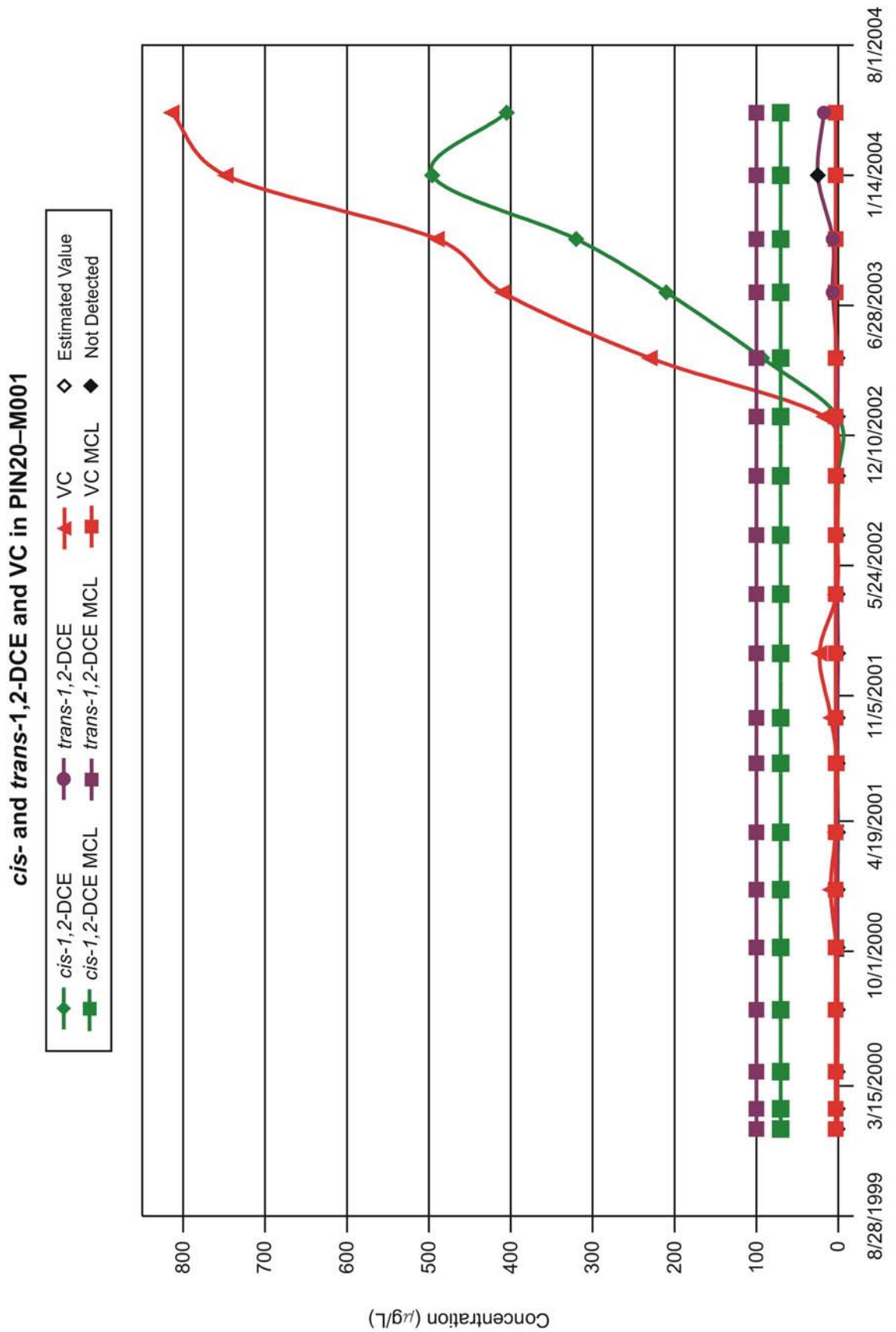

Figure 9. cis- and trans-1,2-DCE and VC Trends in PIN20–M001

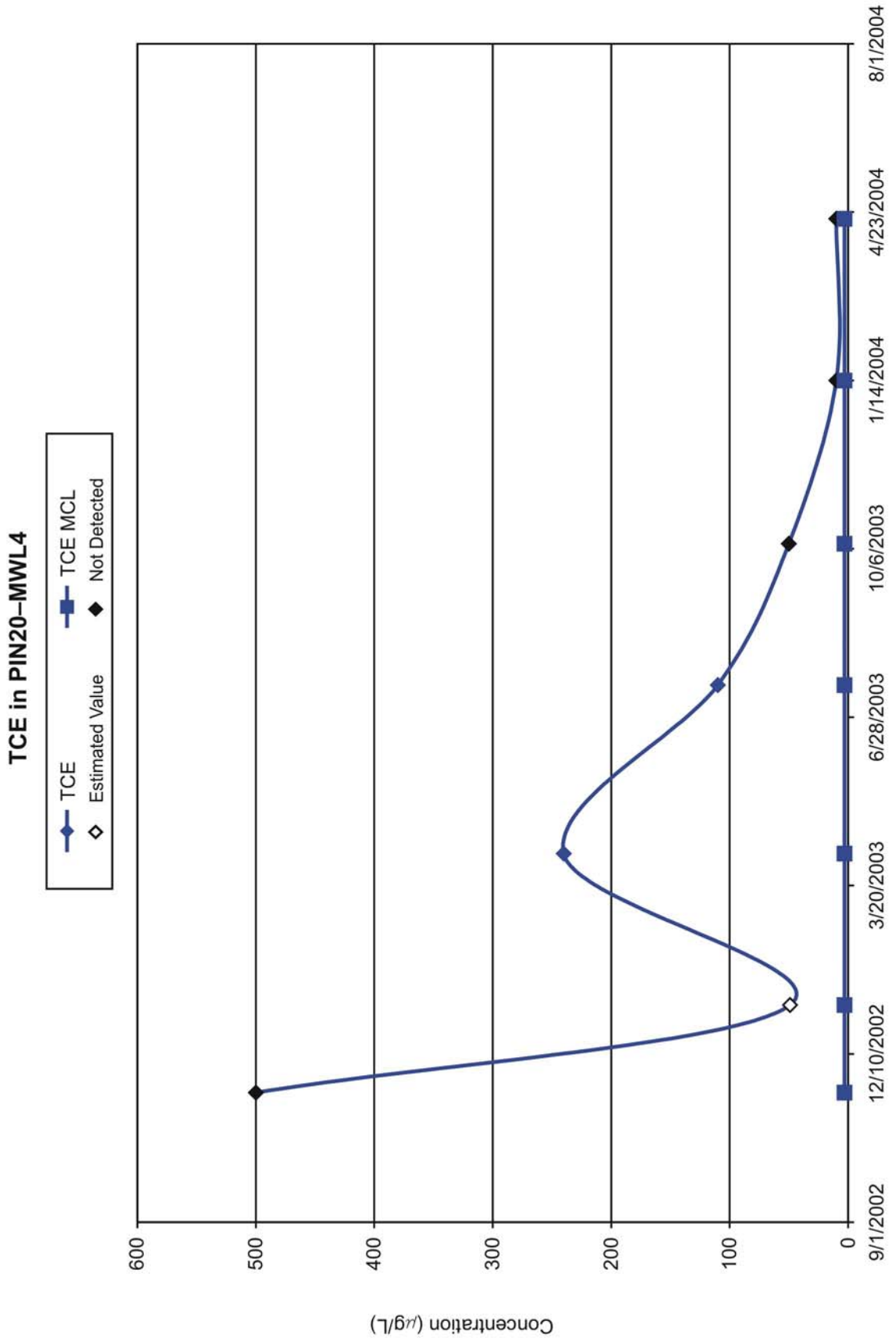

Figure 10. TCE Trend in PIN20–MWL4

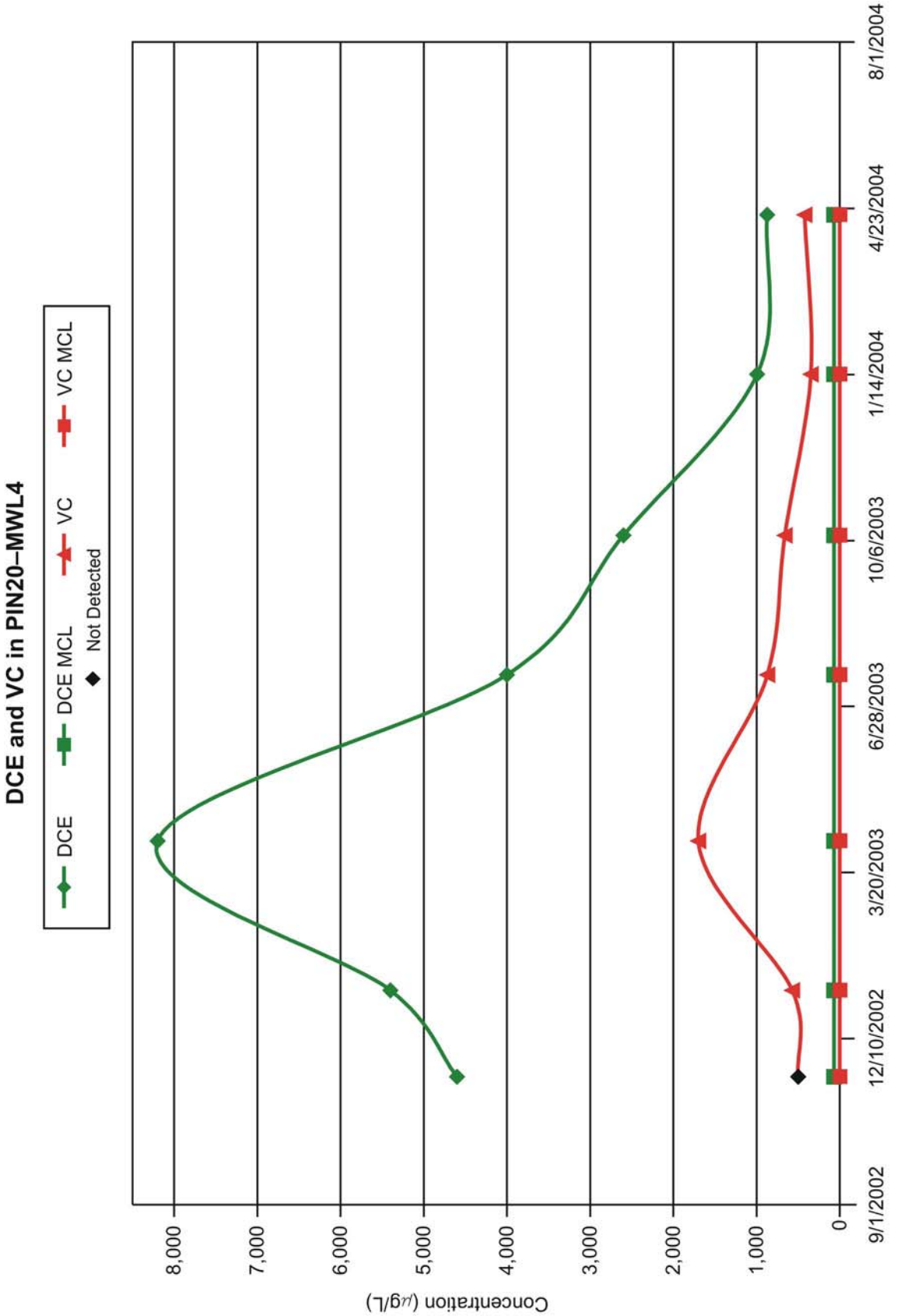

Figure 11. cis-1,2-DCE and VC in PIN20–MWL4

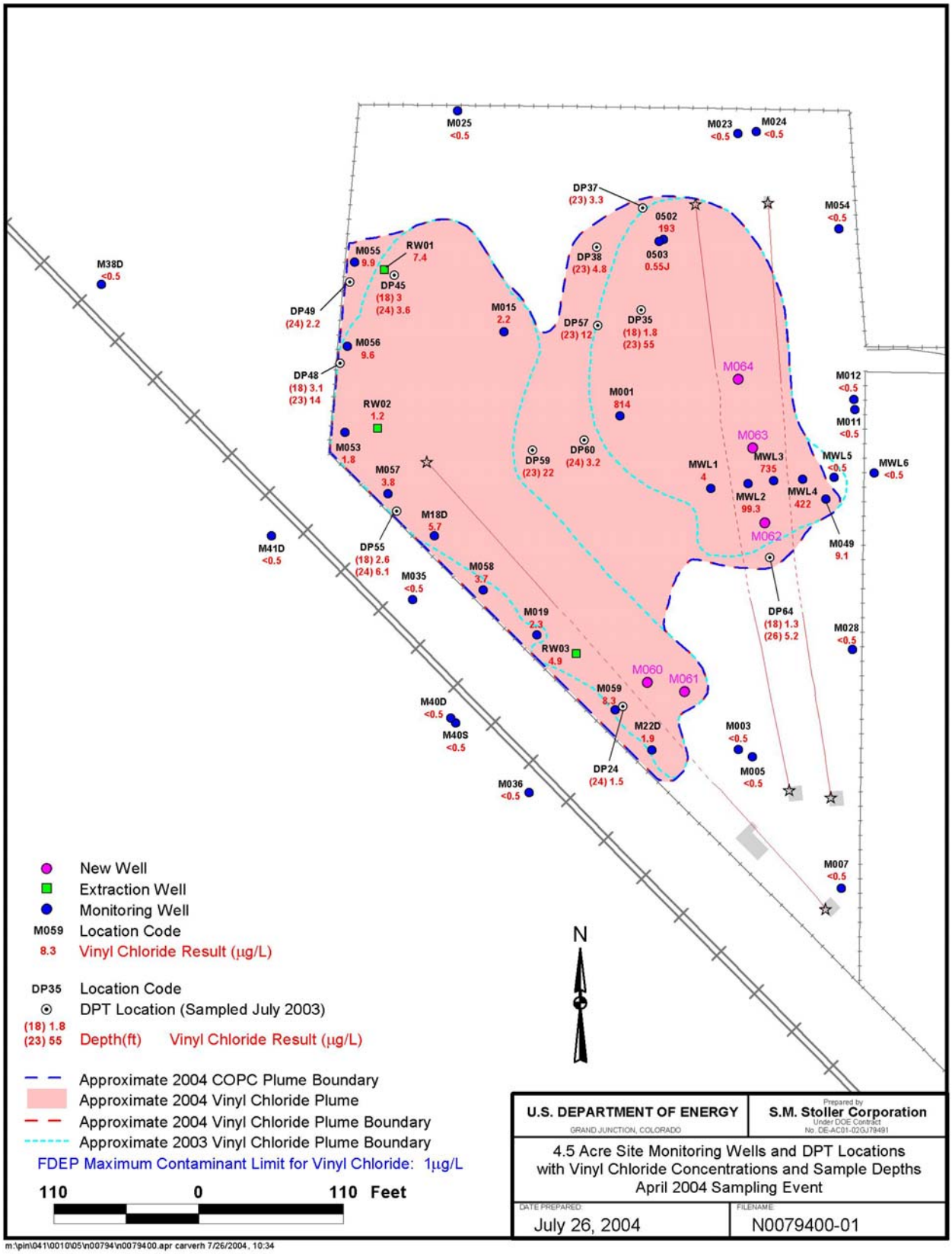

Figure 12. VC Plume Map

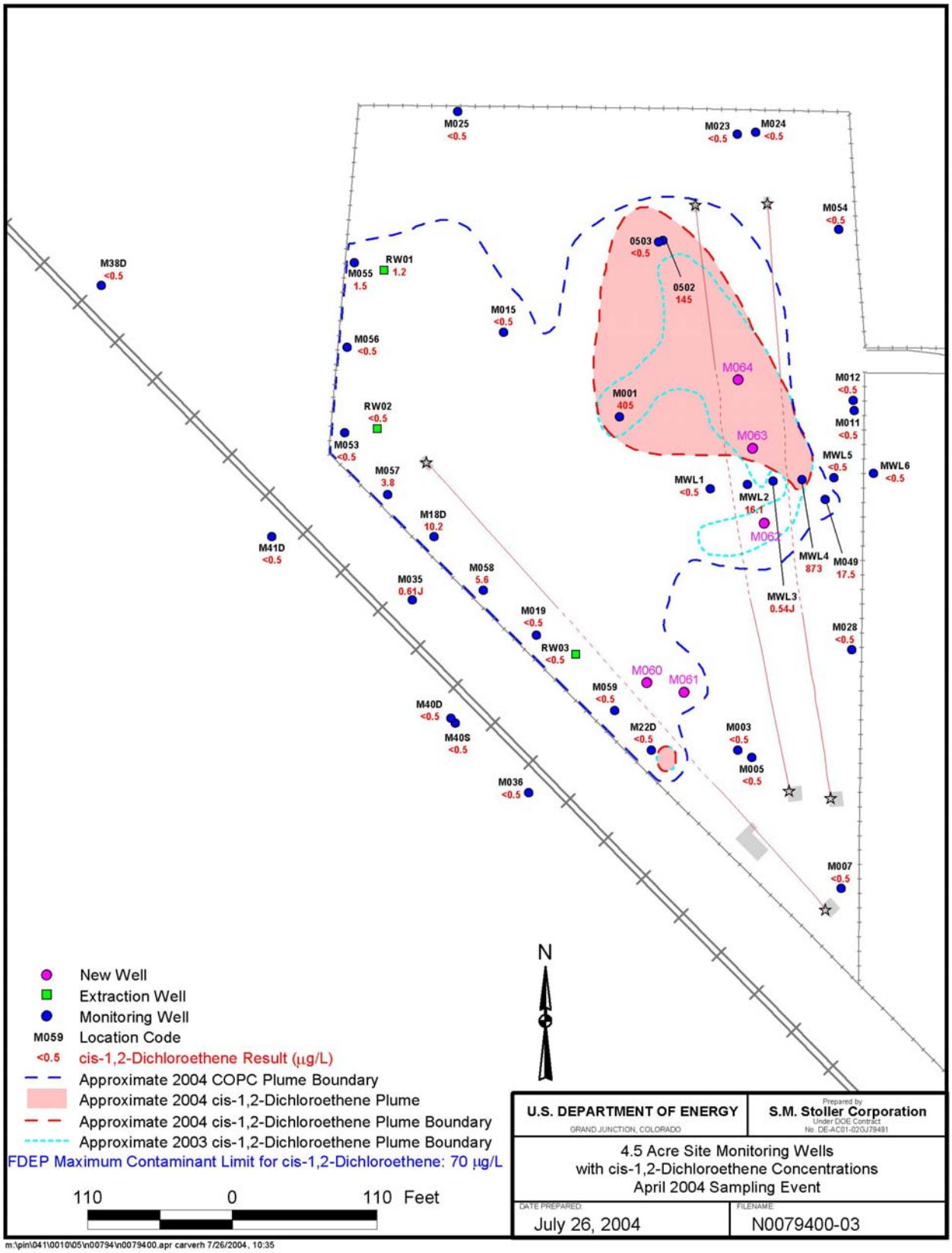

Figure 13. cis-1,2-DCE Plume Map

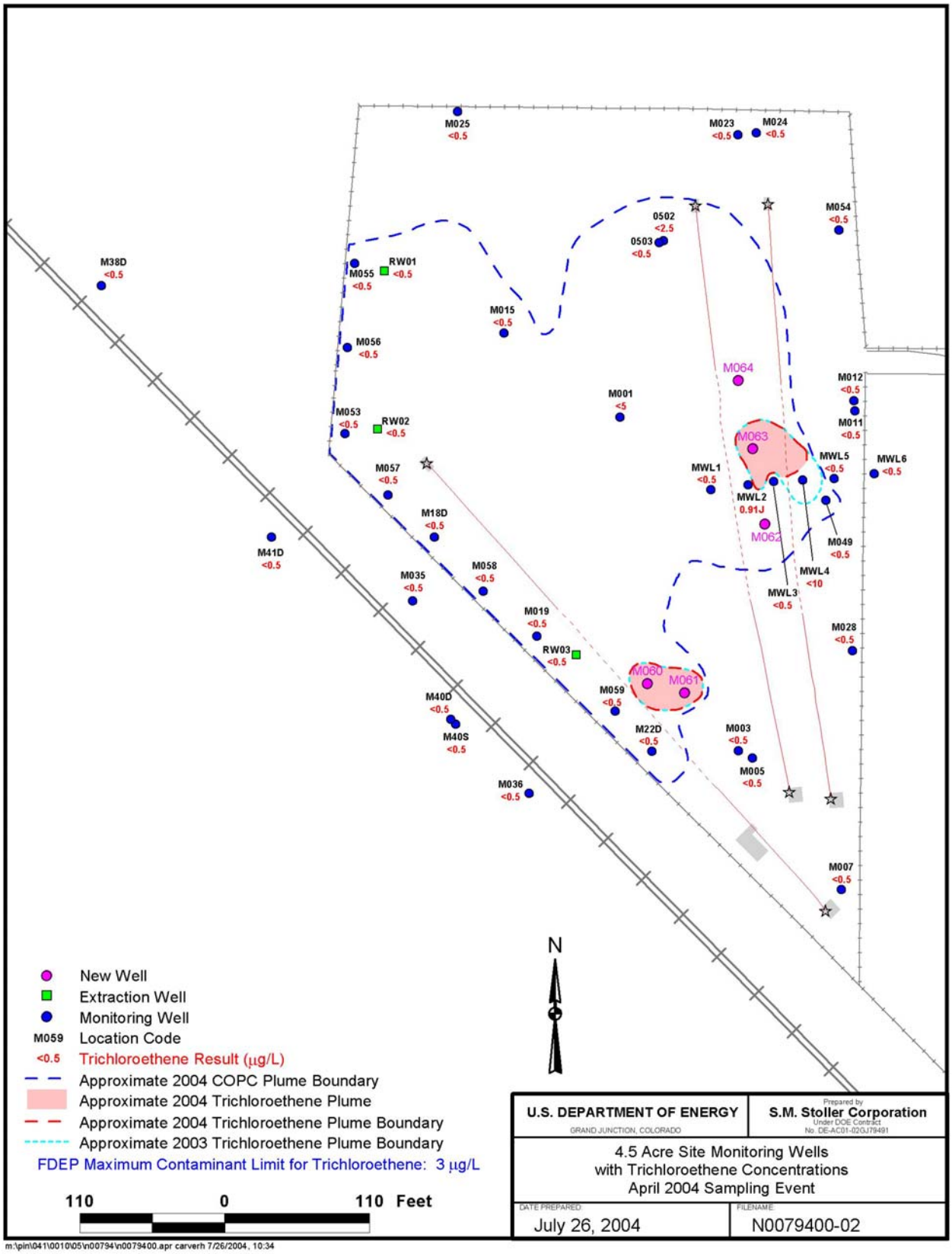

Figure 14. TCE Plume Map

