DOE–LM/GJ925–2005

Pinellas Environmental Restoration Project

Sitewide Environmental Monitoring Quarterly Progress Report for the Young - Rainey STAR Center April Through June 2005

July 2005

U.S. Department of Energy

Office of Legacy Management

Work Performed Under DOE Contract No. DE–AC01–02GJ79491
for the U.S. Department of Energy Office of Legacy Management.
Approved for public release; distribution is unlimited.

DOE−LM/GJ925−2005

Pinellas Environmental Restoration Project
Sitewide Environmental Monitoring
Quarterly Progress Report
for the
Young - Rainey STAR Center

April through June 2005

July 2005

Work Performed by S.M. Stoller Corporation under DOE Contract No. DE–AC01–02GJ79491
for the U.S. Department of Energy Office of Legacy Management, Grand Junction, Colorado

Contents

Page

Figures

Tables

Plates

Appendices

Acronyms and Abbreviations

bls	below land surface
°C	degrees Celsius
CMS	Corrective Measures Study
CMIP	Corrective Measures Implementation Plan
COPC	contaminants of potential concern
CRDL	contract required detection limit
DCE	dichloroethene
DOE	U.S. Department of Energy
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
FONSI	Finding of No Significant Impacts
ft	feet
ft/ft	feet per foot
gpm	gallons per minute
HSWA	Hazardous and Solid Waste Amendment
HRC	Hydrogen Release Compound®
ICM	interim corrective measures
IDL	instrument detection limit
IMW	Interim Measures Work (Plan)
IWNF	Industrial Wastewater Neutralization Facility
MCL	maximum contaminant level
MSL	mean sea level
µmhos/cm	micromhos per centimeter
µg/L	micrograms per liter
mg/L	milligrams per liter
mV	millivolt
NAPL	non-aqueous phase liquid
NEPA	National Environmental Policy Act
NGVD	national geodetic vertical datum
NTU	Nephelometric Turbidity Units
PCIC	Pinellas County Industrial Council
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RPD	relative percent difference
STAR Center	Young - Rainey Science, Technology, and Research Center
SWMU	solid-waste management unit
TCE	trichloroethene
TCOPC	total contaminants of potential concern
VOCs	volatile organic compounds
WWNA	Wastewater Neutralization Area

1.0 Introduction

The Young - Rainey Science, Technology, and Research Center (STAR Center) is a former U.S. Department of Energy (DOE) facility constructed in the mid-1950s in Pinellas County, Florida. The 99-acre STAR Center is located in Largo, Florida, and lies in the northeast quarter of Section 13, Township 30 South, Range 15 East (Figure 1). The STAR Center, while owned by DOE, primarily manufactured neutron generators for nuclear weapons. Other products manufactured at the STAR Center have included radioisotopically powered thermoelectric generators, thermal batteries, specialty capacitors, crystal resonators, neutron detectors, lightning-arrestor connectors, and vacuum-switch tubes. In 1987, the U.S. Environmental Protection Agency (EPA) performed a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) (EPA 1988) at the site to gather information on potential releases of hazardous materials. In February of 1990, EPA issued a Hazardous and Solid Waste Amendment (HSWA) permit to DOE, enabling DOE to investigate and perform remediation activities in those areas contaminated by hazardous materials resulting from DOE operations. On March 17, 1995, DOE sold the facility to the Pinellas County Industrial Council (PCIC). The sales contract included clauses to ensure continued compliance with Federal, State, and local regulations while DOE remediates the site. On July 1, 1999, the PCIC was disestablished and ownership of the STAR Center changed to the Pinellas County government. In November 2000, the State of Florida received HSWA authorization from the EPA. The Florida Department of Environmental Protection (FDEP) issued a new HSWA permit to DOE in January 2002.

Administration of DOE activities at the facility is the responsibility of the DOE Office of Legacy Management in Grand Junction, Colorado. S.M. Stoller Corporation (Stoller), a prime contractor to DOE's Office of Legacy Management in Grand Junction, provides technical support to DOE for remediation and closure of all active solid-waste management units (SWMUs) on site.

The EPA RFA Report and the HSWA permit identified 15 sites at the former DOE facility that may have experienced environmental contamination as a result of past activities. Upon completion of the RCRA Facility Investigation (DOE 1991), 11 of the 15 SWMUs were recommended by DOE and approved by EPA Region IV and the FDEP for no further action (DOE 1994). A twelfth site, the Former Pistol Range Site, was remediated in 1993 and recommended by DOE and approved by EPA Region IV and the FDEP for no further action.

Two additional SWMUs, the West Fenceline Site and the Wastewater Neutralization Area/ Building 200 (WWNA/Building 200), were identified after the HSWA permit was issued, bringing the total to 17 SWMUs that have been identified and investigated at the STAR Center. Remediation of the West Fenceline Site was completed in 1997 and DOE recommended, and EPA Region IV and FDEP approved, no further action. A Corrective Measures Study (CMS)/Corrective Measures Implementation Plan (CMIP) was prepared and submitted in 1997 to EPA Region IV and FDEP to address the contamination at the WWNA/Building 200 Area.

Therefore, there are currently four sites that have contamination in the surficial aquifer ground water at levels in excess of protective standards. These four SWMUs, the Old Drum Storage Site (PIN06), the Industrial Drain Leaks-Building 100 Area (PIN12), the Northeast Site (PIN15), and the WWNA/Building 200 Area (PIN18), are undergoing remediation activities. Two SWMUs, PIN06 and PIN12, are currently being remediated together because of their similar ground water contamination and proximity. These two SWMUs are collectively known as the Building 100

Area. Figure 2 depicts the location of the four SWMUs. Additional background information relative to each SWMU is briefly described below.

This document also serves as the quarterly progress report for each of these four SWMUs. The results of monitoring activities, a summary of the treatment system performance, and a summary of ongoing and projected work are provided in this report.

1.1 Building 100 Area

The Building 100 Area (PIN06 and PIN12) is located in the southeast portion of the STAR Center. The Old Drum Storage Site is the former location of a concrete storage pad equipped with a drain and containment system used to store hazardous waste including dichloromethane (also known as methylene chloride), ignitable liquids, arsenic, and calcium chromate solids (DOE 1987a). Empty drums containing residual waste solvents were also stored in this area (DOE 1987b). The concrete pad was located near the northwest corner of Building 100. The pad was removed in October 1983 in accordance with an FDEP closure permit (DOE 1987a), and a closure report was submitted to the FDEP in August 1986 (DOE 1986). The decommissioning of the pad and the cessation of drum storage effectively removed the potential for a future contaminant source at PIN06.

Building 100 is the largest building at the STAR Center and covers approximately 11 acres. In the past, offices, laboratories, and production facilities for the DOE were housed in the building. SWMU PIN12 consists of the liquid waste drainage system that formerly served Building 100. Four individual drainage systems (sanitary, chemical, health physics, and storm water) were present within the building. In 1989, all four drainage systems were investigated, including verifying the system routing and the condition of underground and above-ground piping and ancillary equipment (EMC 1989). As a result of this investigation, the health physics and chemical drainage systems were flushed, grouted, and abandoned (DOE 1997). Some of the chemical drain lines were replaced by an above-ground system currently used by tenants of the building.

A CMS and CMIP were completed and approved for the Building 100 Area because volatile organic compounds (VOCs) concentrations measured in ground water at the Old Drum Storage Site (PIN06) and one monitoring well located at the northwest corner of Building 100 (PIN12) exceeded the Safe Drinking Water Act and FDEP maximum contaminant levels (MCLs). Subsequent investigations revealed elevated VOCs concentrations under Building 100 and downgradient to the southeast as well. On August 15, 2000, EPA approved the Building 100 CMIP Addendum. FDEP approved this same document on November 15, 1999.

In May 2001, DOE began an analysis of the potential remediation strategies for the three Building 100 Area tasks: plume control, source treatment, and dissolved phase treatment. The *Building 100 Area Remediation Technology Screening Report* (DOE 2001) assembled a list of remediation technologies, categorized them into the remediation tasks, and conducted an initial screening of the technologies. This initial screening eliminated the technologies that obviously would not work and recommended technologies that should be retained for detailed evaluation at a later time. The final technology for each task will be identified at a later date.

The *Building 100 Area Plume Control Technology Selection Report*, prepared in February 2002, conducted a detailed evaluation of five plume control technologies and recommended that enhanced bioremediation should be implemented for plume control at the Building 100 Area.

In-situ enhanced bioremediation to control the plume of dissolved contaminants at the Building 100 Area began as a pilot study on March 11, 2003. Hydrogen Release Compound® (HRC) was injected through nine injection points surrounding each of three monitoring wells. Ground water samples were collected from each of the three monitoring wells at approximately 2-month intervals through May 2004 to track the progress of HRC at remediating site contaminants. HRC was selected because it is an effective technology for optimizing degradation rates of chlorinated hydrocarbons dissolved in ground water. The continuous hydrogen source provided by the HRC can reduce the concentration of dissolved phase chlorinated hydrocarbons by greatly enhancing the reductive declorination process that occurs naturally at the Building 100 Area. The *In-Situ Enhanced Bioremediation Technology to Control the Plume of Dissolved Contaminants at the Building 100 Area of the Young - Rainey STAR Center Pilot Test* final report was received from the subcontractor on April 5, 2004. The results of the pilot test indicate that the injection of HRC had a limited influence in the pilot test area. This conclusion is based on increasing concentrations of the metabolic acids (as produced from HRC) and the decreasing concentrations of sulfate and iron and the observation of ethene at one location. A supplemental sampling event was conducted in May 2004, after which the pilot test was considered complete.

1.2 Northeast Site

In the late 1960s, before construction of the East Pond, drums of waste and construction debris were disposed of in the swampy area of the Northeast Site. The East Pond was excavated in 1968 as a borrow pit. In 1986, an expansion of the East Pond was initiated to create additional storm-water retention capacity. Excavation activities ceased when contamination was detected directly west of the East Pond. EPA identified the Northeast Site as a SWMU (EPA 1992). An Interim Corrective Measures (ICM) Study was developed and submitted to EPA and approval of this document was received in October 1991. An interim ground water recovery system for the Northeast Site was installed, and operation commenced in January 1992.

The ground water treatment system, as initially installed, consisted of four recovery wells equipped with pneumatic recovery pumps, a holding tank, centrifugal transfer pumps, and approximately 2,500 feet (ft) of transfer and secondary containment piping. During 1993, DOE proposed a reconfigured system for the site consisting of four shallow and three deep recovery wells. After EPA approved the upgrade, the system was reconfigured and became operational on March 1, 1994.

Between August and October 1995, after EPA and FDEP approval, a portion of the Northeast Site was excavated to remove debris and other materials that could inhibit future corrective measures. Location of the areas of excavation was based primarily on the results of a geophysical survey and knowledge of existing utility locations. Detailed descriptions of the debris removal activities were submitted to EPA and FDEP as part of the *Northeast Site Interim Measures Quarterly Progress Report* (DOE 1996).

In 1996, DOE submitted a CMIP to EPA Region IV and FDEP. This plan was approved by both regulatory agencies in 1997. As part of the Northeast Site CMS and CMIP, a pump-and-treat

system in conjunction with a subsurface hydrogeologic barrier wall to prevent migration of the contaminant plume was identified as the best available technology. A pretreatment system for iron removal, an air stripper unit, and a tank for holding treated ground water before discharge to the Pinellas County Publicly Owned Treatment Works were recommended. The treatment system was constructed in early 1997 and became operational by July 1997 with seven Northeast Site recovery wells and two Building 100 recovery wells pumping to the system influent tank. Subsequently several additional recovery wells were installed, and some of the old recovery wells were abandoned.

During 1997, anaerobic bioremediation and rotary steam stripping pilot tests were conducted in the northern and southern portions of the Northeast Site, respectively. These tests were designed by an Innovative Treatment Remediation Demonstration group of regulatory and industry members to provide remedial options at the STAR Center. At the conclusion of the field tests in July 1997, pump-and-treat technology resumed at the Northeast Site.

An *Interim Measures Work* (IMW) *Plan for Remediation of Non-Aqueous Phase Liquids at the Northeast Site* was submitted to FDEP in late November 2001. The purpose of this document was to present the plan for the interim measure to remediate non-aqueous phase liquids (NAPLs) at the Northeast Site. An ICM is warranted because it supports the long-term corrective action to remediate the dissolved phase contamination in the surficial aquifer to FDEP drinking water MCLs. Without this measure, NAPLs will continue to act as a source of dissolved contamination, resulting in contaminant concentrations in ground water well above the MCLs. FDEP approved this document on January 10, 2002.

Concurrent with the preparation of the IMW Plan, a National Environmental Policy Act (NEPA) Environmental Checklist recommending a Categorical Exclusion was approved by DOE on December 19, 2001. Categorically excluding the Area A pilot test activity was approved based upon the fact that the NAPL remediation of Area A was a small-scale, short-term cleanup action and the siting, construction, and operation of treatment facilities were temporary and pilot-scale in size. Additionally, activities of this nature were evaluated in the 1995 *Environmental Assessment of Corrective Action at the Northeast Site* (EA) (DOE 1995).

A NEPA Action Review was conducted for the interim measure source removal action at Area B in October of 2002. A summary of the review concluded that Area B remediation would impact an area of approximately 38,000 square ft. The footprint of the above ground treatment system would be about 80 ft by 80 ft, and an estimated 84,000 gallons per day of ground water would be processed over a 24-week period of operation. The proposed interim measure, although not specifically identified in the 1995 EA, was determined to be within the scope of the proposed actions. The remedial activity would occur within the same physical boundaries and address the same contaminants identified in the EA, but in a more concentrated form. Because the EA provided for “design modifications to reflect technological advances or site-specific conditions,” it was determined that the NAPL remediation of Area B was within the scope of the existing EA. However, this flexibility was not mentioned in the Finding of No Significant Impacts (FONSI) document signed in May 1995 (Glass 1995). Therefore, it was determined that the appropriate action under NEPA would require an amendment to the FONSI to include the broader scope of activities from the EA and any additional impacts from the NAPL removal action. The FONSI was amended, reviewed by the DOE-Idaho NEPA Planning Board, and approved by the DOE Grand Junction Office NEPA Compliance Officer on February 24, 2003.

Construction of the NAPL Area A treatment system began in late May 2002, and system startup occurred on September 26, 2002. NAPL treatment was completed on February 28, 2003. Three post-treatment sampling events occurred in March, May, and August 2003. Demobilization activities began in early March and were completed in September 2003. The *Northeast Site Area A NAPL Remediation Final Report* (DOE 2003), describing thermal remediation of Area A, was sent to stakeholders on September 25, 2003.

At the end of February 2004, a contract was awarded for the remediation of NAPL Area B using Electro-Thermal Dynamic Stripping Process. Construction of the NAPL Area B treatment system began in July 2004, and system startup is scheduled for August 2005. Significant events associated with NAPL remediation during this reporting period are presented in the *Northeast Site Non-Aqueous Phase Liquids Interim Measures Progress Report April through June 2005* (DOE 2005).

1.3 WWNA/Building 200 Area

The WWNA/Building 200 Area includes the active Industrial Wastewater Neutralization Facility (IWNF), the area around Building 200, and the area south of the neutralization facility. The IWNF refers to the physical treatment facility that currently receives sanitary and industrial wastewater and has been in operation since 1957.

A CMS Report and CMIP were completed in 1997 for this SWMU because vinyl chloride, trichloroethene (TCE), and arsenic were detected in surficial aquifer ground water at concentrations above Federal and State MCLs. The recommended remediation alternative for the WWNA/Building 200 Area was ground water recovery with the Building 100 Area wells and an additional recovery well located in the WWNA. The CMIP recommended that recovered water from the additional well be discharged directly to the IWNF and that the recovery well in the WWNA/Building 200 Area will withdraw surficial aquifer ground water directly from the arsenic plume and thereby reduce the contaminant mass and prevent contaminant migration.

FDEP response to the CMS/CMIP concerning arsenic contamination in the upper 2 ft of soil suggested that a treatment technology, air sparging, was eliminated too early. DOE then proposed a multi-phased Interim Action that included operating the recovery well for 6 months, then pulsing the system, as well as performing geochemical analyses and leaching studies of the site. On January 21, 1999, FDEP approved the proposed interim remedial action.

Additionally, EPA Region IV also approved the interim remedial action and concurred with the FDEP's position regarding the arsenic contamination. EPA also requested an addendum or modification to the CMIP that addresses DOE's final selection of the remediation technology and a timeline for the completion of these activities.

In early June 1999, the WWNA recovery well commenced operation. All arsenic concentrations in water from the WWNA recovery well, PIN18−RW01, were below the STAR Center's daily maximum discharge standard for arsenic in wastewater of 0.20 milligrams per liter (mg/L) until shutdown.

Additional details concerning the impacts of ground water extraction are reported in the WWNA/Building 200 Area CMIP Addendum (DOE 2000b). Modifications to the recovery of ground water were proposed based on data collected through November 1999 and consisted of the installation of two new recovery wells screened at shallow intervals and the abandonment of RW01. The CMIP Addendum was submitted to the regulators and approved by FDEP and EPA in 2000. A Statement of Basis (DOE 2000a) was issued by DOE in late September 2000. This document provides a summary of environmental investigations and proposed cleanup alternatives for the WWNA/Building 200 Area. In 2003, monitoring well PIN18−0501 was converted to a recovery well. Current activities at the WWNA include ground water extraction from three recovery wells, PIN18−RW02, −RW03, and −RW0501, that discharge to the STAR Center's wastewater system. Table 1 lists the results of the analysis of arsenic in ground water that is being recovered from these three wells.

1.4 Site Update

Significant ongoing site activities consist of the Northeast Site NAPL Area B construction activities and normal operations of the Building 100 recovery wells and air stripper and WWNA recovery wells. Significant activities associated with NAPL remediation during this reporting period are presented in the *Northeast Site Non Aqueous Phase Liquids Interim Measures Progress Report January through March 2005* (DOE 2005).

Risk Based Corrective Action legislation is currently being evaluated for applicability to assist in expediting closure at some or all of the SWMUs at the STAR Center.

1.5 Quarterly Site Activities

- Obtained water-level measurements from all accessible monitoring wells, recovery wells, and ponds on April 5, 2005.
- Conducted the annual sampling event in April 2005. The sampling event included collecting water samples from 166 monitoring and recovery wells. VOCs samples were collected at 163 wells and arsenic was sampled at 51 wells
- Reported the results of annual sampling events (this document).
- Performed Florida Petroleum Range Organic sampling on 20 monitoring wells. Thirteen of these wells are located inside and adjacent to former NAPL Area A. The sampling was performed to compare pre- and post-remediation contaminant levels. Seven wells were located around the perimeter of NAPL Remediation Area B; the sampling was performed to establish baseline contaminant levels prior to the start of remediation.

2.0 Water-Level Elevations

2.1 Work Conducted and Methods

Within an 8-hour period on April 5, 2005, depth-to-water measurements were taken at all accessible monitoring wells and extraction wells at the STAR Center. The water levels were measured with an electronic water-level indicator with the exception of some of the ponds,

which are measured with gauging stations. Ground water and surface-water elevations are listed in Table 2.

2.2 Ground Water Flow

Ground water and surface-water elevations were used to construct sitewide ground water contour maps of the shallow and deep surficial aquifers (Plates 1 and 2, respectively). Individual contour maps were also constructed for the shallow and deep surficial aquifers at the Northeast Site and the Building 100 Area (Figure 3 through Figure 6, respectively).

The water levels throughout the STAR Center indicate that the water table is highest in the general area around the West Pond (Plates 1 and 2). As ground water flows from this recharge area, it disperses to the west, south, and east. These flow patterns are similar for both the shallow and deep surficial aquifers, and are consistent with previously observed flow patterns.

Along the northern boundary of the Northeast Site, the contours near the slurry wall for the past several years have indicated that the wall has been a significant barrier to ground water flow. This pattern was observed again in April 2005. As seen on Figure 4, in April 2005 there was a differential of about 0.5 ft between the downgradient and upgradient sides of the wall as measured in monitoring wells PIN15−M24D and −M33D, respectively. As seen the previous three quarters, this differential is less than the historical range of about 2 to 5 ft, and is believed to be the result of currently not withdrawing ground water at the Northeast Site. This has in turn resulted in a return to more natural ground water flow patterns for the surficial aquifer, with flow primarily to the east. Water-table elevations indicate that the shallow surficial aquifer was slightly recharging the East Pond in April 2005 (Figure 3). This recharge pattern has been consistent during the past year.

In the shallow surficial aquifer at the Northeast Site, the hydraulic gradient was approximately 0.005 feet per foot (ft/ft), with a general component of flow to the east (Plate 1). This flow pattern is similar to previously observed flow patterns under static, non-pumping conditions. Using Darcy's Law, along with approximations of 1 ft/day for hydraulic conductivity and 0.3 for effective porosity, ground water at the Northeast Site is estimated to move about 6 ft/year. This velocity is significantly less than historical estimates of 17 and 22 ft/year, but similar to that observed during the previous three quarters. In January and April 2005, similar flow patterns were observed in the deep surficial aquifer (Plate 2).

In the south-central part of the STAR Center, surficial aquifer flow is influenced by ground water withdrawals from recovery wells PIN18−RW02, −RW03, and –RW0501 at the WWNA, and recovery wells PIN12−RW01 and –RW02 at Building 100 (Figures 5 and 6). For the past 2 years, shallow ground water beneath Building 100 has been observed to flow to the southeast under a very slight gradient. In April 2005, the overall general component of ground water flow was again to the southeast. The hydraulic gradient at the Building 100 Area was about 0.001 ft/ft. Using the approximations mentioned above, ground water flow velocity in this area is estimated to be less than 2 ft/year. Shallow ground water at the WWNA flows to the southeast, except where affected by recovery well withdrawals.

Water-level elevations in the three wells screened in the upper part of the Floridan aquifer are presented in Table 3. The water levels in these wells indicate that the potentiometric surface of the Floridan aquifer at the site was at a similar elevation in April 2005 as in January 2005.

A downward vertical hydraulic differential of approximately 8.1 ft existed between the surficial aquifer wells and Floridan aquifer wells at the Northeast Site. Table 4 illustrates the vertical hydraulic differential. This differential is consistent with the historical range of 5 to 9 ft.

Surface-water elevations were recorded from the East, South, West, and Southwest Ponds at the site and are presented in Table 5. The ponds are hydraulically connected to the shallow surficial aquifer system (Plate 1). The South and Southwest Ponds elevations have always been essentially the same.

3.0 Ground Water Sampling and Analytical Results

3.1 Work Performed

During annual sampling in April 2005, ground water samples were collected from 166 monitoring and recovery wells. VOCs analyses were performed on 163 samples using EPA SW-846 Method 8260. Arsenic was analyzed in 51 samples using EPA SW-846 Method 6010. Twenty wells were sampled for Florida Petroleum Range Organics. Laboratory reports are provided in Appendix A.

During the period of April 1 to June 30, 2005, VOCs, iron, and hardness (as $CaCO_3$) were measured for the Building 100 treatment system and results are provided in Appendix B. Laboratory reports for the three recovery wells and the two effluent samples from the WWNA are provided in Appendix C.