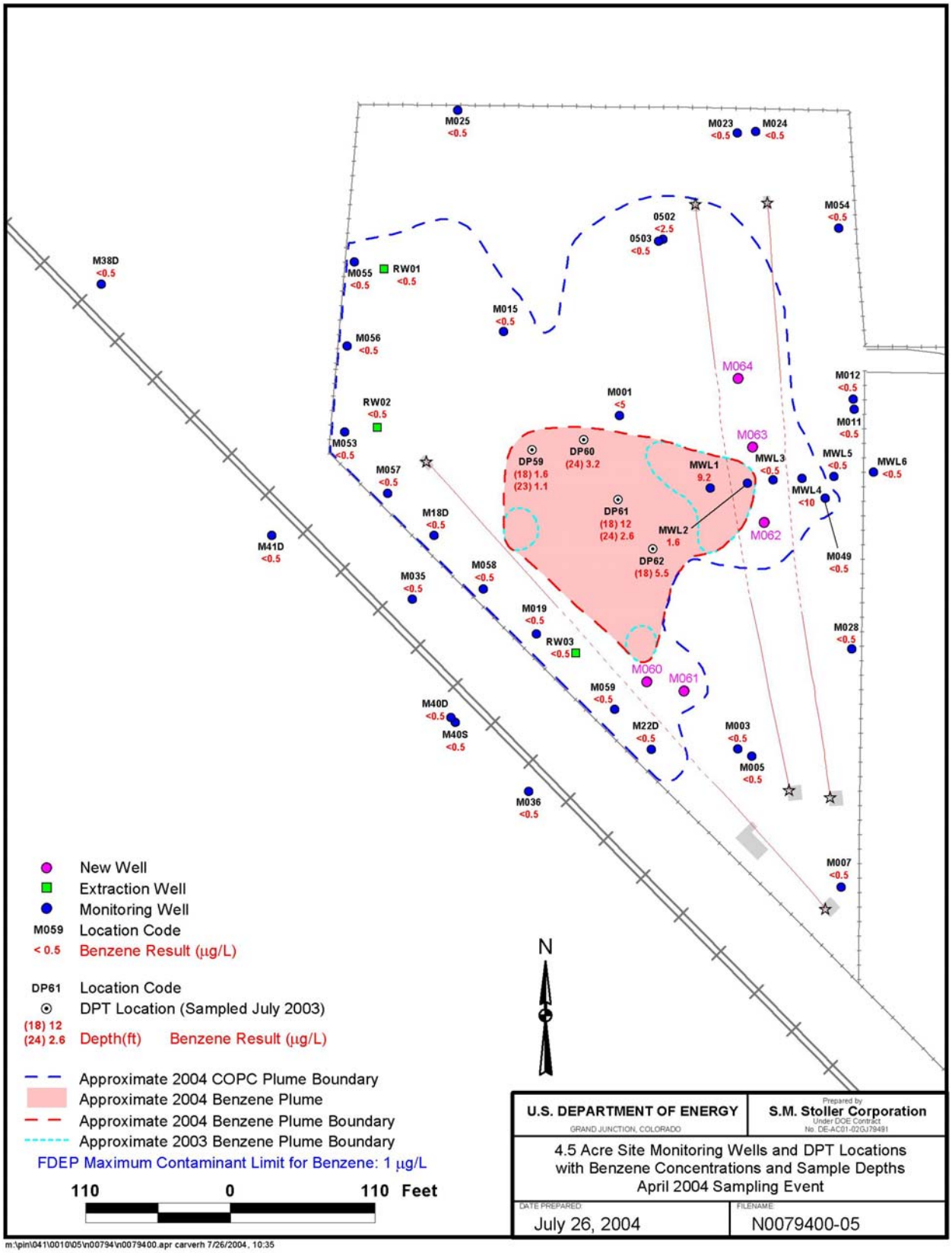

Figure 15. Benzene Plume Map

Table 1. Water-Level Data at the 4.5 Acre Site

Location	Measurement Date	Time	Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)	Water Level Flag[a]
PIN02			**West Pond**		
502D	4/14/2004	09:39	2.22	16.28	
W003	4/14/2004	09:35			D
PIN05			**Trench Site**		
0500	4/14/2004	09:24	1.67	16.83	
PIN20			**4.5 Acre Site**		
0502	4/14/2004	08:41	2.65	14.75	
0503	4/14/2004	08:43	2.66	14.74	