All samples were collected in accordance with the Stoller *Sampling Procedures for the Young - Rainey STAR Center and 4.5 Acre Site* (DOE 2004), using FDEP procedures. All samples collected were submitted to Accutest Laboratories in Orlando, Florida, for analysis. Accutest is accredited by the Florida Department of Health in accordance with the National Environmental Laboratory Accreditation Conference, certification number E83510. All but four of the monitoring wells were micropurged using a dedicated bladder pump, and sampling was performed when the field measurements stabilized. The remaining wells were conventionally purged with a peristaltic pump or a 2-inch diameter stainless-steel submersible pump; purging was considered complete once field measurements had stabilized. Extraction wells were sampled using their associated flowlines with dedicated sampling ports. Table 6 lists field measurements of pH, specific conductance, dissolved oxygen, oxidation-reduction potential, turbidity, and temperature recorded at the time the samples were collected. Measurements were made with a flow cell and a multiparameter instrument.

3.2 Analytical Results

3.2.1 Northeast Site (PIN15)

Table 7 shows the results of arsenic sampling at seven Northeast Site wells. Arsenic concentrations ranged from nondetect to 0.0129 mg/L in PIN15−M03S.

Table 8 shows the results of petroleum hydrocarbon samples collected from inside and adjacent to the former NAPL Area A, and adjacent to NAPL Area B. Concentrations ranged from nondetect to 4.58 mg/L in PIN15−0577.

Concentrations of contaminants of potential concern (COPCs) in samples collected from wells at the Northeast Site (PIN15) are included in Table 9, which also shows the previous four quarters of data for comparison purposes. Figure 7 shows the total COPCs (TCOPCs) concentrations.

No COPCs were detected in the 36 monitoring wells listed below:

PIN15–0506	PIN15–0523	PIN15–0565	PIN15–M12D	PIN15–M27D
PIN15–0507	PIN15–0534	PIN15–0568	PIN15–M12S	PIN15–M27S
PIN15–0510	PIN15–0535	PIN15–0570	PIN15–M14D	PIN15–M29D
PIN15–0513	PIN15–0557	PIN15–0571	PIN15–M14S	PIN15–M29S
PIN15–0515	PIN15–0561	PIN15–0572	PIN15–M16D	PIN15–M32D
PIN15–0516	PIN15–0562	PIN15–M03D	PIN15–M16S	PIN15–M32S
PIN15–0518	PIN15–0564	PIN15–M03S	PIN15–M24D	PIN15–M33D
PIN15–0520				

The 20 monitoring wells listed below contained detectable COPCs:

PIN15–0506	PIN15–0523	PIN15–0565	PIN15–M12D
PIN15–0507	PIN15–0534	PIN15–0568	PIN15–M12S
PIN15–0510	PIN15–0535	PIN15–0570	PIN15–M14D
PIN15–0513	PIN15–0557	PIN15–0571	PIN15–M14S
PIN15–0515	PIN15–0561	PIN15–0572	PIN15–M16D

TCOPCs concentrations ranged from below detection limit to 4,202 micrograms per liter (µg/L) in WRS extraction well PIN15−X11 contained the highest TCOPC value, and the COPC compound detected at the highest concentration was vinyl chloride at 3,610 µg/L.

3.2.2 Building 100 Area (PIN06, PIN09, PIN10, PIN12, and PIN21)

Table 7 shows the results of arsenic sampling in the Building 100 Area. Arsenic values ranged from nondetect to 0.069 mg/L in PIN12−S68B.

TCOPCs concentrations in samples collected from the wells sampled at the Building 100 Area are included in Table 10, which also shows the previous four quarters of data for comparison purposes. Figure 8 shows the TCOPCs concentrations.

No COPCs were detected in the 36 wells listed below.

PIN06–0500	PIN12–0515	PIN12–S57B	PIN12–S69D	PIN21–0502
PIN06–0501	PIN12–0516	PIN12–S59B	PIN12–S71B	PIN21–0503
PIN09–0500	PIN12–0517	PIN12–S59D	PIN12–S72B	PIN21–0504
PIN12–0508	PIN12–0522	PIN12–S60C	PIN12–S72C	PIN21–0505
PIN12–0509	PIN12–0523	PIN12–S60D	PIN12–S72D	
PIN12–0510	PIN12–0527	PIN12–S68B	PIN12–S73B	
PIN12–0511	PIN12–0528	PIN12–S69B	PIN12–S73D	
PIN12–0512	PIN12–S31B	PIN12–S69C	PIN21–0500	

The 42 monitoring wells listed below contained COPCs at detectable concentrations.

PIN10–0500	PIN12–RW01	PIN12–S54D	PIN12–S60B	PIN12–S71C
PIN12–0513	PIN12–RW02	PIN12–S55B	PIN12–S67B	PIN12–S71D
PIN12–0514	PIN12–S29C	PIN12–S55C	PIN12–S67C	PIN12–S73C
PIN12–0518	PIN12–S30B	PIN12–S56B	PIN12–S67D	PIN12–TE03
PIN12–0520	PIN12–S32B	PIN12–S56C	PIN12–S68C	PIN21–0501
PIN12–0521	PIN12–S33C	PIN12–S56D	PIN12–S68D	PIN21–0512
PIN12–0524	PIN12–S35B	PIN12–S57C	PIN12–S70B	
PIN12–0525	PIN12–S36B	PIN12–S57D	PIN12–S70C	
PIN12–0526	PIN12–S37B	PIN12–S59B	PIN12–S70D	

TCOPCs concentrations ranged from nondetect to 114,821 µg/L. The COPC compound detected at the highest concentration was cis-1,2-DCE at 67,600 in PIN12−S35B.

3.2.3 Wastewater Neutralization Area (PIN18)

The volatile COPC at the WWNA is vinyl chloride. No vinyl chloride was detected in the 29 PIN18 wells sampled for VOCs this quarter.

Arsenic samples were collected from seven monitoring wells and three recovery wells. Results of arsenic samples from the three recovery wells that are sampled monthly are presented in Table 1. Concentrations of COPCs from quarterly sampling are listed in Table 11 and TCOPCs (arsenic and vinyl chloride) are shown in Figure 9.

No arsenic was detected in the 22 wells listed below.

PIN18–0503	PIN18–0508	PIN18–0513	PIN18–0518	PIN18−0523
PIN18–0504	PIN18–0509	PIN18–0514	PIN18–0519	PIN18–0526
PIN18–0505	PIN18–0510	PIN18–0515	PIN18–0520	
PIN18–0506	PIN18–0511	PIN18–0516	PIN18–0521	
PIN18–0507	PIN18–0512	PIN18–0517	PIN18–0522	

The seven monitoring and recovery wells listed below had detectable arsenic concentrations.

PIN18–0500	PIN18–0524	PIN18–RW02	PIN18–RW0501
PIN18–0502	PIN18–0525	PIN18–RW03	

The highest concentration of arsenic detected was 91.6 µg/L in PIN18−RW0501 (note that the units for arsenic are converted from mg/L to µg/L so that TCOPCs for this area could be calculated using consistent units).

3.3 Quality Assurance/Quality Control

The analytical results from the analytical laboratory, Accutest, were checked for quality assurance/quality control (QA/QC) through duplicate samples and trip blanks. Detected analytes (VOCs, arsenic, and Florida Petroleum Range Organics) for each duplicate sample are listed in Table 12. The duplicate sample results were compared and the relative percent differences (RPDs) between the results were calculated. There were eight duplicates analyzed for VOCs, three for arsenic, and two for Florida Petroleum Range Organics during quarterly sampling.

A total of 329 duplicate analyses for individual analytes were performed. One sample duplicate pair failed to meet the guidance criteria that the RPD should be less than 30 percent at five times the detection limit. The sample/duplicate pair that failed was PIN12−0520, and the analyte was vinyl choride. All data passed QA/QC criteria at a Class A level, indicating that all data may be used for quantitative and qualitative purposes.

Duplicate samples should be collected at a frequency of one duplicate for every 20 or fewer samples. There were 163 ground water samples analyzed for VOCs, with nine duplicate VOC samples collected. There were 51 ground water samples analyzed for arsenic, with three duplicate samples. There were 20 Florida Petroleum Range Organics with two duplicates. The duplicate requirements for this sampling event were met.

During the prior sampling event in January 2005, four trip blanks showed positive results for 1,1-DCE ranging from 2.4 to 2.8 µg/L. Stoller investigated the problem but no specific cause for the results could be determined by the laboratory or by the Stoller sampling team. In order to evaluate whether the problem was due to field or laboratory practices, Accutest prepared holding blanks for the April 2005 event. The holding blanks were prepared after receipt of the samples by the laboratory and were analyzed with the samples. None of the seven holding blanks or 22 trip blanks for the April 2005 event showed any contamination. Therefore, it appears that 1,1-DCE contamination only occurred during the January 2005 event and did not recur.

During the October 2004 sampling event methylene chloride contamination was suspected because of contamination seen in the trip and equipment blanks. No methylene chloride was seen in the blanks during the January 2005 event. During the October 2004 event, a duplicate sample for location PIN15−M29S showed 13.5 µg/L methylene chloride while the original sample was nondetect. This location has had methylene chloride detections of this magnitude in the past, but not within the last 5 years. Data from this location was evaluated after the January and April 2005 sampling events. No methylene chloride was detected in either sample, or in the duplicate samples that were also collected. Based on this, and the previous 5 years of nondetection, the October 2004 data is considered to be laboratory contamination and the data will be qualified as unusable in the SeePRO database.

A data validation software module for identifying and tracking anomalous ground water data points within the SeePRO database was used this quarter. The software prints a report of

analytical results that fall outside of historical minimum or maximum values. No anomalous results were identified during the April sampling event.

Anomalous results identified during previous events include location PIN12−S73B, which has been tracked since April 2004 because toluene was detected where it had not previously been present. No toluene was detected in this well during the two subsequent sampling events in October 2004 and April 2005. Tracking of toluene in this well will continue.

As discussed in previous quarterly reports, the Building 100 Area treatment system influent sample showed methylene chloride at 66.2 µg/L during monthly sampling in August 2004. Methylene chloride had not previously been detected in the influent sample and is not present in samples from monitoring wells at the site. The monthly influent samples from September and October were nondetect for methylene chloride. The November event showed methylene chloride at 16.1 µg/L but the laboratory case narrative notes that it is believed to be a laboratory contaminant. Methylene chloride was not detected in the influent during the December, January, February, March, and April sampling. Based on this information, the August and November 2004 methylene chloride data appear to be anomalous and, therefore, will be qualified in the SeePRO database as "R" for unusable.

4.0 Data Interpretation

This data interpretation section is included in each April to June quarterly report to aid in evaluation of remediation progress and plume movement. Time versus concentration plots and plume maps were generated to aid the interpretation.

4.1 Contaminant Concentration Trends

Monitoring wells PIN15–0537 and –0569 were chosen to evaluate plume movement and plume control at the Northeast Site. The concentration with time plots for cis-1,2-DCE and vinyl chloride in well 0537 are depicted in Figure 10. Both cis-1,2-DCE and vinyl chloride showed increasing concentrations in 1999 and 2000, but have since shown decreasing concentration trends. The Northeast Site treatment system and recovery well network was shut down in April 2004, and no active remediation has occurred at the Northeast Site since. Therefore, the overall decreasing concentration trends shown in Figure 10 likely are a result of natural biodegradation of the contaminants.

Well PIN15−0569 was installed at the end of January 2003 and was first sampled in April 2003. The vinyl chloride concentration in this well shows a relatively stable concentration trend, although there is considerable variability from sampling event to sampling event (Figure 11), some of which may have been produced by groundwater pumping before this system was shut down in April 2004. This stable concentration trend indicates a stable contaminant plume in the vicinity of this well.

At the WWNA, three wells were chosen to depict remediation progress. Wells PIN18−0500, −0522, and −0525 were chosen because they are shallow wells containing elevated arsenic concentrations (Figure 12). The arsenic concentration in wells 0500 and 0522 continues to show a decreasing trend, with the arsenic concentration in well 0522 having decreased to below the

10 µg/L MCL. The arsenic concentration in well 0525 has shown an increasing trend previously, but appears to be on a decreasing trend over the last year. These concentration decreases are likely due to the effect of groundwater pumping from the three recovery wells in the area.

Monitoring wells PIN21–0512 and PIN12–S73C were chosen to evaluate plume migration at the Building 100 Area because they are the monitoring wells nearest the property boundaries. Well 0512 lies along the southern boundary and well S73C lies along the eastern boundary of the STAR Center. Well PIN12−0524, located near the southeast corner of Building 100, is an additional well that shows plume movement.

Figure 13 depicts the vinyl chloride concentration over time in well 0512, and Figure 14 shows the vinyl chloride concentration in well S73C. Well 0512 shows a decreasing vinyl chloride concentration trend over the last 3 years, with the concentration decreasing to below the 1 µg/L MCL in April 2005. Well S73C shows a decreasing or somewhat stable vinyl chloride concentration trend. These stable or decreasing concentration trends indicate a stable or shrinking contaminant plume near the property boundaries.

Figure 15 shows the TCE, cis-1,2-, trans-1,2-, and 1,1-DCE, and vinyl chloride concentrations in well 0524. This well has shown concentration increases for most of these contaminants over the previous few years, but over the last year or so the concentration of all these contaminants has decreased, except for vinyl chloride. The increasing vinyl chloride concentration likely is due to biodegradation of TCE and DCE. Additional evidence of significant biodegradation is the concentrations of dissolved gasses collected from this well (Table 13), particularly the relatively high ethene concentration. Based on the concentration trends, it appears that a small slug of ground water containing elevated contaminant concentrations has emerged from under the building and that natural attenuation processes are acting to decrease concentrations.

4.2 Plume Maps

For each SWMU, plume maps were generated for the TCOPCs as well as selected contaminants. The compound-specific MCL has been utilized to draw the inferred plume boundary for each contaminant (i.e., concentrations below the MCL were not included in the plume area). Estimated values (J or B qualified data) were not used when the TCOPCs values were calculated. The outline of the plume from April 2004 is also shown on the maps for comparison.

Plume maps for the Northeast Site have been generated for TCOPCs (Figure 7), vinyl chloride (Figure 16), cis-1,2-DCE (Figure 17), TCE (Figure 18), methylene chloride (Figure 19), toluene (Figure 20), and benzene (Figure 21).

A factor that must be considered when observing Northeast Site plume maps is the abandonment of many of the monitoring and recovery wells in and near NAPL Area B prior to the April 2004 sampling event. These wells were abandoned to ensure that they would not interfere with the operation of the NAPL remediation activities, but these wells also helped define the plume at the Northeast Site. Therefore, most of the plumes defined in 2003 were left as is for 2004 and 2005, unless the plumes required modification based on data collected since 2003.

Figure 9 shows the 2004 and 2005 TCOPCs plume at the WWNA, and Figure 22 depicts the 2005 arsenic plume at the WWNA. Both the TCOPCs and arsenic plumes are smaller relative to

the 2004 plumes based on the lack of any vinyl chloride detections in any PIN18 wells and the lack of arsenic detections above the 10 µg/L MCL in wells PIN18−0520, −0521, and –0522.

Plume maps for the Building 100 Area have been generated for TCOPCs (Figure 8), vinyl chloride (Figure 23), cis-1,2-DCE (Figure 24), and TCE (Figure 25). The vinyl chloride plume is considerably smaller relative to the 2004 plume due to the lack of vinyl chloride detections in well PIN21−0512 and the PIN12−S69 and −S70 wells. The TCE and cis-1,2-DCE plumes are approximately the same size as the 2004 plumes.

4.3 Geochemical Parameters

Geochemical parameters measured in the field in all wells at the STAR Center during April 2005 are summarized in Table 6. Conditions across the STAR Center generally are reducing as evidenced by the low values of dissolved oxygen and oxygen reduction potential.

5.0 Treatment System and Recovery Well Performance

5.1 Building 100

From April 1 through June 30, 2005, 490,041 gallons of ground water were processed by the Building 100 treatment system from the Building 100 Area recovery wells. Operations for this quarter were continuous with only minor interruptions to system operation. In April, there was a brief shutdown due to a fouled strainer over the weekend of the 2nd and 3rd. Additionally, a power outage over the weekend of April 16th and 17th shut off the Building 100 recovery wells until personnel returned to restart the wells on Monday the 18th. In May, a high level in the surge tank from heavy rain shut down the treatment system over the weekend of the 21st and 22nd. In June, there were no shutdowns.

Figures 26, 27, and 28 present the monthly volume of ground water recovered during this quarter from the Building 100 recovery wells. Analytical results of samples collected from the Building 100 Area treatment system influent and effluent streams are listed in Table 14.

Since startup of the Building 100 treatment system, a summary of ground water recovery volume from the Building 100 Area recovery wells is shown in Table 15. Table 16 presents the calculated mass of selected analytes recovered with the Building 100 Area treatment system for each month of this reporting period. These monthly results are based on the influent ground water concentration and flow.

5.2 Wastewater Neutralization Area

Two WWNA recovery wells (PIN18−RW02 and −RW03) are targeted to each produce approximately 2.5 gallons per minute (gpm) continuously with an electrical submersible pump set in each well at approximately 12 ft below land surface (bls). The third recovery well, PIN18−RW0501 is operating at approximately 0.8 gpm with a submersible electric pump installed at 15 ft below top of casing. Ground water recovery from PIN18−RW0501 was started on June 11, 2003.

The effluent ground water from each well is combined into a common header pipe and discharged into the industrial wastewater-receiving tank at the IWNF. During this quarter, 452,891 gallons of ground water were recovered from the subsurface. To date, there have been no exceedances of the WWNA discharge permit limits for arsenic.

6.0 Conclusions

The following conclusions are based on the quarterly sampling conducted in April 2005.

- The surficial ground water flow rate and flow direction throughout the site were similar to those observed in previous quarters.
- The highest concentration of COPCs was detected at the Building 100 Area in well PIN12−S35B.

7.0 Tasks to be Performed Next Quarter

The following tasks are expected to be conducted during the next quarterly period (July through September 2005):

- The next scheduled quarterly sampling event will occur in July 2005.
- Monthly sampling and analysis of ground water will continue in order to provide compliance and system operations data.
- Utilization of the dedicated bladder pumps for quarterly sampling using the micropurging technique will continue.

8.0 References

DOE (U.S. Department of Energy), 1986. *Old Drum Storage Pad Closure Certification*, U.S. Department of Energy, Pinellas Plant, Largo, Florida.

DOE (U.S. Department of Energy), 1987a. *Draft Environmental Survey Sampling and Analysis Plan for the Pinellas Plant, Largo, Florida*, U.S. Department of Energy, Office of Environmental Audit, July 24.

DOE (U.S. Department of Energy), 1987b. *Phase 1. Installation Assessment Pinellas Plant*, Draft, Comprehensive Environmental Assessment and Response Program, U.S. Department of Energy, Albuquerque Field Office, Albuquerque, New Mexico, June.

DOE (U.S. Department of Energy), 1991. *Environmental Restoration Program, RCRA Facility Investigation Report, Pinellas Plant* [DRAFT]. U.S. Department of Energy, Albuquerque Operations Office, Albuquerque, New Mexico. September.

DOE (U.S. Department of Energy), 1994. *Statement of Basis for Twelve Solid Waste Management Units Recommended for No Further Action*, U.S. Department of Energy, Pinellas Plant, Largo, Florida, January.

DOE (U.S. Department of Energy), 1995. *Environmental Assessment of Corrective Action at the Northeast Site* [DRAFT]. U.S. Department of Energy, Albuquerque Operations Office, Albuquerque, New Mexico, February.

DOE (U.S. Department of Energy), 1996. *Northeast Site Interim Measures Quarterly Progress Report*, U.S. Department of Energy, January.

DOE (U.S. Department of Energy), 1997. *Pinellas Plant Environmental Baseline Report*, prepared by Lockheed Martin Specialty Components, Inc. for U.S. Department of Energy, Pinellas Area Office, June.

DOE (U.S. Department of Energy), 2000a. *Statement of Basis Wastewater Neutralization Area/Building 200 Area*, MAC−PIN 12.3.1, prepared by MACTEC−ERS, Grand Junction, Colorado, for U.S. Department of Energy, September.

DOE (U.S. Department of Energy), 2000b. *Wastewater Neutralization Area/Building 200 Area Corrective Measures Implementation Plan Addendum*, prepared by MACTEC−ERS, Grand Junction, Colorado for U.S. Department of Energy, January.

DOE (U.S. Department of Energy), 2001. *Building 100 Area Remediation Technology Screening Report*, GJO−2001−248−TAR, U.S. Department of Energy Grand Junction Office, Grand Junction, Colorado, August.

DOE (U.S. Department of Energy), 2003. *Northeast Site Area A NAPL Remediation Final Report*, GJO−2003−482−TAC, prepared by U.S. Department of Energy Grand Junction Office, Grand Junction, Colorado, September.

DOE (U.S. Department of Energy), 2004. *Pinellas Environmental Restoration Project Sampling Procedures for the Young - Rainey STAR Center and 4.5 Acre Site*, DOE-LM/GJ718-2004, prepared by U.S. Department of Energy Office of Legacy Management, Grand Junction, Colorado, September.

DOE (U.S. Department of Energy), 2005. *Northeast Site Non-Aqueous Phase Liquids Interim Measures Progress Report April through June 2005*, prepared by U.S. Department of Energy Office of Legacy Management, Grand Junction, Colorado, July.

EMC, 1989. *Conceptual Design Report to Upgrade the Existing Drain System, U.S. Department of Energy, Pinellas Plant*, prepared by EMC Engineers, Inc., for General Electric Company, Neutron Devices Department, Pinellas Plant, Pinellas County, Largo, Florida, June.

EPA (U.S. Environmental Protection Agency), 1988. *RCRA Facility Assessment Department of Energy - Fl6 890 090 008*, June.

EPA (U.S. Environmental Protection Agency), 1992. Letter to DOE, Gerald W. Johnson, Approval of Pinellas Site Remedial Facility Investigation Report. April.

Glass, R.E., 1995. Letter from R.E. Glass, U.S. Department of Energy, Pinellas Area Office, Largo, Florida, to B. Twining, U.S. Department of Energy, Albuquerque Operations Office, Albuquerque, New Mexico, May 19, 1995.

Hammond, R. W., 1992. Letter from R.W. Hammond, U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia, to G.W. Johnson, U.S. Department of Energy, Pinellas Plant, Largo, Florida, April 16, 1992.