M001	4/14/2004	08:53	2.39	15.21	
M003	4/14/2004	08:24	2.38	15.82	
M005	4/14/2004	08:26	2.59	15.71	
M007	4/14/2004	08:28	3.55	15.90	
M011	4/14/2004	08:34	2.29	15.81	
M012	4/14/2004	08:35	2.10	15.90	
M015	4/14/2004	08:51	2.62	14.88	
M019	4/14/2004	08:18	2.72	15.28	
M023	4/14/2004	08:39	5.14	14.33	
M024	4/14/2004	08:38	3.22	14.58	
M025	4/14/2004	08:45	2.44	13.86	
M028	4/14/2004	08:30	2.27	15.93	
M035	4/14/2004	08:01	3.66	15.14	
M036	4/14/2004	07:57	3.98	15.32	
M049	4/14/2004	08:31	2.02	15.78	
M053	4/14/2004	08:09	2.42	14.78	
M054	4/14/2004	08:37	2.42	15.28	
M055	4/14/2004	08:47	3.04	14.36	
M056	4/14/2004	08:07	2.59	14.51	
M057	4/14/2004	08:12	2.93	14.97	
M058	4/14/2004	08:16	2.50	15.20	
M059	4/14/2004	08:21	2.38	15.42	
M18D	4/14/2004	08:15	2.63	15.07	
M22D	4/14/2004	08:23	2.34	15.46	
M38D	4/14/2004	07:50	5.13	13.37	
M40D	4/14/2004	07:55	4.22	15.18	
M40S	4/14/2004	07:56	4.04	15.16	
M41D	4/14/2004	07:53	4.42	14.68	
MWL1	4/14/2004	09:00	2.88	15.36	
MWL2	4/14/2004	09:02	2.31	15.46	
MWL3	4/14/2004	09:06	2.19	15.51	
MWL4	4/14/2004	09:07	2.12	15.62	
MWL5	4/14/2004	09:09	2.74	15.83	
MWL6	4/14/2004	09:14	2.58	15.87	

Table 1 (continued). Water-Level Data at the 4.5 Acre Site

Location	Measurement Date	Time	Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)	Water Level Flag[a]
RW01	4/14/2004	08:48	3.17	14.43	
RW02	4/14/2004	08:10	2.22	14.88	
RW03	4/14/2004	08:20	2.24	15.36	
TE01	4/14/2004	09:27	1.72	16.38	

[a]Water level flags: D=Dry, F=Flowing

Table 2. Field Measurements of Samples Collected at the 4.5 Acre Site

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
PIN20		4.5 Acre Site					
0502	21.2–31.2	24.5	1,293	37	6.6	-130.8	1.53
0503	13.2–23.2	24.5	1,577	27.3	6.75	-62	0.17
M001	20–25	23.7	1,186	2.55	6.6	-168.5	1.67
M003	9–14	23.21	1,039	1.96	6.69	48	0.61
M005	25.8–30.7	24.63	1,237	1.48	6.86	4	0.2
M007	25.3–30.3	23.4	907	2.31	6.81	-162.3	1.25
M011	23.7–28.7	23.11	823	3.53	6.8	-94	0.35
M012	8.6–13.6	21.77	732	8.01	6.78	-20	0.77
M015	20.8–25.8	23.61	702	2.45	6.88	-96	0.37
M019	22–27	24.04	1,275	6.62	6.87	-79	0.4
M023	19.8–24.8	24.32	739	3.05	6.96	-101	0.26
M024	8.7–13.7	25.67	800	10.1	6.9	-41	0.39
M025	8.6–13.6	23.07	2,282	17.1	6.68	-31	0.29
M028	22–27	24.31	833	5.32	6.75	-99	0.75
M035	9–14	22	2,634	1.43	6.76	-169.7	0.98
M036	25–30	22.89	812	3.65	6.77	-58	0.35
M049	20–30	23.63	1,118	219	6.76	-87	0.22
M053	20–30	25.9	932	48.7	6.91	-77	0.68
M054	20–30	24.61	1,200	26.8	6.81	-98	0.21
M055	21–31	24.28	861	26.5	6.88	5	0.54
M056	19–29	24.58	1,067	8.2	6.87	-61	0.77
M057	20–30	24.16	954	38.6	6.88	-83	0.37
M058	18–28	24.43	1,560	73.7	6.87	-94	0.49
M059	19–29	23.8	974	12.7	6.9	-77	1.55
M18D	20–30	23.1	1,322	15.3	6.91	-150.8	1.38
M22D	20–30	22.87	1,636	9.73	6.85	-97	0.75
M38D	20–30	22.3	689	3.65	7.05	-46	1.49
M40D	18–28	22.35	798	23.4	6.83	-62	0.33
M40S	4–14	21.88	184	7.35	6.24	58	0.57
M41D	16–26	23.1	2,095	6.58	6.75	-165.5	1.3
MWL1	21–26	23.7	2,857	18.2	6.56	-70	0.23
MWL2	21–26	22.65	1,168	11.5	6.85	-110	0.39
MWL3	21–26	22.9	2,417	3.77	6.49	-210	1.67
MWL4	20.8–25.8	24.83	822	6.74	6.72	-95	0.38
MWL5	20.8–25.8	23.7	898	11	6.81	-85	0.31
MWL6	21.5–26.5	23.21	1,000	9.98	6.81	-89	0.45

[a]Temperature corrected to 25°C
-- Not measured

Table 3. COPC Concentrations from Wells at the 4.5 Acre Site
(reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Benzene	Total COPC[c]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
PIN20		**4.5 Acre Site**							
0502	21.2–31.2	4/7/2003	0.27J	41	0.29J	41	110	0.18J	151
		7/16/2003	<2.5	61	<2.5	61	110	<2.5	171
		10/7/2003	<2.5	73	<2.5	73	110	<2.5	183
		1/14/2004	<0.5	154	1.3	155.3	162	<0.5	317.3
		4/19/2004	<2.5	145	<2.5	145	193	<2.5	338
0503	13.2–23.2	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		7/16/2003	<1	<1	<1	ND	<1	<1	ND
		10/7/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<5	<5	<5	ND	<5	<5	ND
		4/20/2004	<0.5	<0.5	<0.5	ND	0.55J	<0.5	ND
M001	20–25	4/8/2003	<5	93	0.97J	93	230	<5	323
		7/18/2003	<5	210	6.8	216.8	410	1.7J	626.8
		10/8/2003	<5	320	6.6	326.6	490	<5	816.6
		1/14/2004	<25	496	<25	496	748	<25	1,244
		4/19/2004	<5	405	17.4	422.4	814	<5	1,236.4
M003	9–14	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		4/21/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M005	25.8–30.7	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		4/21/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M007	25.3–30.3	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		4/20/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M011	23.7–28.7	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		7/18/2003	<1	<1	<1	ND	<1	<1	ND
		10/9/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/21/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M012	8.6–13.6	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		7/18/2003	<1	<1	<1	ND	<1	<1	ND
		10/9/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/21/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M015	20.8–25.8	4/8/2003	<1	<1	<1	ND	1.1	<1	1.1
		7/18/2003	<1	<1	<1	ND	0.61J	<1	ND
		10/9/2003	<1	<1	<1	ND	0.47J	<1	ND
		1/14/2004	<5	<5	<5	ND	<5	<5	ND
		4/21/2004	<0.5	<0.5	<0.5	ND	2.2	<0.5	2.2
M019	22–27	4/7/2003	<1	<1	<1	ND	0.29J	<1	ND
		7/16/2003	<1	<1	<1	ND	1.2	<1	1.2
		10/8/2003	<1	<1	<1	ND	1.6	<1	1.6
		1/14/2004	<0.5	<0.5	<0.5	ND	3.4	<0.5	3.4
		4/21/2004	<0.5	<0.5	<0.5	ND	2.3	<0.5	2.3