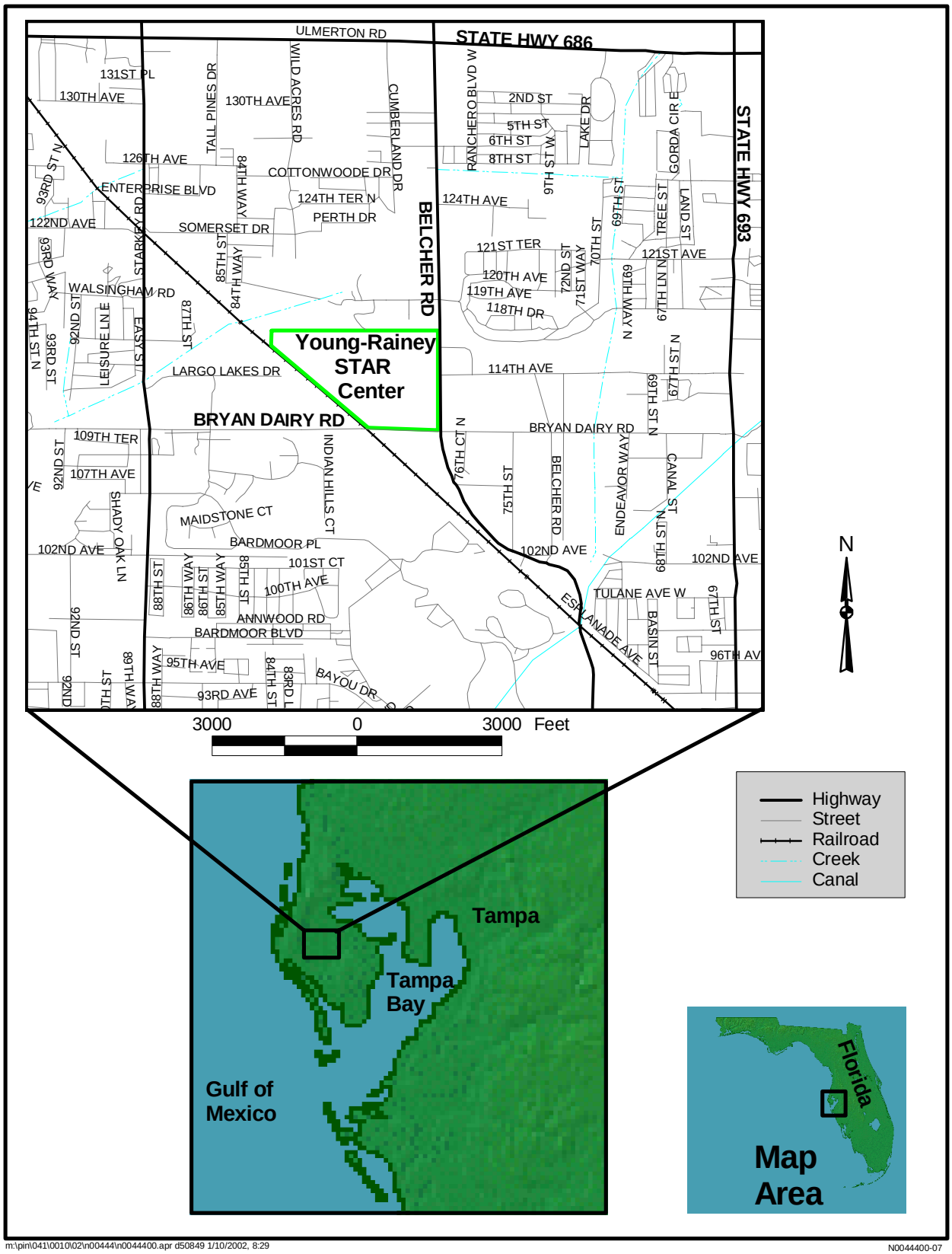

Figure 1. Young - Rainey STAR Center Location

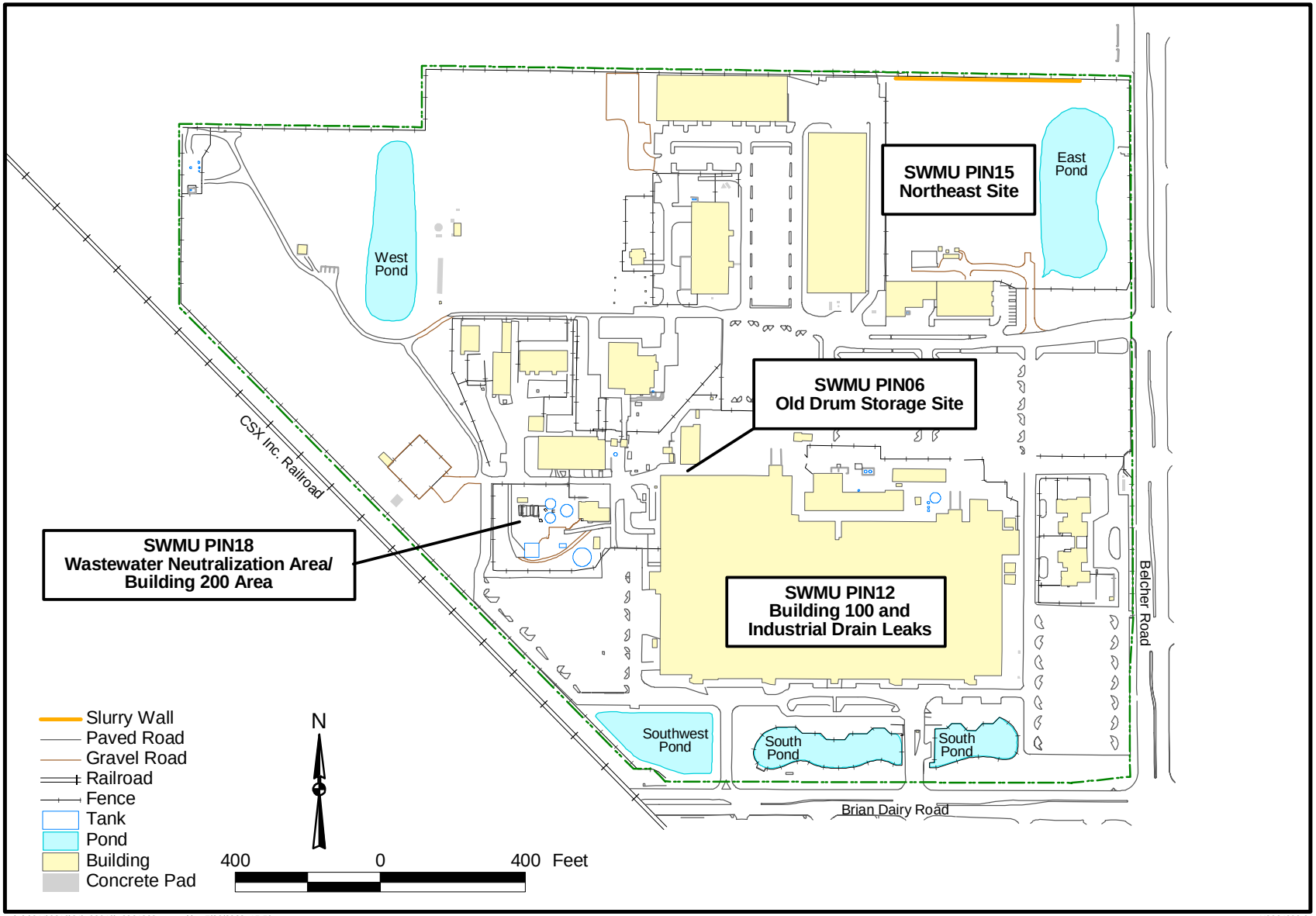

Figure 2. Location of STAR Center Solid Waste Management Units (SWMUs)

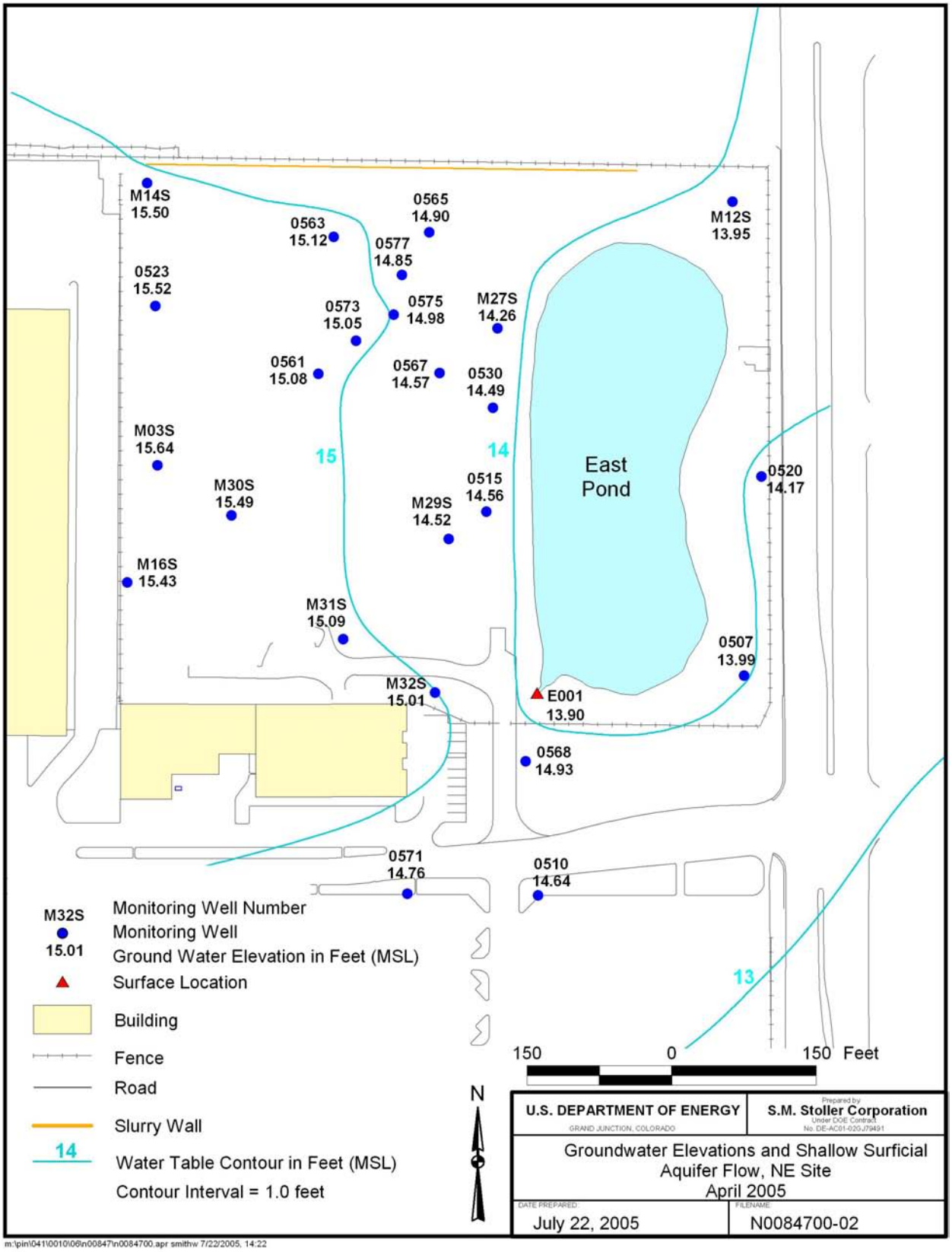

Figure 3. Ground Water Elevations and Shallow Surficial Aquifer Flow, Northeast Site, April 2005

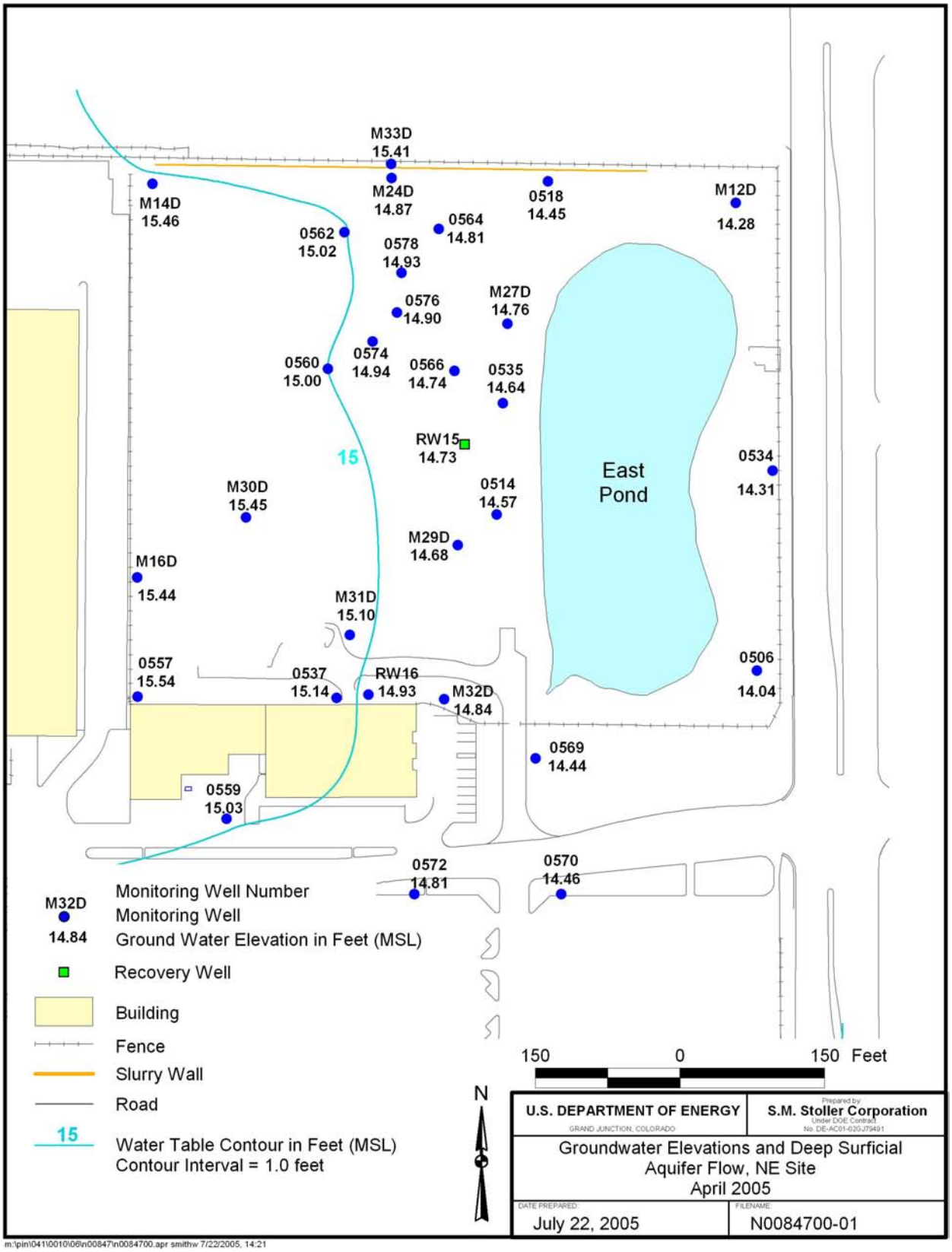

Figure 4. Ground Water Elevations and Deep Surficial Aquifer Flow, Northeast Site, April 2005

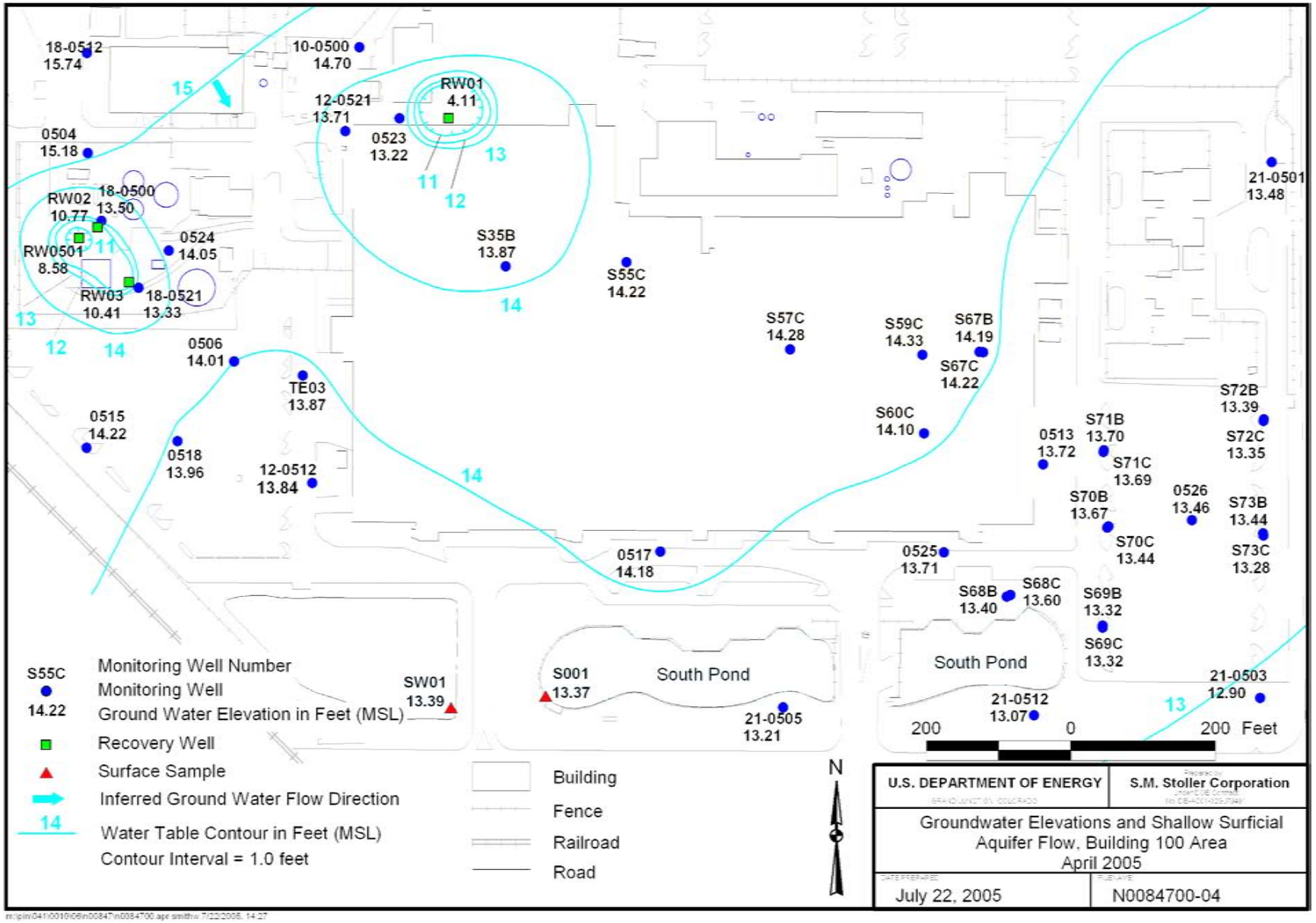

Figure 5. Ground Water Elevations and Shallow Surficial Aquifer Flow, Building 100 Area, April 2005

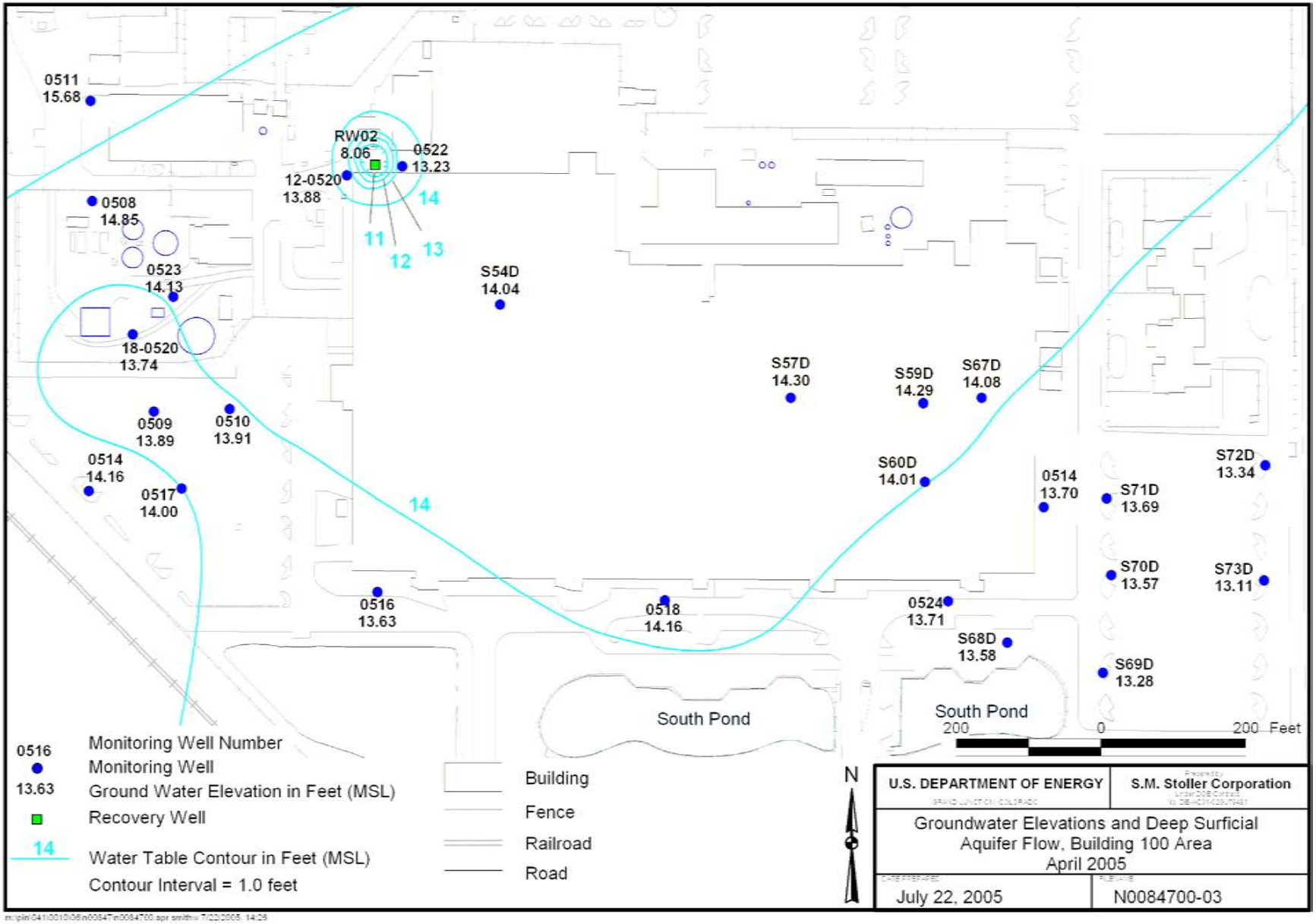

Figure 6. Ground Water Elevations and Deep Surficial Aquifer Flow, Building 100 Area, April 2005

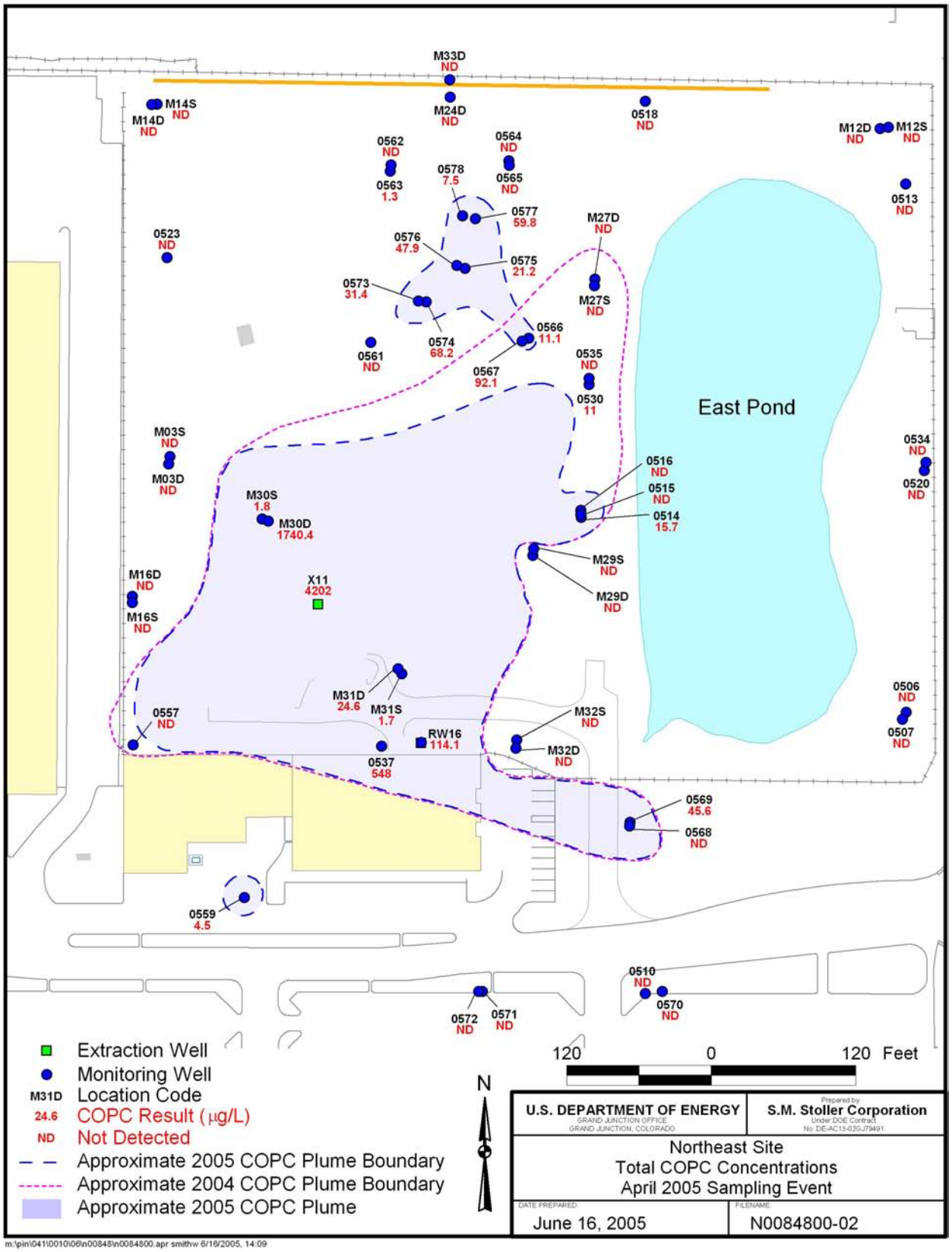

Figure 7. Northeast Site Total COPC Concentrations April 2005 Sampling Event

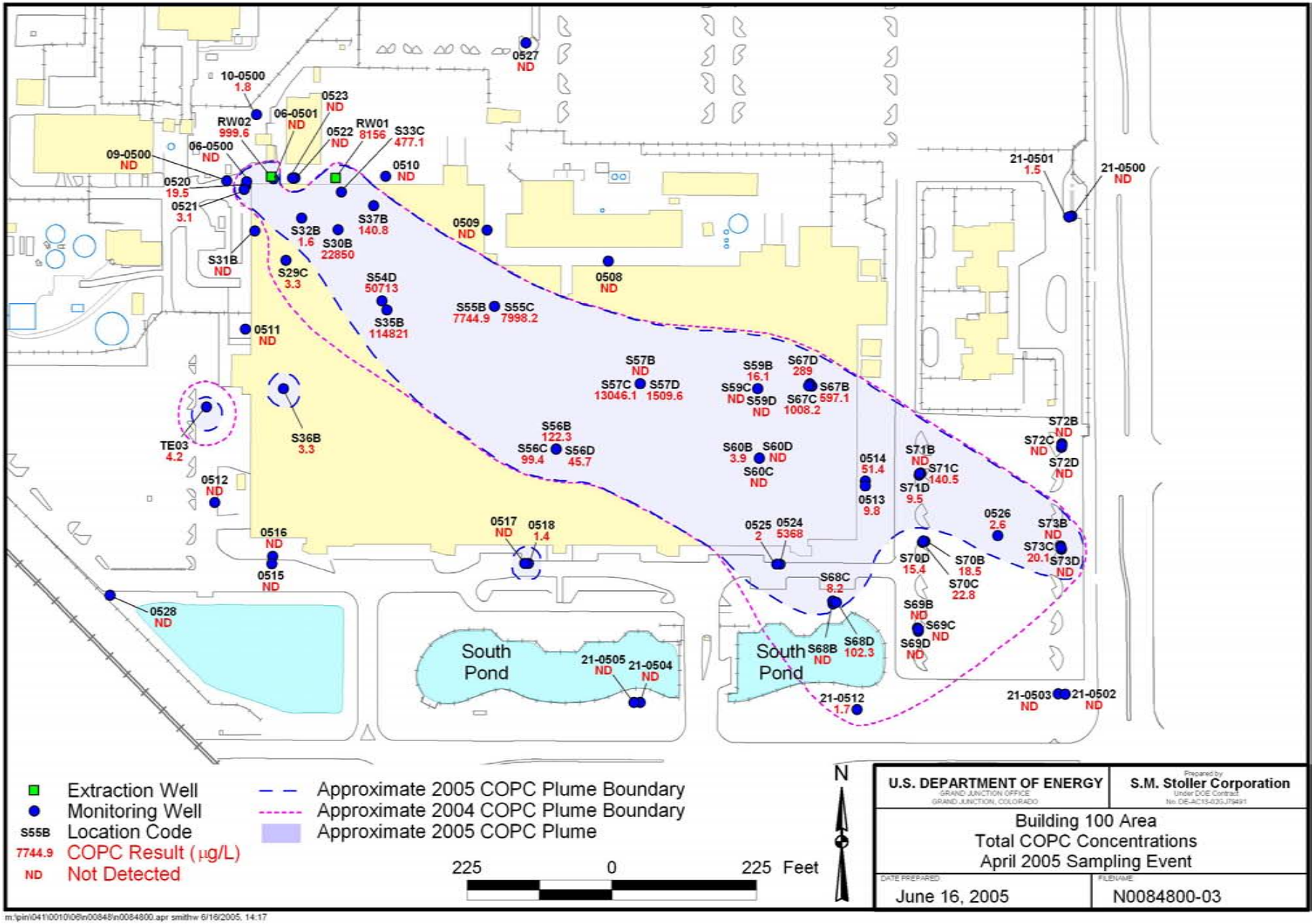

Figure 8. Building 100 Area Total COPC Concentrations April 2005 Sampling Event

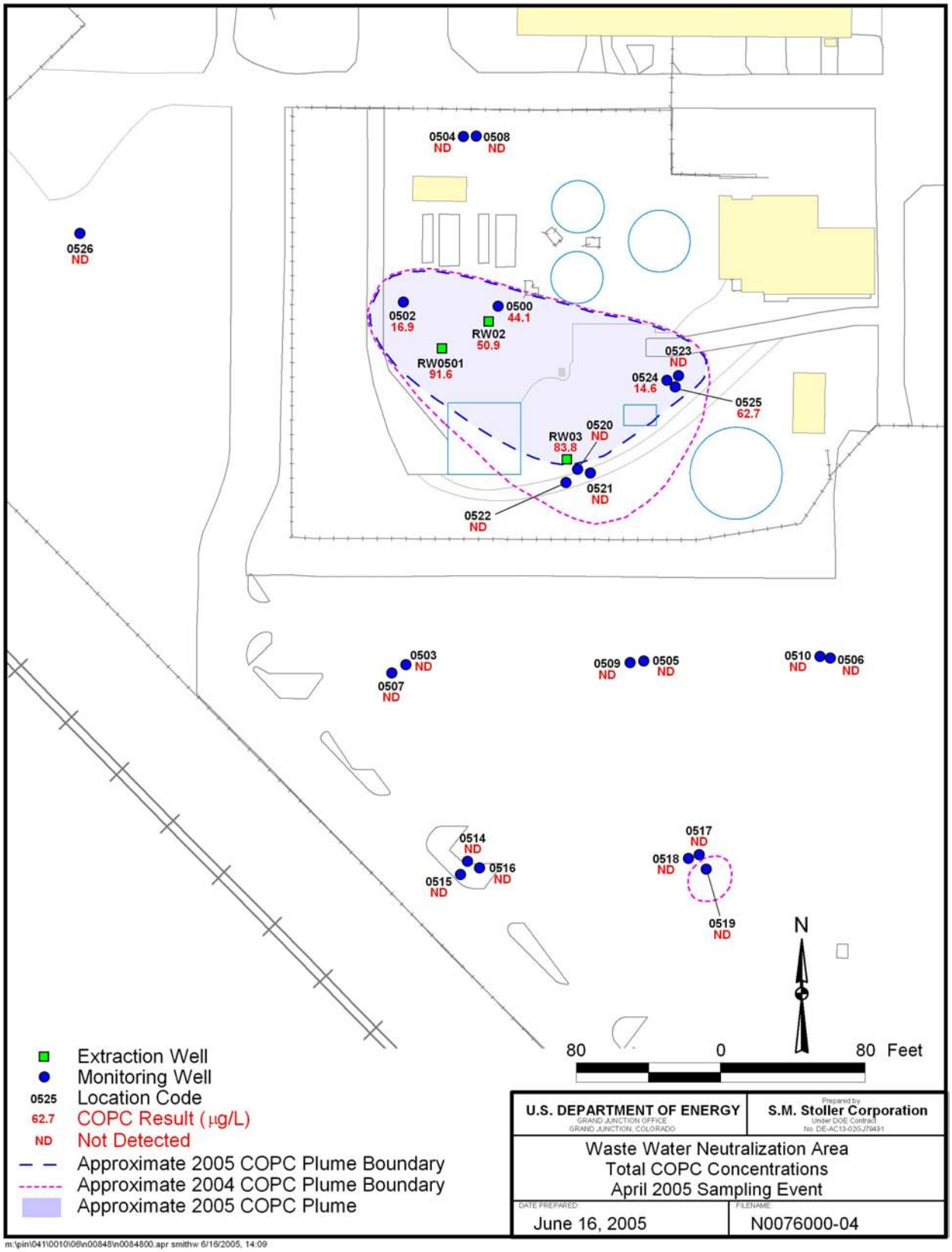

Figure 9. WWNA Total COPC Concentrations April 2005 Sampling Event

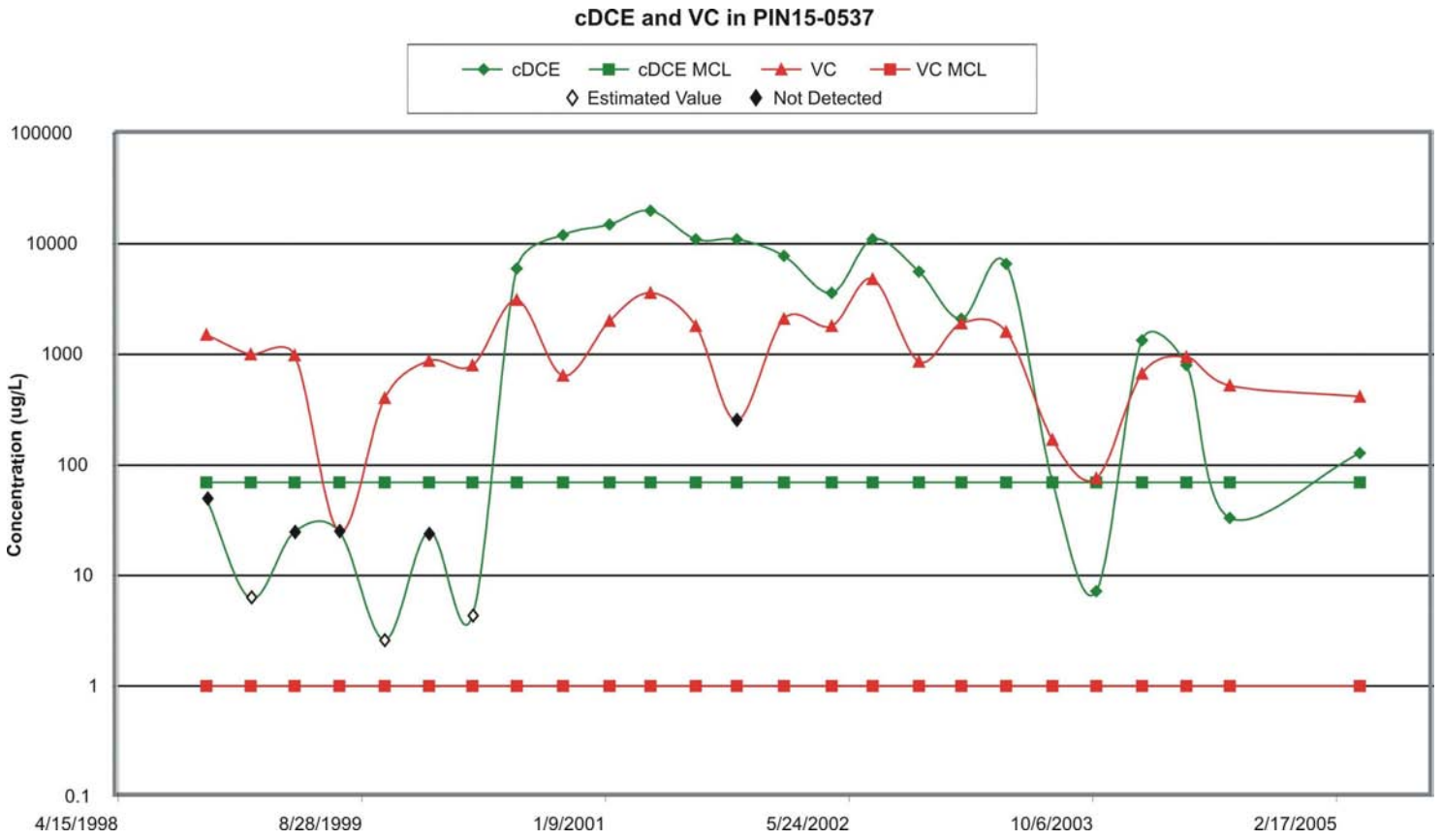

Figure 10. cDCE and VC in PIN15−0537

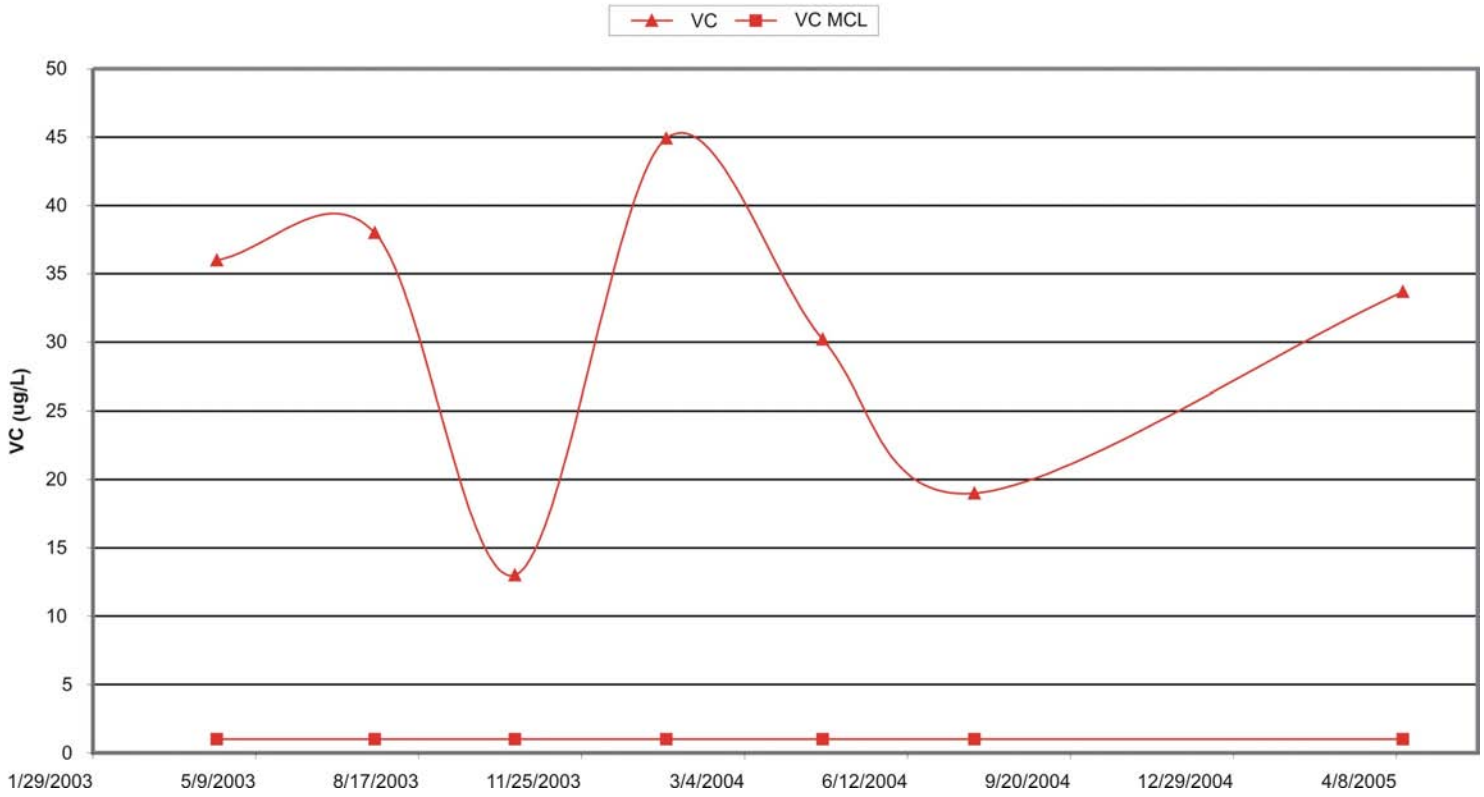

Figure 11. Vinyl Chloride in PIN15−0569

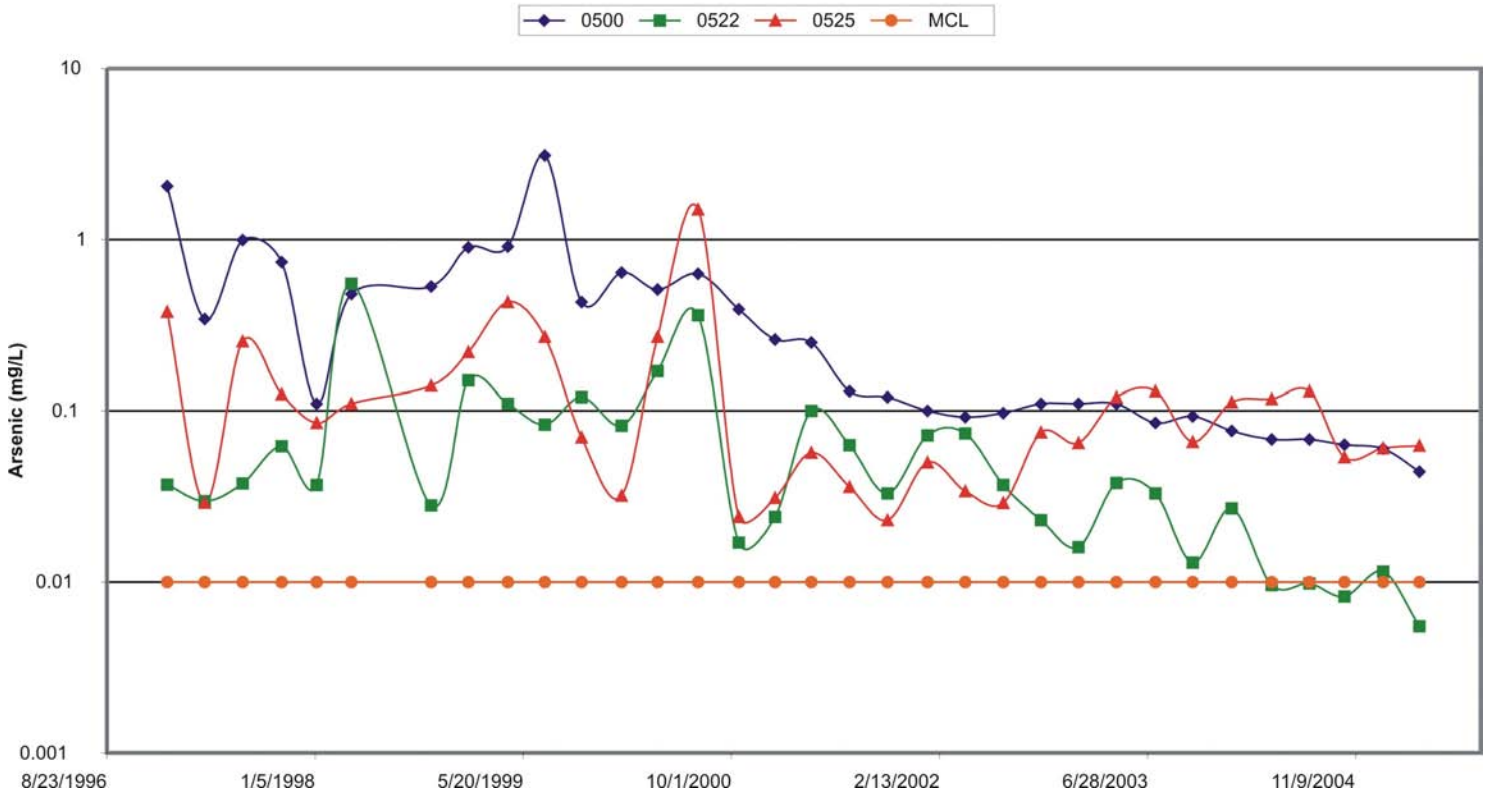

Figure 12. Arsenic in PIN18−0500, −0522, and −0525

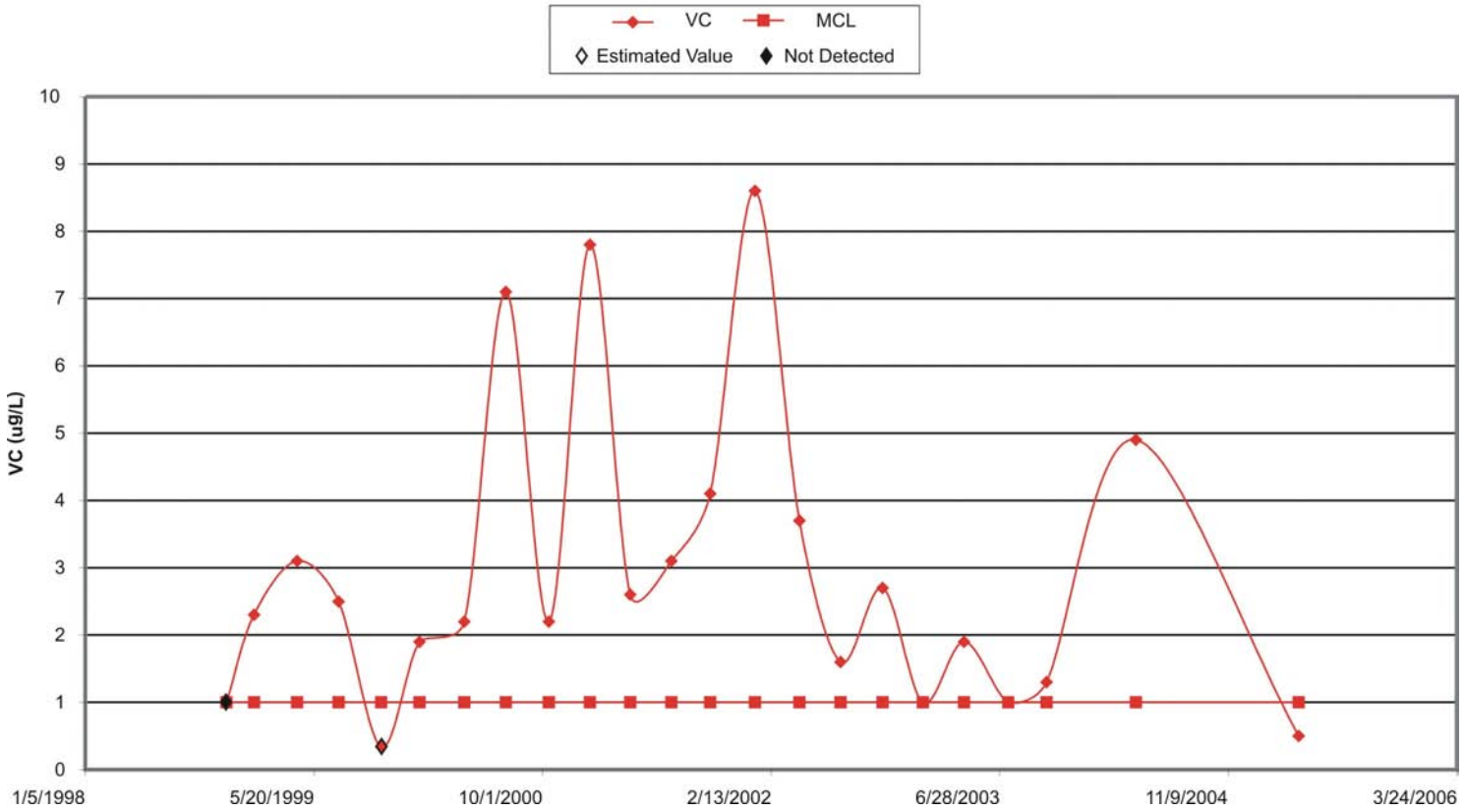

Figure 13. Vinyl Chloride in PIN21−0512

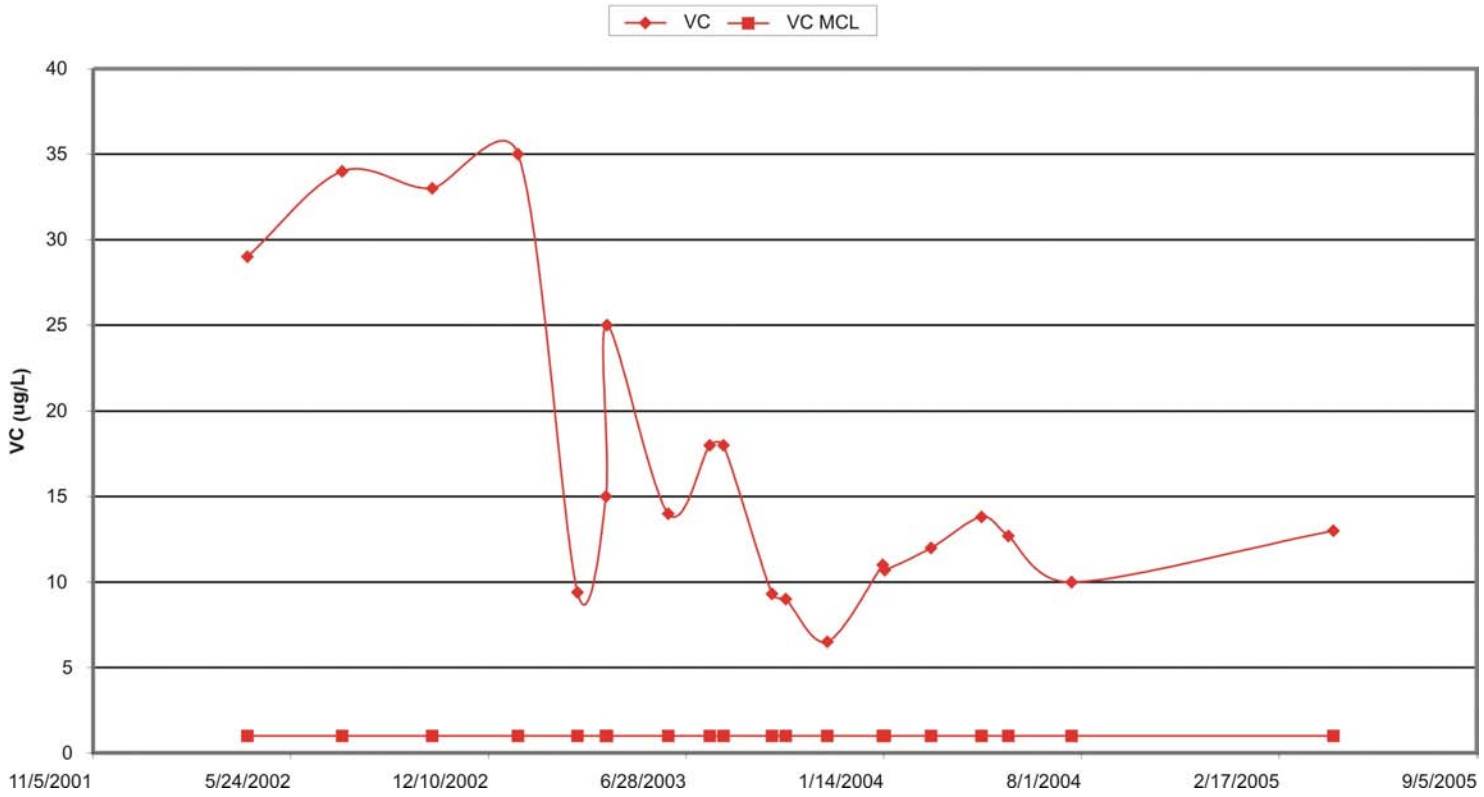

Figure 14. Vinyl Chloride in PIN12−S73C

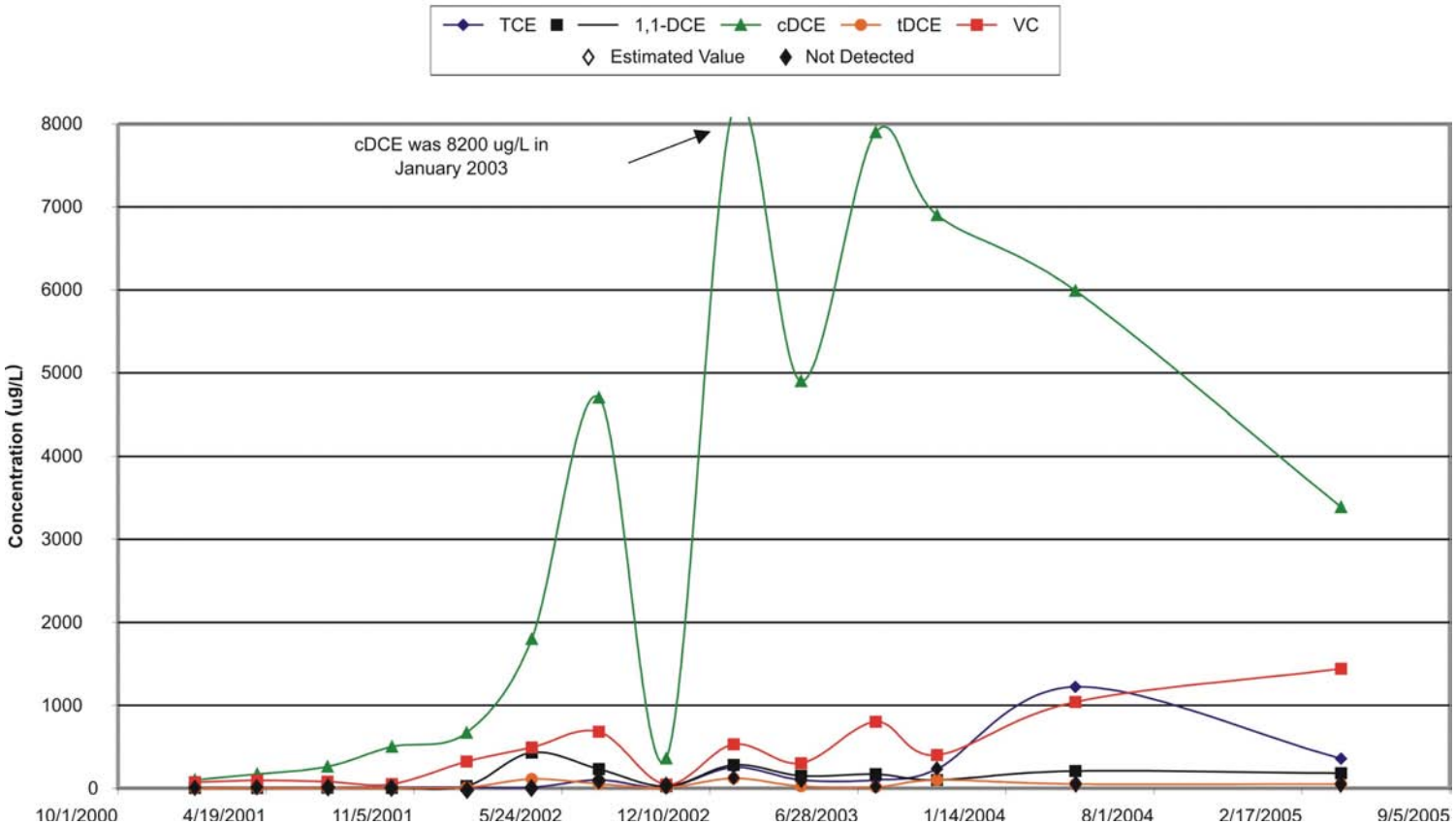

Figure 15. TCE, DCE Isomers, 1,1-DCE, and Vinyl Chloride in PIN12−0524

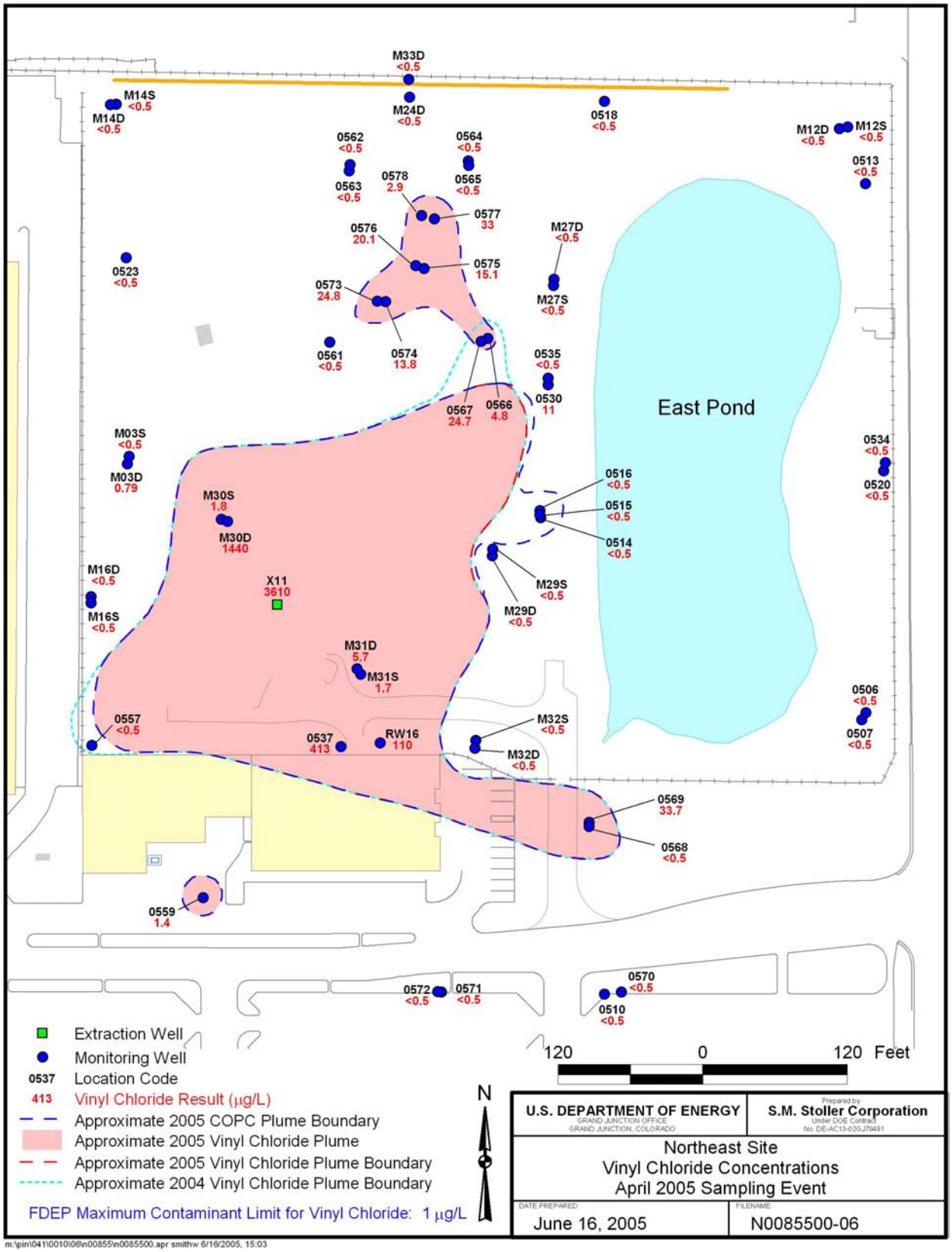

Figure 16. Vinyl Chloride Concentrations at the Northeast Site in April 2005

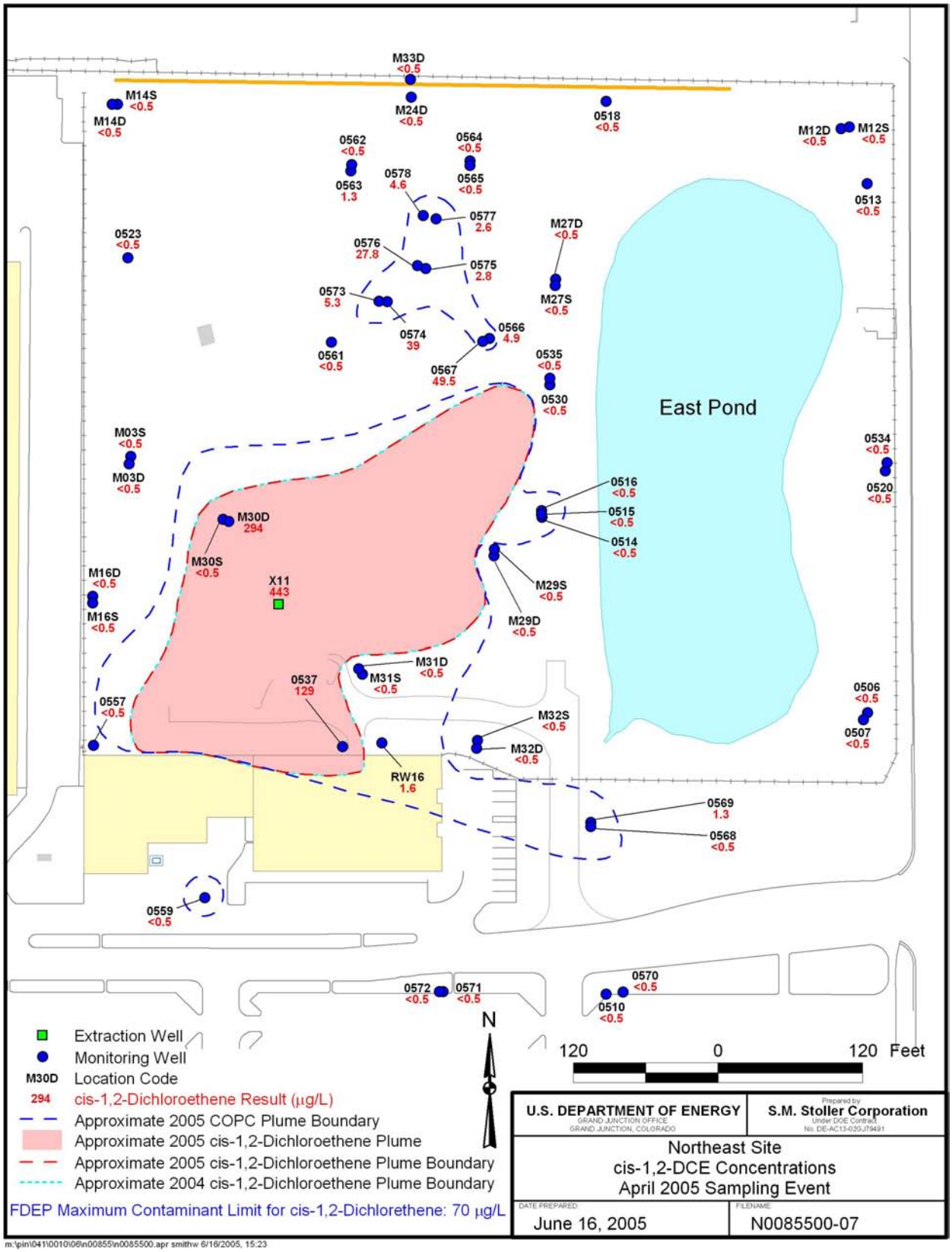

Figure 17. cis-1,2-DCE Concentrations at the Northeast Site in April 2005

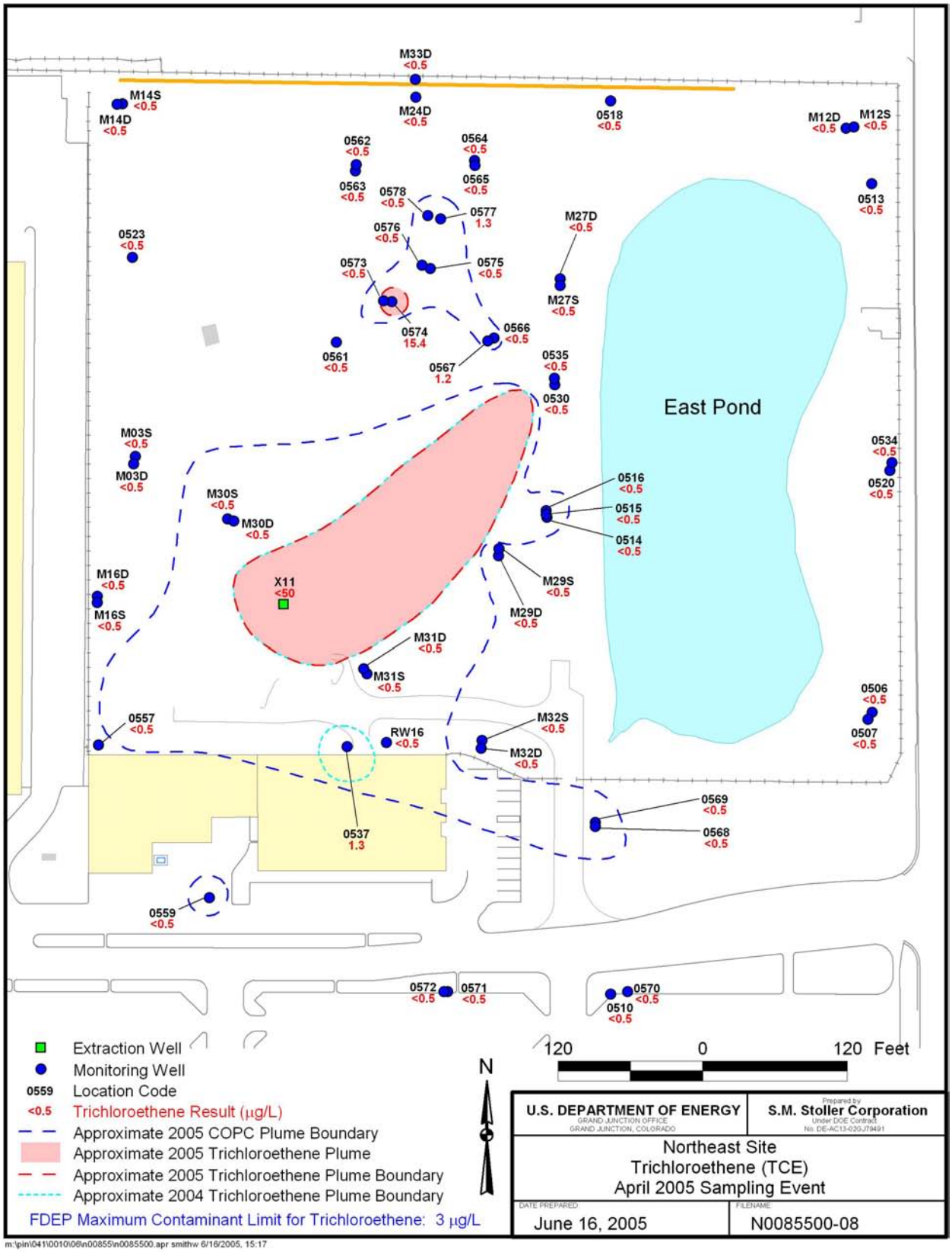

Figure 18. Trichloroethene Concentrations at the Northeast Site in April 2005

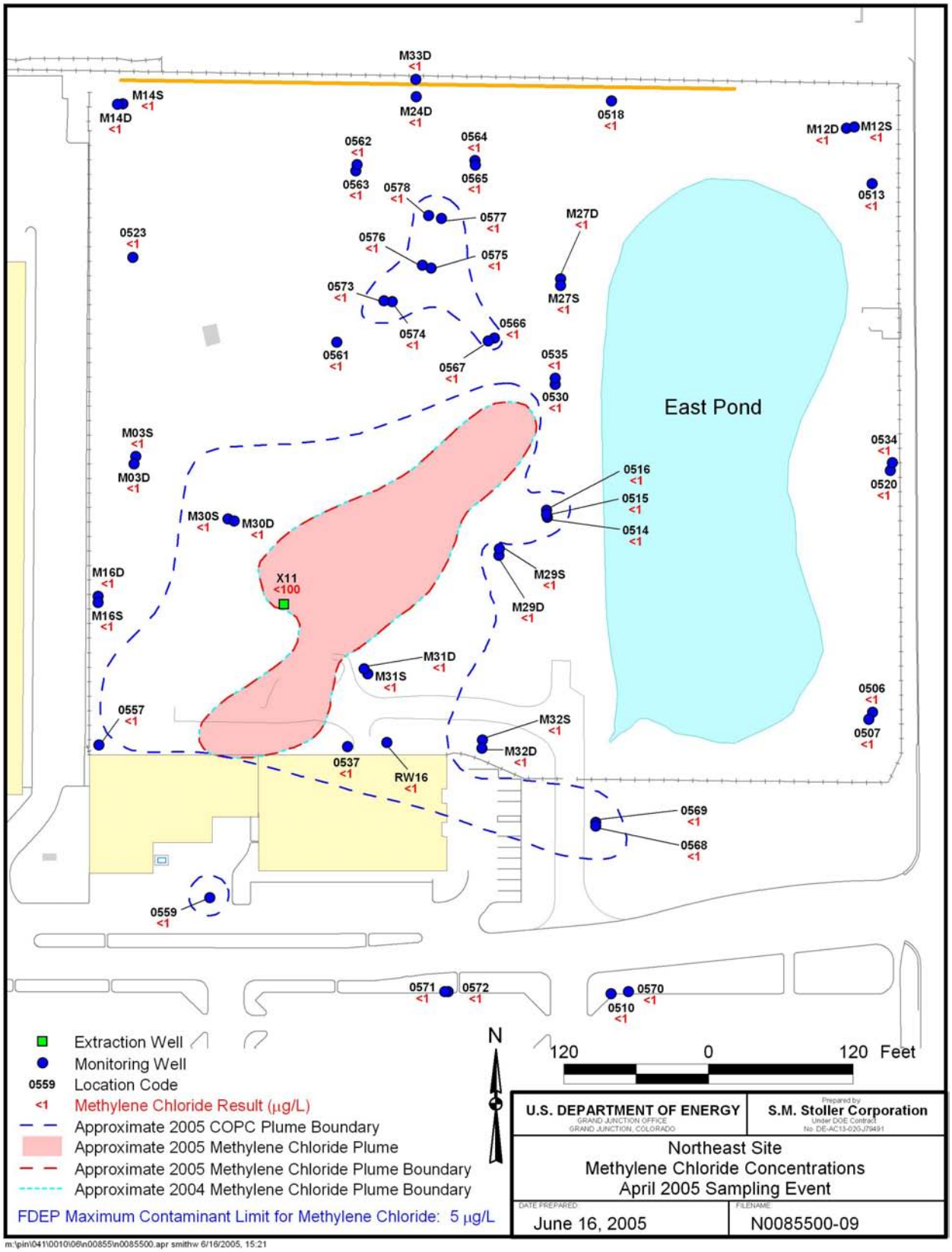

Figure 19. Methylene Chloride Concentrations at the Northeast Site in April 2005

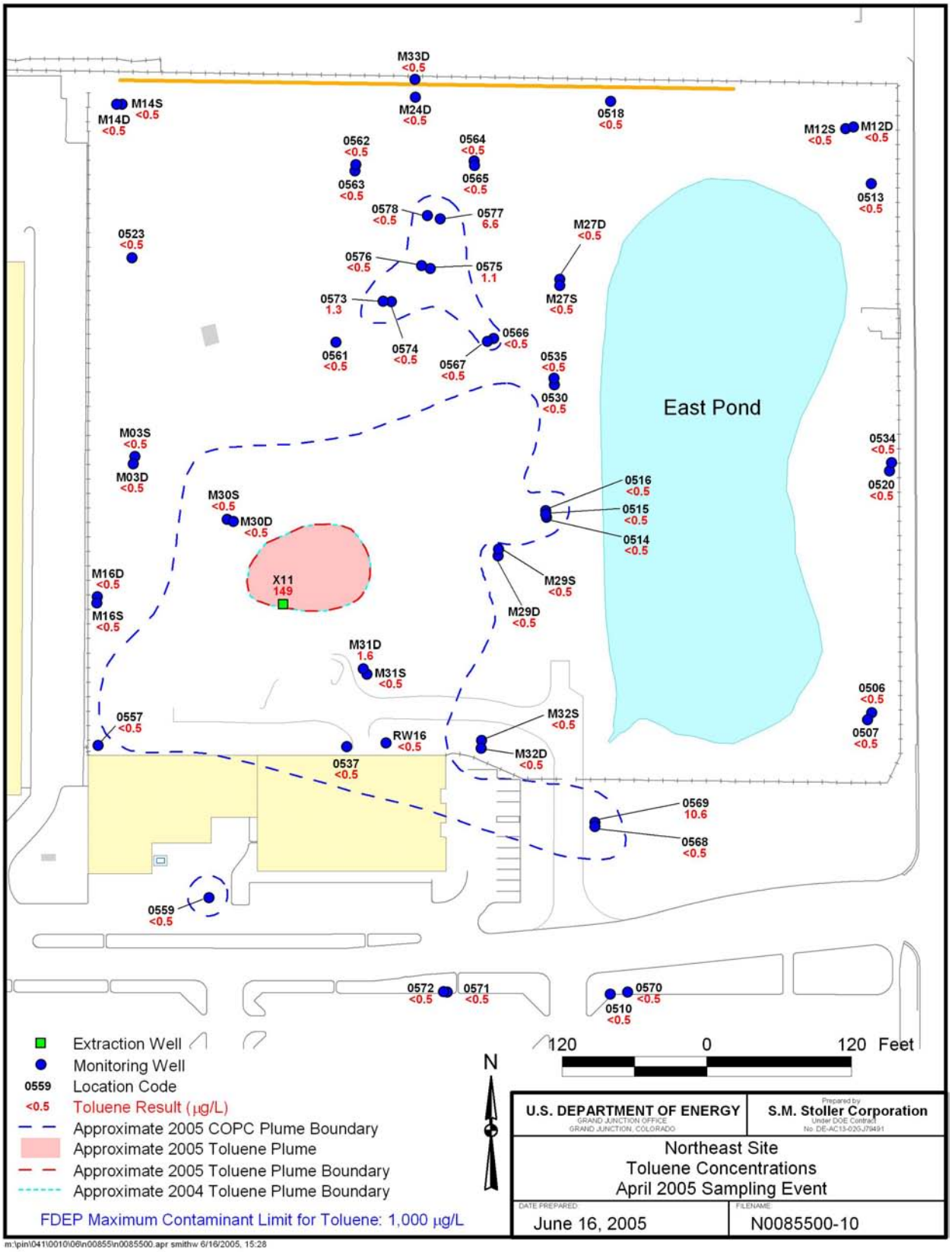

Figure 20. Toluene Concentrations at the Northeast Site in April 2005

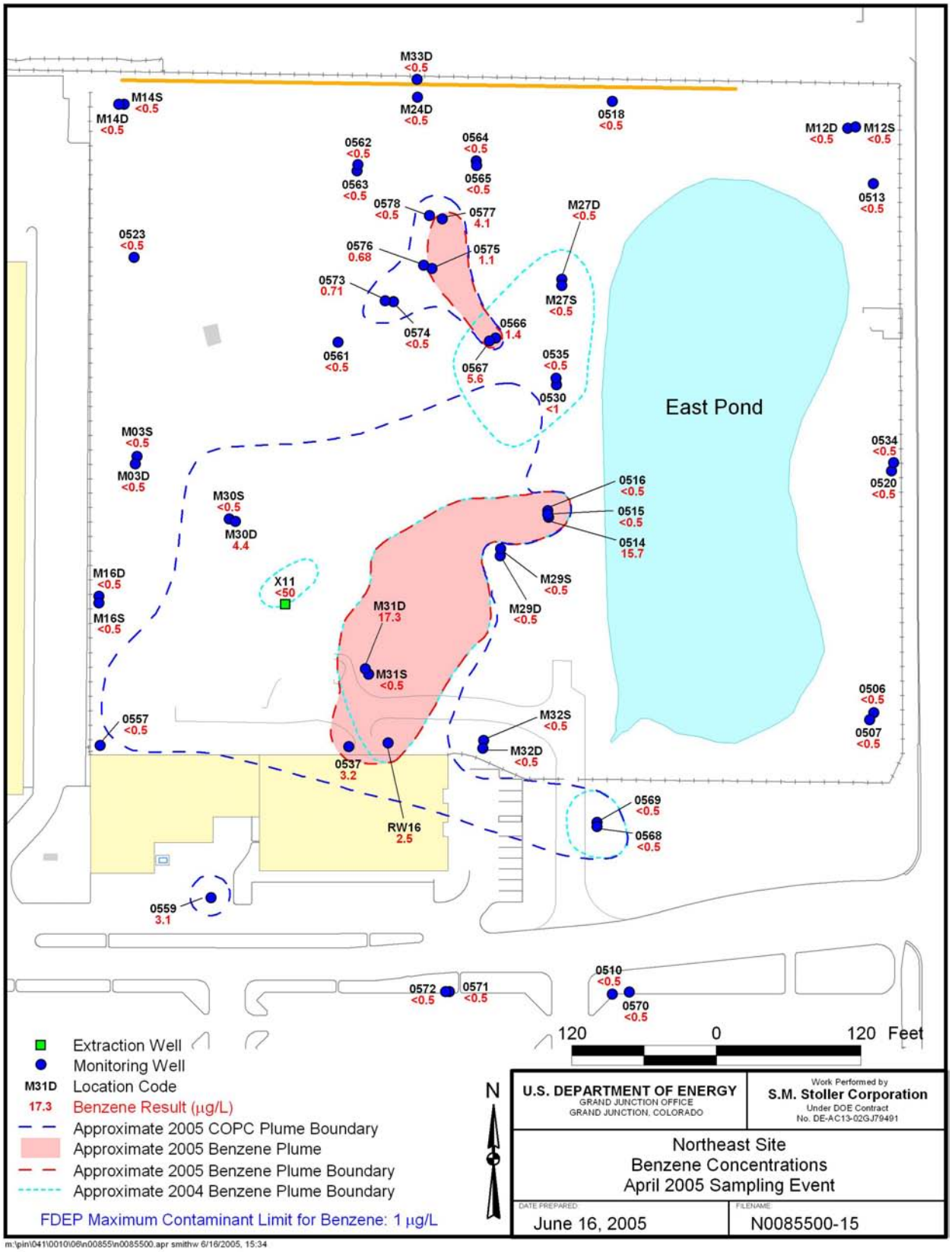

Figure 21. Benzene Concentrations at the Northeast Site in April 2005

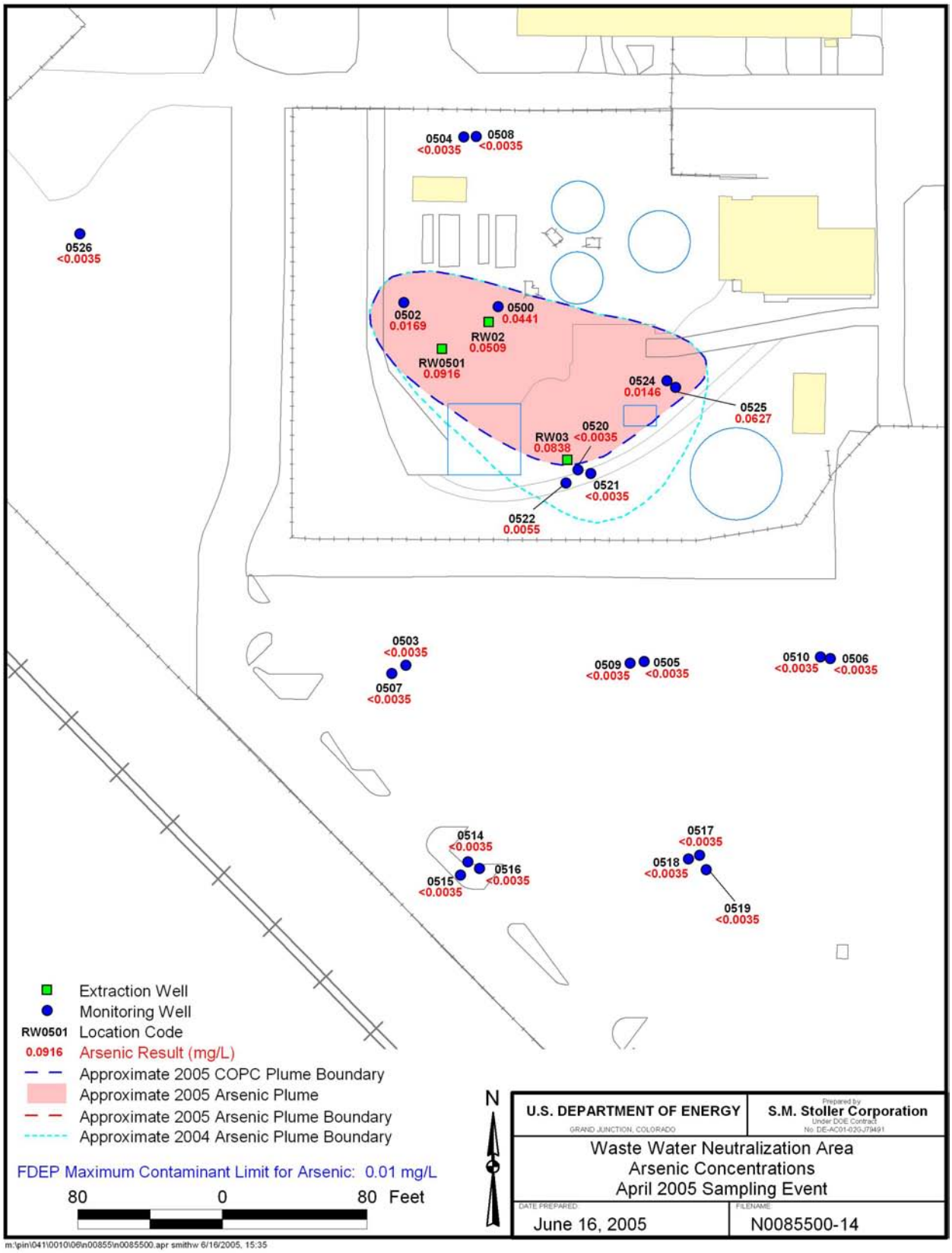

Figure 22. Arsenic Concentrations at the WWNA in April 2005

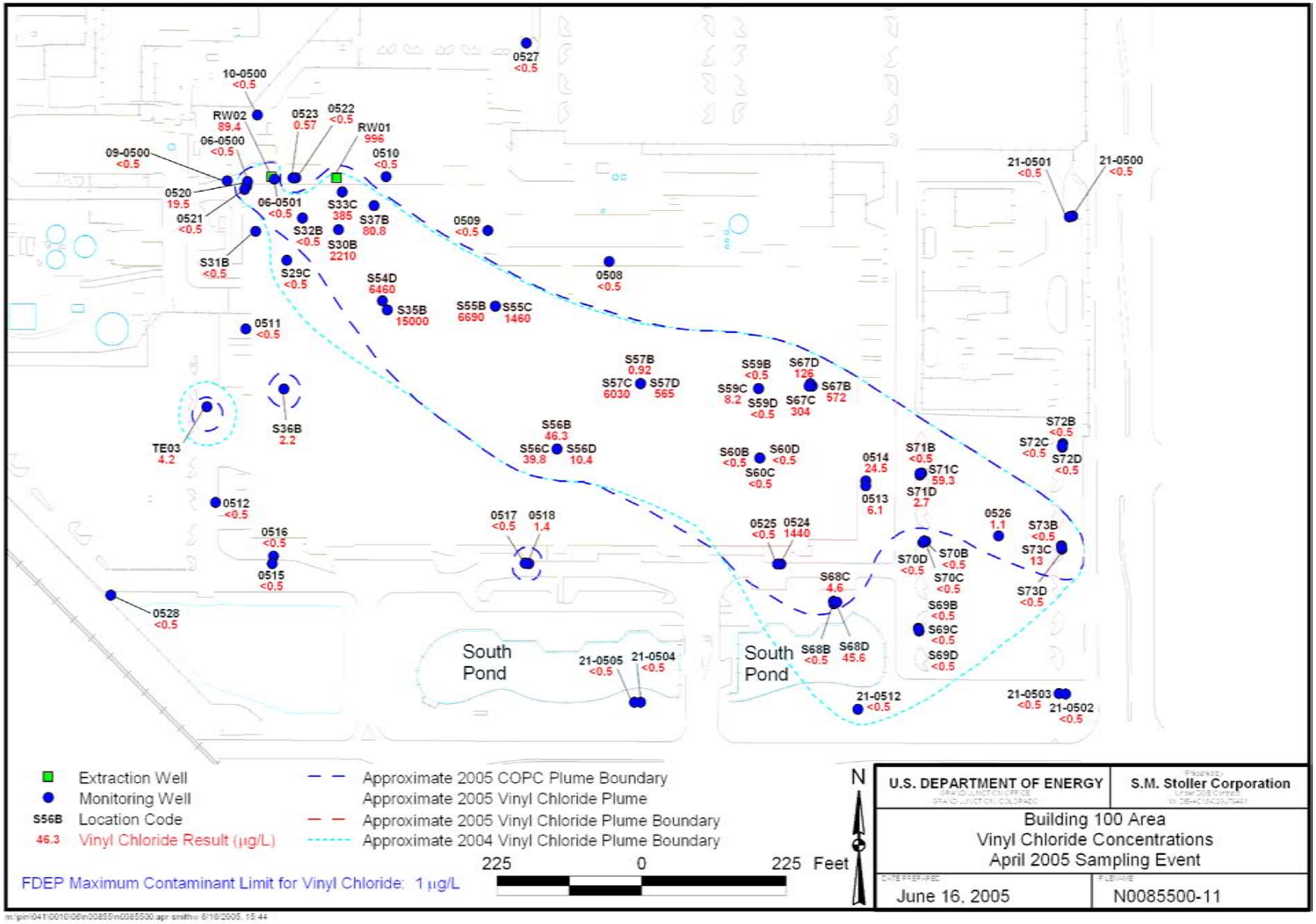

Figure 23. Vinyl Chloride Concentrations at the Building 100 Area in April 2005

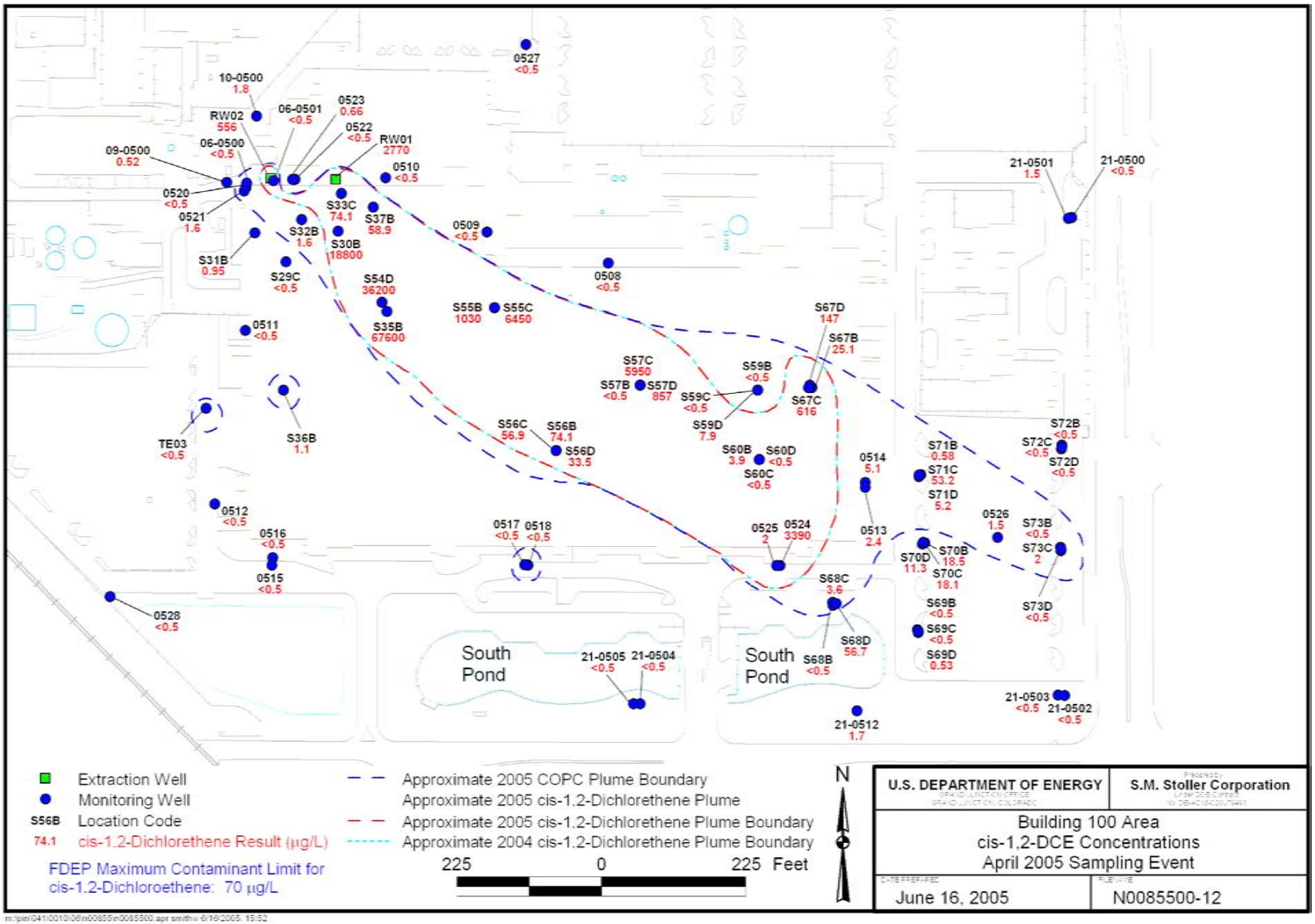

Figure 24. cis-1,2-DCE Concentrations at the Building 100 Area in April 2005

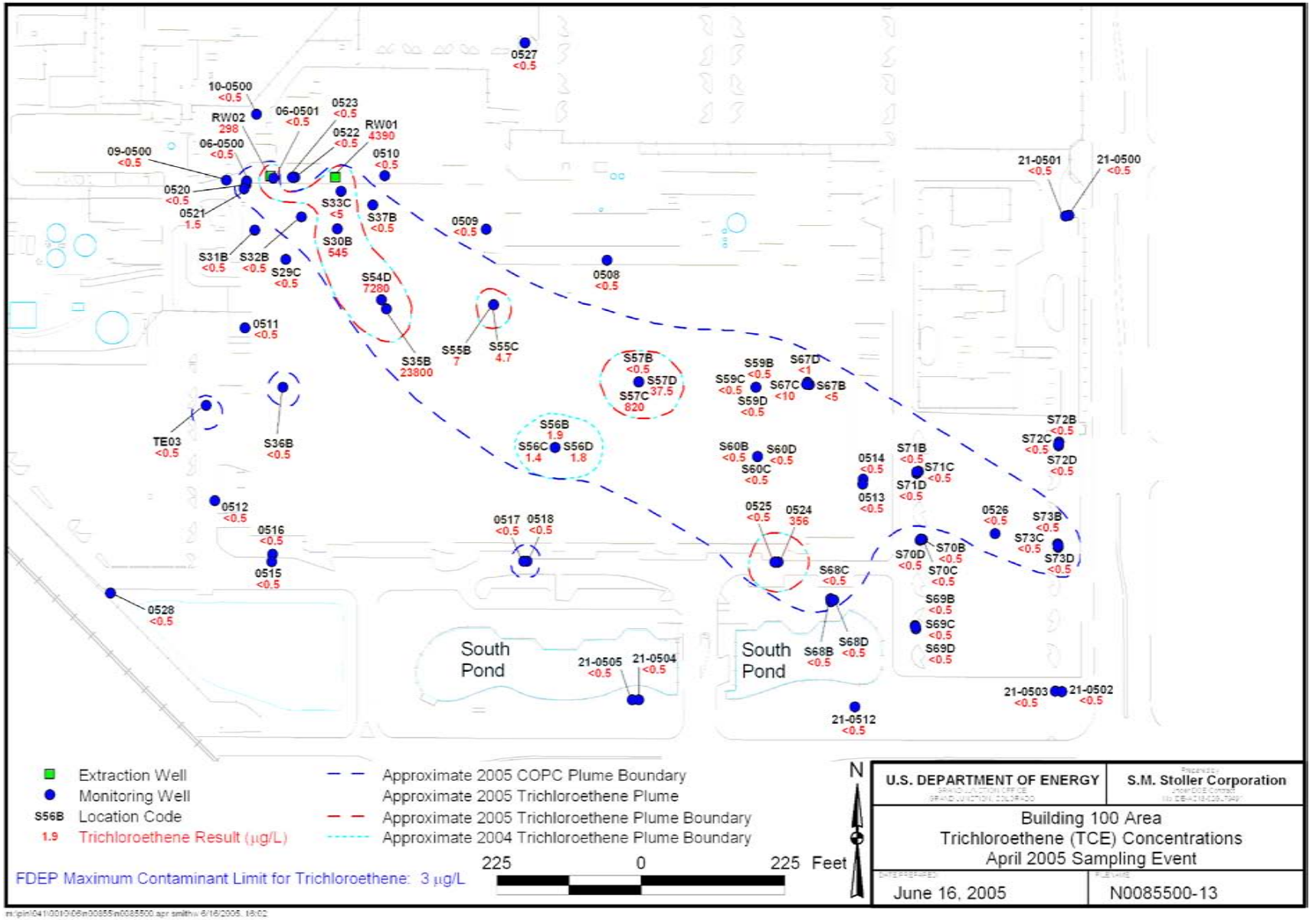

Figure 25. TCE Concentrations at the Building 100 Area in April 2005

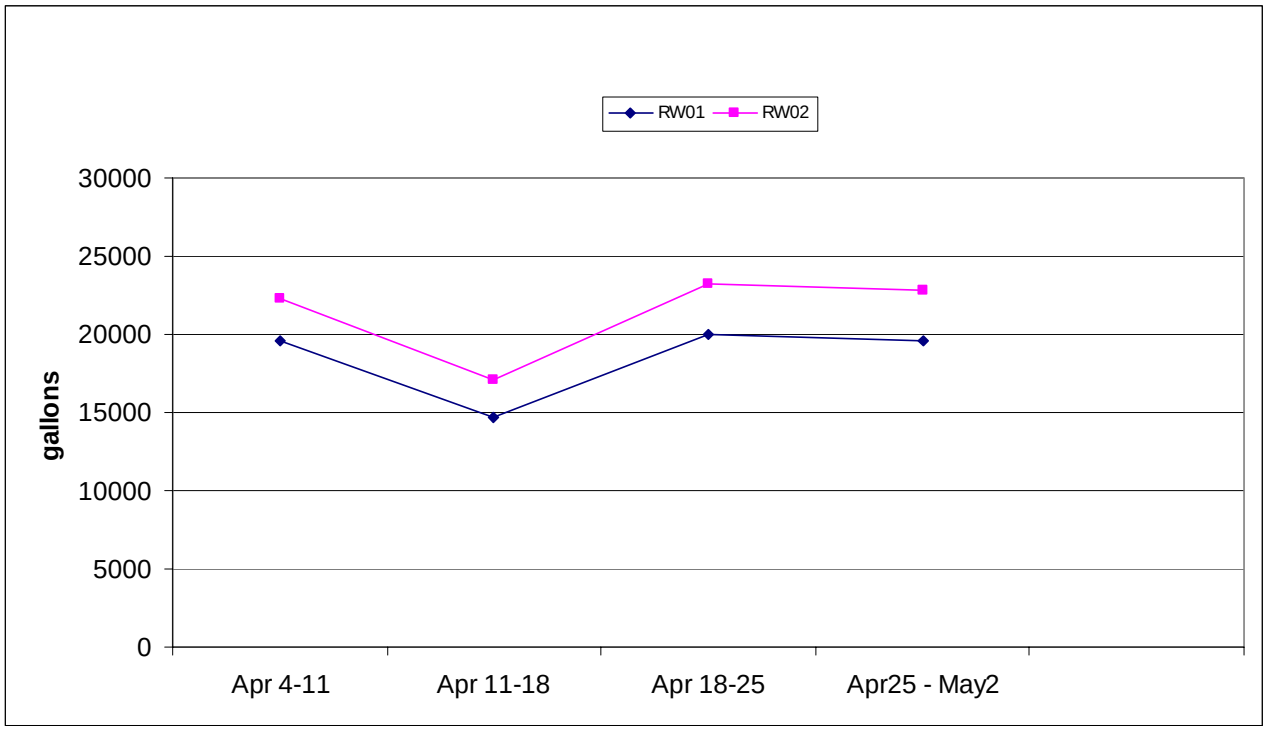

Figure 26. April 2005 Building 100 Ground Water Recovery

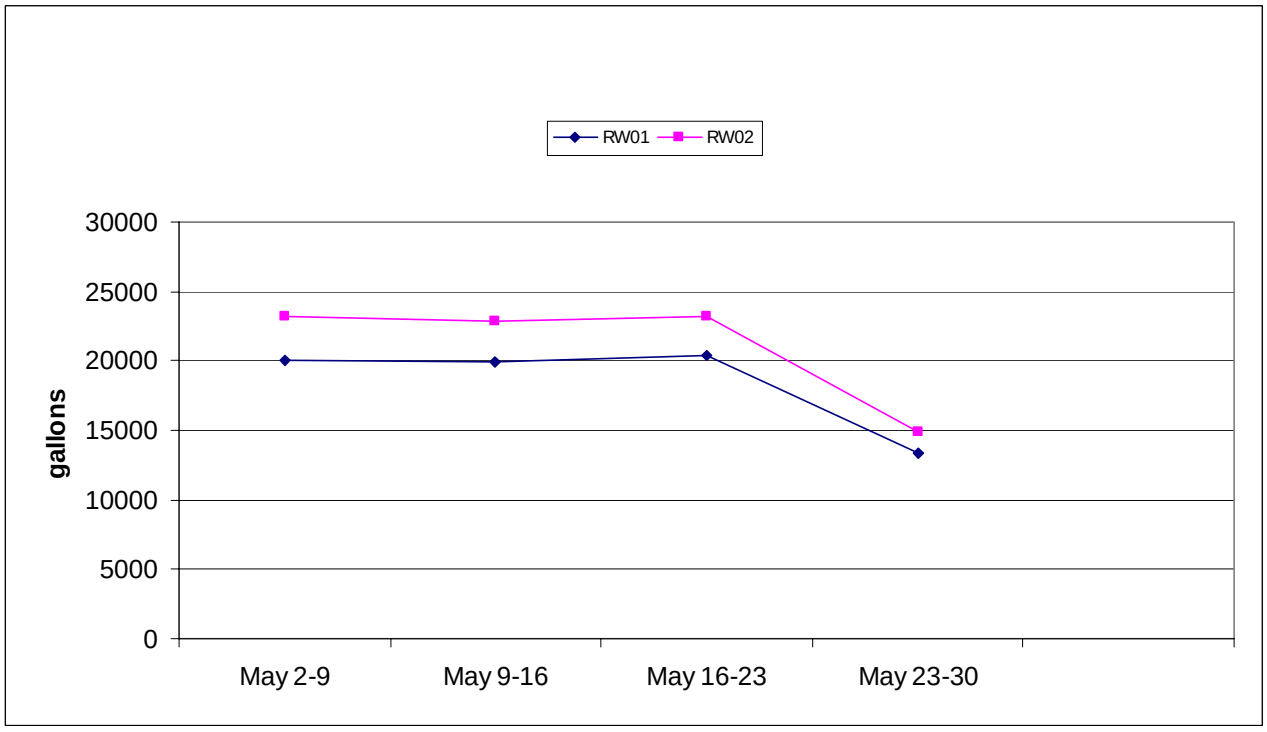

Figure 27. May 2005 Building 100 Ground Water Recovery

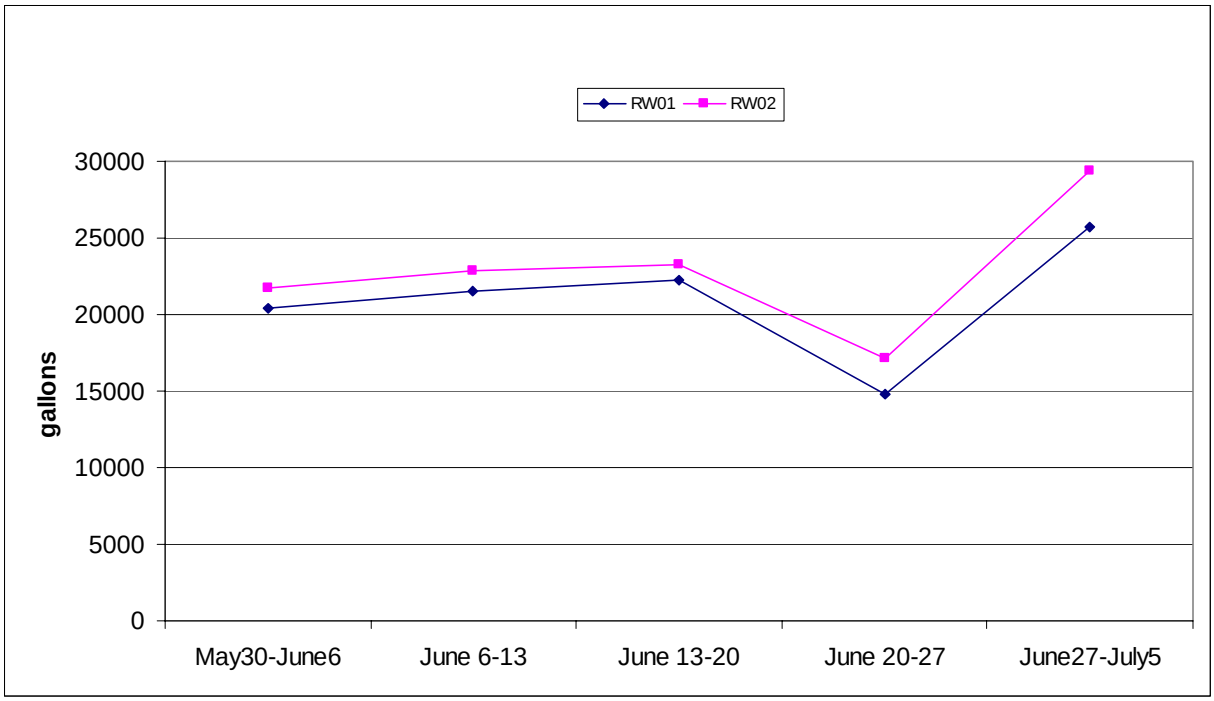

Figure 28. June 2005 Building 100 Ground Water Recovery

Table 1. WWNA Recovery Well Arsenic Concentrations
(reported in milligrams per liter)

Sample Date	RW02	RW03	RW0501[a]	RW02/RW03/RW0501 combined effluent
2/26/2001	0.08	0.1		0.095
2/27/2001	0.074	0.1		0.091
2/28/2001	0.074	0.091		0.074
3/1/2001	0.084	0.096		0.088
3/2/2001	0.088	0.095		0.089
3/5/2001	0.13	0.22		0.1
3/12/2001	0.37	0.11		0.13
3/19/2001	0.42	0.12		0.12
3/26/2001	0.15	0.16		0.8
4/2/2001	0.18	0.12		0.13