Table 3 (continued). COPC Concentrations from Wells at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Benzene	Total COPC[c]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
M023	19.8–24.8	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		7/16/2003	<1	<1	<1	ND	<1	<1	ND
		10/7/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/20/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M024	8.7–13.7	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		7/16/2003	<1	<1	<1	ND	<1	<1	ND
		10/7/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/20/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M025	8.6–13.6	4/8/2003	<1	<1	<1	ND	<1	<1	ND
		7/18/2003	<1	<1	<1	ND	<1	<1	ND
		10/7/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/20/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M028	22–27	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		4/19/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M035	9–14	4/8/2003	<1	<1	<1	ND	<1	<1	ND
		7/17/2003	<1	<1	<1	ND	<1	<1	ND
		10/10/2003	<1	<1	<1	ND	<1	<1	ND
		1/15/2004	<5	<5	<5	ND	<5	<5	ND
		4/16/2004	<0.5	0.61J	<0.5	0.61J	<0.5	<0.5	ND
M036	25–30	4/8/2003	<1	<1	<1	ND	<1	<1	ND
		7/17/2003	<1	<1	<1	ND	<1	<1	ND
		10/10/2003	<1	<1	<1	ND	<1	<1	ND
		1/15/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/16/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M049	20–30	4/8/2003	1.7J	54	4.6	58.6	16	<2.5	74.6
		7/17/2003	<1	28	1.4	29.4	3.5	<1	32.9
		10/8/2003	<1	24	<1	24	7.9	<1	31.9
		1/14/2004	<0.5	17.2	1.1	18.3	5.9	<0.5	24.2
		4/21/2004	<0.5	17.5	1.7	19.2	9.1	<0.5	28.3
M053	20–30	4/7/2003	<1	<1	<1	ND	3.3	<1	3.3
		7/16/2003	<1	<1	<1	ND	2.6	<1	2.6
		10/8/2003	<1	<1	<1	ND	2.7	<1	2.7
		1/14/2004	<5	<5	<5	ND	<5	<5	ND
		4/20/2004	<0.5	<0.5	<0.5	ND	1.8	<0.5	1.8
M054	20–30	4/7/2003	<1	<1	<1	ND	<1	<1	ND
		7/16/2003	<1	<1	<1	ND	<1	<1	ND
		10/8/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<2.5	<2.5	<2.5	ND	<2.5	<2.5	ND
		4/20/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND

Table 3 (continued). COPC Concentrations from Wells at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Benzene	Total COPC[c]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
M055	21–31	4/21/2004	<0.5	1.5	<0.5	1.5	9.9	<0.5	11.4
M056	19–29	4/21/2004	<0.5	<0.5	<0.5	ND	9.6	<0.5	9.6
M057	20–30	4/21/2004	<0.5	3.8	<0.5	3.8	3.8	<0.5	7.6
M058	18–28	4/21/2004	<0.5	5.6	0.69J	5.6	3.7	<0.5	9.3
M059	19–29	4/21/2004	<0.5	<0.5	<0.5	ND	8.3	<0.5	8.3
M18D	20–30	4/8/2003	<1	1.6	<1	1.6	4.9	<1	6.5
		7/16/2003	<1	3.2	<1	3.2	2.7	<1	5.9
		10/8/2003	<1	5.2	<1	5.2	3.8	<1	9
		1/14/2004	<0.5	10.2	<0.5	10.2	4.6	<0.5	14.8
		4/20/2004	<0.5	10.2	<0.5	10.2	5.7	<0.5	15.9
M22D	20–30	4/7/2003	<1	<1	<1	ND	8	<1	8
		7/18/2003	<1	<1	<1	ND	24	<1	24
		10/8/2003	<1	<1	<1	ND	7.3	<1	7.3
		1/14/2004	<0.5	<0.5	<0.5	ND	2.3	<0.5	2.3
		4/20/2004	<0.5	<0.5	<0.5	ND	1.9	<0.5	1.9
M38D	20–30	4/8/2003	<1	<1	<1	ND	<1	<1	ND
		7/17/2003	<1	<1	<1	ND	<1	<1	ND
		10/9/2003	<1	<1	<1	ND	<1	<1	ND
		1/15/2004	<5	<5	<5	ND	<5	<5	ND
		4/16/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M40D	18–28	4/8/2003	<1	<1	<1	ND	<1	<1	ND
		7/17/2003	<1	<1	<1	ND	<1	<1	ND
		10/9/2003	<1	<1	<1	ND	<1	<1	ND
		1/15/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/16/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M40S	4–14	4/8/2003	<1	<1	<1	ND	<1	<1	ND
		7/17/2003	<1	<1	<1	ND	<1	<1	ND
		10/10/2003	<1	<1	<1	ND	<1	<1	ND
		1/15/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/16/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
M41D	16–26	4/9/2003	<1	<1	<1	ND	<1	<1	ND
		7/18/2003	<1	<1	<1	ND	<1	<1	ND
		10/9/2003	<1	<1	<1	ND	<1	<1	ND
		1/15/2004	<5	<5	<5	ND	<5	<5	ND
		4/16/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
MWL1	21–26	4/8/2003	<1	0.3J	<1	0.3J	6.1	5.3	11.4
		7/17/2003	<1	<1	<1	ND	3.6	6.7	10.3
		10/9/2003	<1	<1	<1	ND	4.1	6.8	10.9
		1/14/2004	<25	<25	<25	ND	<25	<25	ND
		4/21/2004	<0.5	<0.5	<0.5	ND	4	9.2	13.2

Table 3 (continued). COPC Concentrations from Wells at the 4.5 Acre Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Benzene	Total COPC[c]
FDEP MCL			**3**	**70**	**100**	**63**	**1**	**1**	
MWL2	21–26	4/8/2003	<1	0.9J	0.21J	1.11J	25	1.4	26.4
		7/17/2003	<1	2	0.8J	2	41	1.4	44.4
		10/9/2003	<1	9.5	4.2	13.7	82	2.9	98.6
		1/14/2004	<10	14J	<10	14J	120	<10	120
		4/19/2004	0.91J	16.1	14.7	30.8	99.3	1.6	131.7
MWL3	21–26	4/8/2003	<1	0.27J	<1	0.27J	3.8	0.15J	3.8
		7/17/2003	<10	<10	<10	ND	640	<10	640
		10/9/2003	<10	<10	<10	ND	680	<10	680
		1/14/2004	<5	<5	<5	ND	<5	<5	ND
		4/19/2004	<0.5	0.54J	<0.5	0.54J	735	<0.5	735
MWL4	20.8–25.8	4/8/2003	240	8,200	140	8,340	1,700	<100	10,280
		7/17/2003	110	4,000	43J	4,000	870	<50	4,980
		10/9/2003	<50	2,600	13J	2,600	660	<50	3,260
		1/14/2004	<10	993	17.9J	993	347	<10	1,340
		4/19/2004	<10	873	19.8J	873	422	<10	1,295
MWL5	20.8–25.8	4/8/2003	<1	1.3	<1	1.3	<1	0.19J	1.3
		7/17/2003	<1	<1	<1	ND	<1	<1	ND
		10/8/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<5	<5	<5	ND	<5	<5	ND
		4/21/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
MWL6	21.5–26.5	4/8/2003	<1	0.25J	<1	0.25J	<1	0.2J	ND
		7/17/2003	<1	<1	<1	ND	<1	<1	ND
		10/10/2003	<1	<1	<1	ND	<1	<1	ND
		1/14/2004	<5	<5	<5	ND	<5	<5	ND
		4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
RW01	10−30	4/20/2004	<0.5	1.2	<0.5	1.2	7.4	<0.5	8.6
RW02	8−28	4/20/2004	<0.5	<0.5	<0.5	ND	1.2	<0.5	1.2
RW03	8−28	4/20/2004	<0.5	<0.5	<0.5	ND	4.9	<0.5	4.9