4/16/2001	0.18	0.17		0.13
5/1/2001	0.16	0.071		0.1
5/15/2001	0.14	0.15		0.093
5/30/2001	0.13	0.07		0.16
6/11/2001	0.11	0.068		0.083
6/26/2001	0.13	0.067		0.096
7/9/2001	0.14	0.054		0.087
7/23/2001	0.14	0.25		0.074
8/6/2001	0.11	0.2		0.18
8/21/2001	0.13	0.074		0.084
9/5/2001	0.13	0.054		0.091
10/8/2001	0.11	0.14		0.07
11/6/2001	0.095	0.053		0.076
12/7/2001	0.13	0.081		0.084
1/10/2002	0.11	0.081		0.076
2/5/2002	0.11	0.055		0.075
3/6/2002	0.12	0.05		0.076
4/2/2002	0.084	0.055		0.069
4/15/2002	--	0.049		--
4/16/2002	0.078	--		--
5/8/2002	0.11	0.048		0.071
6/4/2002	0.095	0.078		0.058
7/3/2002	0.16	0.056		0.074
7/15/2002	0.098	0.057		--
8/8/2002	0.0036J	0.11		0.065
9/10/2002	0.12	0.097		0.07
10/3/2002	0.097	0.054		0.071
11/22/2002	0.11	0.067		0.057
12/11/2002	0.11	0.056		0.07
1/2/2003	0.097	0.049		0.064
1/13/2003	0.082	0.061		--
2/4/2003	0.12	0.047		0.063
3/4/2003	0.079	0.19		0.059
4/7/2003	0.081	0.071		0.054

Table 1 (continued). WWNA Recovery Well Arsenic Concentrations
(reported in milligrams per liter)

Sample Date	RW02	RW03	RW0501[a]	RW02/RW03/RW0501 combined effluent
5/5/2003	0.074	0.038		0.052
6/3/2003	0.089	0.042		0.054
6/11/2003	0.07	0.044	0.42	0.073
6/12/2003	0.074	0.048	0.32	0.066
6/13/2003	0.072	0.075	0.21	0.066
6/16/2003	0.071	0.3	0.28	0.063
6/17/2003	0.068	0.11	0.26	0.066
6/24/2003	0.07	0.039	0.18	0.071
7/1/2003	0.059	0.038	0.18	0.064
7/10/2003	0.062	0.04	0.17	0.058
7/11/2003	0.056	0.034	0.24	0.054
7/14/2003	0.15	0.04	0.16	0.065
7/15/2003	0.071	0.038	0.19	0.055
7/16/2003	0.11	0.038	0.18	0.051
7/22/2003	0.15	0.041	0.16	0.054
7/31/2003	0.056	0.036	0.17	0.059
8/6/2003	0.069	0.041	0.16	0.062
9/3/2003	0.092	0.041	0.19	0.054
10/2/2003	0.13	0.032	0.14	0.054
11/5/2003	0.054	0.053	0.18	0.056
12/3/2003	0.076	0.044	0.18	0.062
1/7/2004	0.0363	0.0374	0.131	0.0467
2/3/2004	0.0433	0.0665	1.02	0.0481
3/3/2004	0.169	0.0435	0.142	0.0429
4/6/2004	0.0507	0.0483	0.147	0.0404
5/5/2004	0.0309	0.437	0.536	0.0706
6/1/2004	0.0541	0.23	3.13	0.0434
7/6/2004	0.564	0.698	0.123	0.0498
8/10/2004	0.049	0.0479	0.158	0.0339
9/9/2004	0.0427	0.0422	0.199	0.047
10/5/2004	0.0643	0.0353	0.116	0.0404
11/9/2004	0.0382	0.0385	0.137	0.036
12/7/2004	0.046	0.0341	0.0997	0.036
1/6/2005	0.0346	0.0312	0.0888	0.042
2/2/2005	0.0355	0.034	0.0985	0.0402
3/11/2005	0.0393	0.0336	0.0874	0.0487
4/5/2005	0.0509	0.0838	0.0916	0.0559
5/6/2005	0.0298	0.035	0.202	0.0374
6/6/2005	0.0383	0.0363	0.108	0.0427

[a]Recovery well RW0501 was brought online on June 11, 2003.
-- = Not Measured.

Table 2. Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
PIN06	**Industrial Drain Leaks Bldg 100 / Old Drum Storage Site**			
0500	4/5/2005	11:14	3.74	14.26
0501	4/5/2005	11:06	4.21	14.09
PIN09				
0500	4/5/2005	11:16	3.61	14.36
PIN10				
0500	4/5/2005	11:06	3.20	14.70
PIN12				
0508	4/5/2005	10:48	3.79	14.57
0509	4/5/2005	10:46	3.77	14.27
0510	4/5/2005	10:58	4.06	14.00
0511	4/5/2005	10:35	3.94	13.86
0512	4/5/2005	10:40	2.97	13.84
0513	4/5/2005	13:43	4.78	13.72
0514	4/5/2005	13:45	4.80	13.70
0516	4/5/2005	11:02	4.37	13.63
0517	4/5/2005	11:11	3.72	14.18
0518	4/5/2005	11:08	3.78	14.16
0520	4/5/2005	11:15	4.13	13.88
0521	4/5/2005	11:15	4.34	13.71
0522	4/5/2005	11:04	4.97	13.23
0523	4/5/2005	11:05	4.94	13.22
0524	4/5/2005	12:55	3.70	13.71
0525	4/5/2005	12:53	3.71	13.71
0526	4/5/2005	13:40	3.36	13.46
0527	4/5/2005	10:43	11.97	6.10
0528	4/5/2005	11:00	11.87	5.73
RW01	4/5/2005	11:02	14.14	4.11
RW02	4/5/2005	11:07	10.27	8.06
S30B	4/5/2005	09:31	4.67	13.84
S31B	4/5/2005	09:09	4.54	13.97
S32B	4/5/2005	09:15	4.66	13.85
S33C	4/5/2005	09:20	4.75	13.76
S35B	4/5/2005	09:46	4.64	13.87
S36B	4/5/2005	09:05	4.72	13.79
S37B	4/5/2005	09:25	4.55	13.96
S54D	4/5/2005	09:41	4.47	14.04
S55B	4/5/2005	09:52	4.36	14.15
S55C	4/5/2005	09:53	4.29	14.22
S56B	4/5/2005	09:53	4.37	14.14

Table 2 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
S57B	4/5/2005	09:59	4.22	14.29
S57C	4/5/2005	09:58	4.23	14.28
S57D	4/5/2005	09:57	4.21	14.30
S59B	4/5/2005	08:35	4.25	14.26
S59C	4/5/2005	08:34	4.18	14.33
S59D	4/5/2005	08:32	4.22	14.29
S60B	4/5/2005	08:28	4.42	14.09
S60C	4/5/2005	08:27	4.41	14.10
S60D	4/5/2005	08:26	4.50	14.01
S67B	4/5/2005	08:08	4.28	14.19
S67C	4/5/2005	08:10	4.25	14.22
S67D	4/5/2005	08:13	4.40	14.08
S68B	4/5/2005	13:04	4.50	13.40
S68C	4/5/2005	13:06	4.30	13.60
S68D	4/5/2005	13:02	4.32	13.58
S69B	4/5/2005	13:16	2.68	13.32
S69C	4/5/2005	13:17	2.68	13.32
S69D	4/5/2005	13:18	2.72	13.28
S70B	4/5/2005	13:27	3.03	13.67
S70C	4/5/2005	13:28	3.26	13.44
S70D	4/5/2005	13:29	3.13	13.57
S71B	4/5/2005	13:47	4.70	13.70
S71C	4/5/2005	13:48	4.71	13.69
S71D	4/5/2005	13:49	4.71	13.69
S72B	4/5/2005	13:28	4.81	13.39
S72C	4/5/2005	13:30	4.85	13.35
S72D	4/5/2005	13:32	4.86	13.34
S73B	4/5/2005	13:23	3.56	13.44
S73C	4/5/2005	13:23	3.72	13.28
S73D	4/5/2005	13:24	3.89	13.11
TE03	4/5/2005	10:37	3.13	13.87
PIN15	**Northeast Site**			
0506	4/5/2005	08:09	2.96	14.04
0507	4/5/2005	08:09	3.01	13.99
0510	4/5/2005	10:27	2.88	14.64
0513	4/5/2005	08:00	11.42	6.18
0514	4/5/2005	08:42	2.93	14.57
0515	4/5/2005	08:41	2.94	14.56
0516	4/5/2005	08:40	3.14	14.26
0518	4/5/2005	08:16	3.35	14.45
0520	4/5/2005	08:06	3.03	14.17

Table 2 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
0523	4/5/2005	10:15	2.48	15.52
0530	4/5/2005	08:36	2.91	14.49
0534	4/5/2005	08:05	2.99	14.31
0535	4/5/2005	08:37	2.96	14.64
0537	4/5/2005	08:50	3.46	15.14
0557	4/5/2005	08:56	3.56	15.54
0559	4/5/2005	10:37	3.76	15.03
0560	4/5/2005	09:16	3.00	15.00
0561	4/5/2005	09:15	2.92	15.08
0562	4/5/2005	08:20	2.78	15.02
0563	4/5/2005	08:22	2.68	15.12
0564	4/5/2005	08:26	2.39	14.81