[a]Before December 18, 2003, "<" values are reporting limits. On or after December 18, 2003, "<" values are method detection limits.
[B]Total 1,2-DCE is the sum of cis-1,2-DCE and trans-1,2-DCE.
[C]Total COPC is the sum of the individual COPC concentrations. The cis-1,2-DCE and trans-1,2-DCE values are not part of the total COPC value because these values are included in the total 1,2-DCE value. "J" values are not included in the total COPC value.
ND = Not detected.
J = Estimated value, result is between the reporting limit and the method detection limit.

Table 4. RPD for Duplicate Samples, 4.5 Acre Site

Sample ID	Duplicate ID	Case Number	Constituent	S[a]	D[b]	RPD Value	5 times DL[c]	Fail[d]
PIN20–M003	PIN20–0550	F23675	ND					
PIN20–M38D	PIN20–0551	F23551	ND					

[a]S = Original sample (N001), VOC concentration in μg/L.
[b]D = Duplicate sample (N002), VOC concentration in μg/L.
[c]DL = Detection limit.
[d]Fail is an RPD greater than "30% and an original or duplicate sample more than 5 times the detection limit.

Table 5. Summary of Analytical Results for the 4.5 Acre Site Treatment System (reported in micrograms per liter unless otherwise noted)[a]

Location[b]	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[c]	Vinyl chloride	Benzene	Total COPC[d]	$CaCO_3$ mg/L	Fe mg/L
PIN20					4.5 Acre Site					
TRTI	4/20/2004	<0.5	<0.5	<0.5	ND	3.2	<0.5	3.2	777	3.35
	4/26/2004	<0.5	0.55J	<0.5	0.55J	1.8	<0.5	1.8	839	1.69
	4/27/2004	<0.5	1.2	<0.5	1.2	5.3	<0.5	6.5	824	3.92
	4/28/2004	<0.5	0.98J	<0.5	0.98J	5.2	<0.5	5.2	774	3.61
	4/29/2004	<0.5	1.3	<0.5	1.3	6.2	<0.5	7.5	792	4.13
	5/5/2004	<0.5	1.6	0.9J	1.6	5.5	<0.5	7.1	758	5.96
	5/11/2004	<0.5	<0.5	<0.5	ND	4.6	<0.5	4.6	656	8.24
	5/18/2004	<0.5	0.78J	0.68J	1.46J	3.3	<0.5	3.3	784	5.61
	5/25/2004	<0.5	0.72J	<0.5	0.72J	4.5	<0.5	4.5	779	5.86
	6/1/2004	<0.5	0.86J	<0.5	0.86J	4.1	<0.5	4.1	734	5.28
TRTE	4/20/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	822	3.51
	4/26/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	844	1.78
	4/27/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	836	3.81
	4/28/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	774	3.75
	4/29/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	819	4.14
	5/5/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	708	5.49
	5/11/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	601	5.7
	5/18/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	760	5.62
	5/25/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	749	5.57
	6/1/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND	748	5.38

[a]"<" values are method detection limits.
[b]TRTI is the system influent and TRTE is the system effluent.
[c]Total 1,2-DCE is the sum of cis-1,2-DCE and trans-1,2-DCE
[d]Total COPC is the sum of the individual COPC concentrations. The cis-1,2-DCE value is not part of the Total COPC value because this value is included in the Total 1,2-DCE value. "J" values are not included in the Total COPC value.
J = Estimated value, result is between the reporting limit and the method detection limit.
ND = Not detected.

Table 6. Estimated Mass of VOCs Recovered from the 4.5 Acre Site Recovery Wells During April, May, and June 2004

Month	Volume Treated (gallons)	Concentration[a]						
		cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Toluene (µg/L)	TCE (µg/L)	Methylene Chloride (µg/L)	Vinyl Chloride (µg/L)	Total VOCs (µg/L)
April 2004	39,086	0.86	0.25	0.25	0.25	0.50	4.34	6.45
May 2004	180,833	0.84	0.52	0.25	0.25	0.50	4.48	6.83
June 2004	157,790	0.86	0.25	0.25	0.25	0.50	4.10	6.21

Month	Volume Treated (gallons)	Recovery[b]						
		cis-1,2-DCE (lbs)	trans-1,2-DCE (lbs)	Toluene (lbs)	TCE (lbs)	Methylene Chloride (lbs)	Vinyl Chloride (lbs)	Total VOCs (lbs)
April 2004	39,086	0.0	0.0	0.0	0.0	0.0	0.0	0.0
May 2004	180,833	0.0	0.0	0.0	0.0	0.0	0.01	0.01
June 2004	157,790	0.0	0.0	0.0	0.0	0.0	0.01	0.01

[a]These concentrations represent the average of weekly sampling results.
[b]Includes "J" (estimated) values. For any detection of "<", which indicates the laboratory could not detect that analyte, 50 percent of the "<" value was used for the calculation of recovery.