0565	4/5/2005	08:27	2.30	14.90
0566	4/5/2005	09:20	2.76	14.74
0567	4/5/2005	09:17	2.93	14.57
0568	4/5/2005	10:32	3.57	14.93
0569	4/5/2005	10:33	3.94	14.44
0570	4/5/2005	10:29	3.52	14.46
0571	4/5/2005	10:23	2.71	14.76
0572	4/5/2005	10:21	2.70	14.81
0573	4/5/2005	09:55	3.33	15.05
0574	4/5/2005	09:57	3.48	14.94
0575	4/5/2005	10:02	2.86	14.98
0576	4/5/2005	10:01	2.58	14.90
0577	4/5/2005	08:29	2.79	14.85
0578	4/5/2005	08:31	2.59	14.93
E001	4/5/2005	08:12	2.12	13.90
M03D	4/5/2005	09:10	2.60	15.50
M03S	4/5/2005	09:05	2.46	15.64
M12D	4/5/2005	08:03	2.92	14.28
M12S	4/5/2005	08:02	3.55	13.95
M14D	4/5/2005	07:51	2.54	15.46
M14S	4/5/2005	07:50	2.50	15.50
M16D	4/5/2005	08:57	2.76	15.44
M16S	4/5/2005	08:58	2.77	15.43
M24D	4/5/2005	08:23	2.93	14.87
M27D	4/5/2005	08:34	2.84	14.76
M27S	4/5/2005	08:35	3.34	14.26
M29D	4/5/2005	08:44	2.92	14.68
M29S	4/5/2005	08:45	3.08	14.52
M30D	4/5/2005	09:01	2.45	15.45

Table 2 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
M30S	4/5/2005	09:00	2.31	15.49
M31D	4/5/2005	08:52	2.90	15.10
M31S	4/5/2005	08:52	2.91	15.09
M32D	4/5/2005	08:48	2.96	14.84
M32S	4/5/2005	08:47	2.79	15.01
M33D	4/5/2005	08:25	2.19	15.41
RW15	4/5/2005	08:38	2.47	14.73
RW16	4/5/2005	08:49	3.07	14.93
PIN18	**Wastewater Neutralization Area**			
0500	4/5/2005	11:28	6.60	13.50
0502	4/5/2005	11:32	5.65	14.35
0503	4/5/2005	10:20	3.52	14.16
0504	4/5/2005	11:33	4.42	15.18
0505	4/5/2005	10:25	3.91	13.97
0506	4/5/2005	10:31	3.70	14.01
0508	4/5/2005	11:35	4.65	14.85
0509	4/5/2005	10:23	3.94	13.89
0510	4/5/2005	10:28	3.85	13.91
0511	4/5/2005	12:45	3.12	15.68
0512	4/5/2005	12:43	2.86	15.74
0513	4/5/2005	12:48	3.03	15.77
0514	4/5/2005	10:52	3.62	14.16
0515	4/5/2005	10:54	4.19	14.22
0516	4/5/2005	10:49	4.26	14.15
0517	4/5/2005	10:44	4.25	14.00
0518	4/5/2005	10:42	4.24	13.96
0519	4/5/2005	10:46	4.31	13.97
0520	4/5/2005	11:25	4.26	13.74
0521	4/5/2005	11:25	4.77	13.33
0522	4/5/2005	11:26	4.79	13.31
0523	4/5/2005	11:20	5.27	14.13
0524	4/5/2005	11:22	4.95	14.05
0525	4/5/2005	11:22	4.82	14.08
0526	4/5/2005	10:14	3.09	15.51
RW02	4/5/2005	11:30	9.33	10.77
RW03	4/5/2005	11:27	7.89	10.41
RW0501	4/5/2005	13:36	11.42	8.58
PIN21	**Perimeter Monitoring Wells**			
0500	4/5/2005	13:18	4.71	13.39
0501	4/5/2005	13:16	4.52	13.48
0502	4/5/2005		2.16	13.04

Table 2 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
0503	4/5/2005	11:36	2.30	12.90
0504	4/5/2005	11:27	4.44	13.16
0505	4/5/2005	11:25	4.19	13.21
0512	4/5/2005	11:31	4.23	13.07
PIN23	**Southwest Pond**			
SW01	4/5/2005	11:18		13.39
PIN37	**South Pond**			
S001	4/5/2005	11:21		13.37

Table 3. Floridan Aquifer Monitoring Well Water Elevations

Well Identification	October 2004 Water Level Elevation (ft, MSL)	January 2005 Water Level Elevation (ft, MSL)
PIN15−0513	7.44	6.18
PIN12−0527	7.55	6.36
PIN12−0528	7.41	5.55

Table 4. Vertical Hydraulic Differential

Water Level Measured From	Well Identification	Water Level Elevation (ft, MSL)
Deep Surficial Aquifer	PIN15−M12D	13.79
Floridan Aquifer	PIN15−0513	6.18

Table 5. Surface Water Elevations

Pond Location	October 2004 Water Level Elevation (ft, MSL)	January 2005 Water Level Elevation (ft, MSL)
East Pond	14.10	13.70
South Pond	13.49	13.21
West Pond	18.23	16.16
Southwest Pond	13.48	13.24

Table 6. Field Measurements of Samples Collected at the STAR Center

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
PIN06		**Industrial Drain Leaks Bldg 100 / Old Drum Storage Site**					
0500	3–13	23.7	744	2.4	6.78	-38.3	0.46
0501	3–13	22.9	956	3.5	6.63	63.2	0.63
PIN09							
0500	3–13	24.2	824	2	6.94	-81.2	0.39
PIN10							
0500	3–13	22.3	592	13.7	6.69	-37.8	0.44
PIN12							
0508	3–13	21.7	560	5.4	6.7	52.7	0.67
0509	3–13	23.1	1,205	5.6	6.85	55.4	0.42
0510	3–13	23.4	1,393	17.6	6.17	93.4	0.52
0511	3–13	23.3	310	9.5	6.54	119.8	1.61
0512	3–13	24.5	642	1.3	6.65	-28.6	0.74
0513	15–25	22.9	1,145	5.9	6.71	-81.9	0.49
0514	30–40	23.5	1,624	414	6.68	-57.2	0.24
0515	15–25	25.6	636	2.3	6.96	-47.5	0.35
0516	30–40	25.5	1,245	12.8	6.69	-1.1	0.43
0517	15–25	26.2	566	123	6.98	-65.5	0.58
0518	30–40	26.1	711	20.3	6.74	17.4	0.86
0520	36–46	25.2	1,549	85.4	6.73	-22	0.68
0521	19.5–29.5	25	775	10.9	6.96	-103.1	0.71
0522	32–42	24.7	1,499	16.2	6.79	-9.7	0.58
0523	18–28	23.55	681	8.57	6.87	-94.9	3.53
0524	27–37	26.23	1,436	4.78	6.62	-86	0.47
0525	12–22	25.2	846	11.6	6.75	-30.1	0.65
0526	19.5–29.5	28.12	2,124	2.65	6.52	-155.9	0.59
0527	118–137.9	27.26	1,731	7.95	6.92	-92.8	0.73
0528	127–146.9	24.65	1,253	9.22	6.85	-175.1	0.28
S29C	14–24	23	945	8.7	6.84	-77.8	0.53
S30B	5–15	22.3	1,245	3.1	6.76	58.7	0.61
S31B	5–15	23.3	565	6.3	6.92	-54.7	0.47
S32B	5.5–15.5	22.7	1,345	2.2	6.72	-16.1	0.57
S33C	11–21	22.7	1,536	150	6.73	-87.5	0.59
S35B	5–15	22.9	1,845	19.2	6.33	4.2	0.65
S36B	5–15	23.4	777	8.4	6.56	-61.9	0.62
S37B	5–15	21.9	933	17.5	6.83	-85.1	0.48
S54D	36–41	23.1	1,506	29.5	6.64	-30.7	1.15
S55B	10–19.8	23.8	555	8.7	6.68	-108	1.22
S55C	20.5–30.3	23.8	628	10.4	7.62	-164.3	0.82
S56B	10–19.8	22.8	1,588	134	6.84	-128	1.31
S56C	20.5–30.3	22.8	1,586	108	7.05	-136.1	1.12
S56D	31–40.8	22.8	1,574	177	7.25	-128.9	1.15
S57B	10–19.8	23.2	1,382	685	7.04	-132.6	1.12

Table 6 (continued). Field Measurements of Samples Collected at the STAR Center

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
S57C	20.5–30.3	23.1	1,360	13.3	7.01	-147.6	1.11
S57D	31.5–41.3	23.2	1,477	31.8	6.76	-64	1.44
S59B	10–19.8	20.8	1,266	8.5	7.09	-100.4	0.8
S59C	20.5–30.3	21.1	1,149	10.1	7.17	-92.6	1.07
S59D	31–40.8	21.1	955	9.5	8.89	-122.8	2.31
S60B	10–19.8	21.7	1,065	6.9	7.25	-109.7	--
S60C	20.5–30.3	22.7	875	195	7.98	-54.8	2.06
S60D	31–40.8	22.3	964	85.5	8.3	-58.2	3.02
S67B	10–19.83	21.91	1,386	15.3	6.19	-15.9	1.15
S67C	20–29.83	22.28	1,137	87.4	6.73	-97.4	0.65
S67D	30–39.83	22.25	1,246	381	6.73	-109.9	0.39
S68B	10–20	23.91	930	36.5	5.75	54.9	0.53
S68C	18–28	24.93	1,043	164	6.53	44.1	0.3
S68D	30–40	24.77	1,407	2.58	6.52	-58.1	0.3
S69B	10–20	26.13	700	13.9	6.71	-94.7	0.22
S69C	20–30	26.51	1,083	34.6	6.54	-54.7	0.28
S69D	30–40	26.47	1,390	4.43	6.6	-96.4	0.21
S70B	10–20	26.14	1,802	98.1	6.5	-66.9	0.3
S70C	20–30	27.31	1,644	272	6.38	-35.9	0.44
S70D	30–40	27.22	1,625	19.4	6.42	-74.1	0.22
S71B	10–20	25.43	1,890	109	6.47	-106.4	0.28
S71C	20–30	26.39	1,651	634	6.48	-65.9	0.23
S71D	30–40	26.7	1,513	>1,000	6.48	-71.3	0.27
S72B	10–20	27.23	2,098	198	5.9	-26.1	0.22
S72C	20–30	27.65	890	18.2	6.49	-76	0.23
S72D	30–40	27.93	1,532	250	6.54	-19.9	0.23
S73B	10–20	26.55	1,077	234	6.36	-83	0.2
S73C	20–30	27.35	1,905	159	6.31	-84.2	0.21
S73D	30–40	26.47	2,421	164	5.86	-37.3	0.29
TE03	–	25.3	746	3.39	6.74	-35.2	0.88
PIN15	**Northeast Site**						
0506	12–21.5	24.22	1,367	6.09	6.78	-65.5	1.13
0507	5–14.5	23.92	627	5.23	6.84	-53.7	0.71
0510	4–13.5	26.2	389	40.1	7.22	-28.3	0.72
0513	135–149.6	24.6	1,416	1.84	7.1	-186.3	0.42
0514	15.5–25.5	23.19	1,790	16.7	6.52	-194.1	0.99
0515	7.6–17.6	22.8	552	2.53	6.96	-90.1	0.63
0516	0.3–10.3	22.02	707	4.66	6.78	-29.9	0.82
0518	23–28	23.7	1,958	5.6	6.61	-32.7	2.14
0520	5–14.5	23.09	795	7.01	6.77	-41.5	1.04
0523	5–14.5	22.12	1,037	19.7	6.7	-89.3	0.47
0530	5–14.5	23.96	899	6.92	6.58	-49.7	1.13
0534	19.5–29	24.56	1,841	14.6	6.67	-40.8	0.97
0535	20.5–30	24.75	1,669	107	6.74	-126.2	0.69

Table 6 (continued). Field Measurements of Samples Collected at the STAR Center

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
0537	17.5–30	22.98	1,077	8.67	6.79	-60.05	0.48
0557	21–31	23.1	1,036	5.88	6.81	-107.7	1
0559	22–31.5	27.7	1,368	41.2	6.69	-2.2	0.63
0561	5–14.5	23.73	1,550	2.18	6.57	-27.6	0.64
0562	20–29.5	27.26	1,031	54.8	6.66	-100.6	0.7
0563	5–14.5	24.32	2,126	7.47	6.78	-87.7	0.68
0564	20–29.5	26.43	1,629	3.3	6.59	-24.4	0.66
0565	5–14.5	24.61	1,171	6.95	6.72	16	0.53
0566	19–28.5	29.96	1,283	133	6.6	-80.5	0.27
0567	5–14.5	26.96	1,324	17	6.56	-60.6	0.46
0568	10–20	23.9	1,267	77.2	6.81	-42.9	0.54
0569	20–30	25.93	1,544	15.2	6.6	-44.1	0.73
0570	20–30	28.4	2,339	54.2	6.63	-18	0.69
0571	10–20	26.7	1,102	21.8	6.79	-57.2	0.52
0572	20–30	27.7	1,243	26.7	6.79	-37.2	0.68
0573	5–15	27.37	2,435	7.95	6.82	-136.9	1.24
0574	18–28	32.33	1,169	188	6.59	-120.7	0.45
0575	5–15	29.06	2,455	4.39	7.08	-180.1	0.12
0576	20–30	35.95	1,597	21.2	6.79	-180.8	0.18
0577	5–15	28.24	1,626	6.27	6.89	-126.5	0.24
0578	20–30	34.12	1,011	8.47	6.38	-151	0.3
M03D	15–25	22.48	1,046	23.9	6.53	-34.2	0.58
M03S	2.5–12	21.96	858	13.7	6.73	-26.9	0.49
M12D	22.5–32.5	24	707	45.1	6.67	-84.5	0.38
M12S	5–14.5	22.94	443	17.7	6.91	-14.2	1.5
M14D	18.5–28.5	24.02	805	83.8	6.62	-107.6	0.16
M14S	4–14	22.73	755	17.9	6.86	-54.1	0.27
M16D	18.5–28.5	23.71	962	36.9	6.72	-74.9	0.51
M16S	5–14.5	22.65	1,627	19.2	6.76	-78.8	0.71
M24D	20–30	24.78	1,554	105	6.71	-188.6	0.09
M27D	21–31	24.31	1,847	8.89	6.51	-74.5	1.51
M27S	6–16	23.36	887	5.85	6.47	-30.3	1.05
M29D	20–30	23.99	1,366	1.65	6.79	-61.8	1
M29S	5–15	22.77	619	1.39	6.9	28.5	0.69
M30D	20.5–30.5	23.58	1,268	4.66	6.43	-44.6	0.6
M30S	5.5–15.5	22.53	1,418	6.85	6.65	-44.5	0.61
M31D	19.5–29.5	23.3	1,595	3.4	6.56	-42.3	0.83
M31S	4.5–14.5	22.35	1,366	5.28	6.85	-110.1	0.48
M32D	14–24	22.61	619	6.55	6.99	-52	0.81
M32S	3–13	21.97	589	18.5	7	-74.4	0.55
M33D	20–30	24.13	675	32.7	6.71	-56.5	0.34
M37D	20–30	25.72	1,687	2.12	6.41	-103.6	0.78
RW16	20–30	21.88	1,133	0.89	6.75	-93.5	0.49

Table 6 (continued). Field Measurements of Samples Collected at the STAR Center

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
PIN18	**Wastewater Neutralization Area**						
0500	11–16	22.8	405	13.3	7.33	-84.2	0.27
0502	11–16	23.3	810	5.8	6.68	1.8	0.4
0503	10–20	25.37	963	4.4	6.47	-82.9	0.27
0504	13–22	23.5	621	13.2	6.67	14.9	0.47
0505	10.5–20.5	24.99	728	15.6	6.54	24.8	0.32
0506	12–22	25.1	683	2.41	6.57	31.8	0.32
0507	27–37	26.31	1,617	9.61	6.58	-27.1	0.27
0508	31–41	24.9	853	8.8	6.72	-49.6	0.5
0509	27.5–37.5	25.99	1,545	7.54	6.58	-23.2	0.27
0510	27.5–37.5	26.03	1,361	17.6	6.53	-59.4	0.23
0511	32–42	25.54	1,437	1.01	6.74	-104.1	0.77
0512	21–31	25.82	1,494	1.73	6.66	-95.6	1.71
0513	12–22	25.13	806	2.25	6.56	-64	1.48
0514	32.5–42.5	25.97	1,596	77.9	6.76	-39.1	1.11
0515	22.5–32.5	26.06	1,354	4.37	6.67	-85.9	1.04
0516	12.5–22	25.67	1,327	3.31	6.68	-84.8	1.06
0517	31.5–41.5	26.11	1,409	3.67	6.87	12.2	0.78
0518	22.5–32.5	26.32	1,592	1.72	6.74	-79.8	0.95
0519	12.5–22.5	25.49	1,060	36.3	6.87	-76.3	0.69
0520	32.5–42.5	24.6	1,312	19.4	6.86	44.6	0.36
0521	20–30	24.2	862	17.6	6.79	-28.7	0.38
0522	5–15	23.1	687	15.5	6.62	22.4	0.45
0523	32.5–42.5	25.1	1,260	29	6.77	30.4	0.32
0524	20–30	24.7	695	44.9	6.79	-50.3	0.39
0525	5–15	23.1	360	13.3	6.6	97.6	0.62
0526	19.5–29	24.2	635	52.8	6.43	-9.8	0.66
PIN21	**Perimeter Monitoring Wells**						
0500	7–17	23.8	662	30.4	6.8	-47.6	0.49
0501	20–28	25.5	1,487	19.2	6.74	-51.1	0.55
0502	7–17	22.43	902	2.15	6.56	-60.9	0.35
0503	20–28	24.07	834	19.7	6.64	-72.9	0.27
0504	7–17	21.73	732	18.6	6.74	-41.7	0.27
0505	20–28	23.2	989	1.99	6.64	-40.8	0.37
0512	20–29.5	23.3	1,044	19.4	6.62	-70.6	0.42

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

Table 7. Sitewide Arsenic Measurements

Location	Sample Date	Concentration (mg/L)
PIN06	**Industrial Drain Leaks Bldg 100 / Old Drum Storage Site**	
0500	4/12/2005	0.0066B
0501	4/12/2005	0.0069B
PIN09		
0500	4/12/2005	0.0035B
PIN10		
0500	4/12/2005	0.015
PIN12		
0510	4/12/2005	<0.0035
0525	4/9/2005	0.0253
S31B	4/6/2005	0.03
S32B	4/6/2005	0.0143
S33C	4/6/2005	0.0122
S35B	4/8/2005	0.018
S37B	4/6/2005	0.0069B
S68B	4/11/2005	0.069
S69B	4/12/2005	<0.0035
S73B	4/13/2005	<0.0035
S73D	4/13/2005	<0.0035
PIN15	**Northeast Site**	
0530	4/6/2005	<0.0035
0567	4/14/2005	0.0078B
0570	4/13/2005	<0.0035
M03S	4/15/2005	0.0129
M14S	4/8/2005	0.0109
M29S	4/6/2005	0.0037B
M32S	4/15/2005	0.0111
PIN18	**Wastewater Neutralization Area**	
0500	4/11/2005	0.0441
0502	4/11/2005	0.0169
0503	4/9/2005	<0.0035
0504	4/11/2005	<0.0035
0505	4/9/2005	<0.0035
0506	4/9/2005	<0.0035
0507	4/9/2005	<0.0035
0508	4/11/2005	<0.0035
0509	4/9/2005	<0.0035
0510	4/9/2005	<0.0035
0511	4/9/2005	<0.0035
0512	4/9/2005	<0.0035
0513	4/9/2005	<0.0035
0514	4/9/2005	<0.0035
0515	4/9/2005	<0.0035
0516	4/9/2005	<0.0035
0517	4/9/2005	<0.0035

Table 7 (continued). Sitewide Arsenic Measurements

Location	Sample Date	Concentration (mg/L)
0518	4/9/2005	<0.0035
0519	4/9/2005	<0.0035
0520	4/11/2005	<0.0035
0521	4/11/2005	<0.0035
0522	4/11/2005	0.0055B
0523	4/11/2005	<0.0035
0524	4/11/2005	0.0146
0525	4/11/2005	0.0627
0526	4/9/2005	<0.0035
RW02	4/5/2005	0.0509
RW03	4/5/2005	0.0838
RW0501	4/5/2005	0.0916

B = Inorganic result is between the IDL and CRDL
"<" values are method detection limits.

Table 8. Northeast Site Florida Petroleum Range Organics Concentrations

Location	Sample Date	Concentration (mg/L)
PIN15	**Northeast Site**	
0557	4/7/2005	0.547
0561	4/15/2005	0.248J
0562	4/6/2005	0.231J
0563	4/7/2005	1.02
0564	4/14/2005	0.444
0565	4/14/2005	<0.16
0566	4/14/2005	0.996
0567	4/14/2005	0.749
0573	4/7/2005	2.66
0574	4/7/2005	0.446
0575	4/15/2005	3.92
0576	4/15/2005	1.19
0577	4/15/2005	4.58
0578	4/15/2005	0.695
M29D	4/6/2005	0.595
M29S	4/6/2005	<0.16
M30D	4/15/2005	1.11
M30S	4/15/2005	0.326
M31D	4/15/2005	1.57
M31S	4/15/2005	0.556

J Estimated value, result is between the reporting limit and the method detection limit.
"<" values are method detection limits.

Table 9. COPC Concentrations at the Northeast Site
(reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[c]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1,000**	
PIN15	**Northeast Site**									
0506	12–21.5	4/16/2004	<0.5	<0.5	ND	<0.5	1.3	<0.5	<0.5	1.3
		4/7/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0507	5–14.5	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/7/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0510	4–13.5	4/21/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/8/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0513	135–149.6	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/14/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0514	15.5–25.5	4/15/2004	<2.5	<2.5	ND	<2.5	<5	79.1	4.1J	79.1
		4/6/2005	<0.5	<0.5	ND	<0.5	<1	15.7	<0.5	15.7
0515	7.6–17.6	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/6/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0516	0.3–10.3	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/6/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0518	23–28	4/15/2004	<2.5	<2.5	ND	<2.5	<5	<2.5	<2.5	ND
		4/8/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0520	5–14.5	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/7/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0523	5–14.5	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/14/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0530	5–14.5	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/6/2005	<0.5	<0.5	ND	11	<1	<1	<0.5	11
0534	19.5–29	4/16/2004	<2.5	<2.5	ND	<2.5	<5	<2.5	<2.5	ND
		4/7/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0535	20.5–30	4/15/2004	<0.5	<0.5	ND	<0.5	<1	2.6	<0.5	2.6
		4/6/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0537	17.5–30	4/15/2004	16J	795	795	943	<20	<10	<10	1,738
		7/13/2004	<5	33.3	33.3	522	<10	<5	<5	555.3
		4/6/2005	1.3	129	130.5	413	<1	3.2	<0.5	548
0557	21–31	4/16/2004	<0.5	<0.5	ND	2.9	<1	<0.5	<0.5	2.9
		10/8/2004	<0.5	<0.5	ND	2.9	<1	<0.5	<0.5	2.9
		1/12/2005	<0.5	<0.5	ND	3.1	<1	<0.5	<0.5	3.1
		4/7/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0559	22–31.5	4/17/2004	<0.5	<0.5	ND	<0.5	<1	0.61J	<0.5	ND
		4/13/2005	<0.5	<0.5	ND	1.4	<1	3.1	<0.5	4.5
0561	5–14.5	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		10/12/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		1/12/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/15/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND

Table 9 (continued). COPC Concentrations at the Northeast Site (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[c]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1,000**	
0562	20–29.5	4/15/2004	<2.5	<2.5	ND	<2.5	<5	<2.5	<2.5	ND
		10/7/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		1/11/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/6/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0563	5–14.5	4/15/2004	2.8J	4J	4J	<2.5	<5	<2.5	<2.5	ND
		10/8/2004	<0.5	2.1	2.1	<0.5	<1	<0.5	<0.5	2.1
		1/11/2005	<0.5	1.4	1.4	<0.5	<1	<0.5	<0.5	1.4
		4/7/2005	<0.5	1.3	1.3	<0.5	<1	<0.5	<0.5	1.3
0564	20–29.5	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		10/12/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		1/11/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/14/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0565	5–14.5	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		10/12/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		1/11/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/14/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0566	19–28.5	4/16/2004	<0.5	0.62J	0.62J	1.2	<1	0.55J	<0.5	1.2
		10/12/2004	<0.5	4.7	4.7	4.5	<1	1.5	<0.5	10.7
		1/12/2005	<0.5	3.8	3.8	3.8	<1	1.3	<0.5	8.9
		4/14/2005	<0.5	4.9	4.9	4.8	<1	1.4	<0.5	11.1
0567	5–14.5	4/16/2004	0.73J	28.4	35.4	19.9	<1	3.5	<0.5	58.8
		10/12/2004	1.8	68	83.4	34.5	<1	12.8	<0.5	132.5
		1/12/2005	1.3	52.3	63.8	22.7	<1	7.2	<0.5	95
		4/14/2005	1.2	49.5	60.6	24.7	<1	5.6	<0.5	92.1
0568	10–20	4/21/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		7/23/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0569	20–30	4/21/2004	<0.5	<0.5	ND	30.2	<1	1.9	<0.5	32.1
		7/23/2004	<0.5	<0.5	ND	19	<1	0.68J	<0.5	19
		4/12/2005	<0.5	1.3	1.3	33.7	<1	<0.5	10.6	45.6
0570	20–30	4/21/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		7/22/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0571	10–20	4/21/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		7/23/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0572	20–30	4/21/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		7/23/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0573	5–15	7/13/2004	<2.5	63.3	63.3	<2.5	<5	<2.5	<2.5	63.3
		10/11/2004	<0.5	12.6	12.6	12.7	<1	0.66J	1.2	26.5
		1/11/2005	<0.5	19.7	19.7	22.9	<1	0.89J	1.5	44.1
		4/7/2005	<0.5	5.3	5.3	24.8	<1	0.71J	1.3	31.4

Table 9 (continued). COPC Concentrations at the Northeast Site (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[c]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1,000**	
0574	18–28	7/13/2004	6.6	351	351	210	<5	<2.5	<2.5	567.6
		10/7/2004	35.4	330	330	58.9	<1	0.96J	0.81J	424.3
		1/11/2005	32.9	86.1	86.1	28.2	<1	0.76J	0.84J	147.2
		4/7/2005	15.4	39	39	13.8	<1	<0.5	<0.5	68.2
0575	5–15	7/23/2004	<0.5	1.5	5.4	77.1	<1	<0.5	4.5	87
		10/11/2004	<0.5	4.4	6.3	35.9	<1	2.1	1.9	46.2
		1/11/2005	<0.5	5.4	7.1	34.9	<1	1.9	2.2	46.1
		4/15/2005	<0.5	2.8	3.9	15.1	<1	1.1	1.1	21.2
0576	20–30	7/23/2004	<0.5	3	4	<0.5	<1	0.85J	0.6J	4
		10/7/2004	<0.5	14.1	14.1	6.5	<1	0.63J	<0.5	20.6
		1/11/2005	<0.5	18.7	18.7	11.2	<1	0.95J	<0.5	29.9
		4/15/2005	<0.5	27.8	27.8	20.1	<1	0.68J	<0.5	47.9
0577	5–15	7/23/2004	<0.5	<0.5	23.1	339	<1	<0.5	394	756.1
		10/7/2004	<5	<5	32	441	<10	6.3J	234	707
		1/12/2005	<2.5	14.5	38.2	276	<5	5.7	21.1	341
		4/15/2005	1.3	2.6	14.8	33	<1	4.1	6.6	59.8
0578	20–30	7/23/2004	<0.5	5.7	8.3	24.4	<1	<0.5	1.7	34.4
		10/11/2004	<0.5	10.2	12	25.2	<1	<0.5	0.91J	37.2
		1/12/2005	<0.5	8.3	8.3	7.9	<1	<0.5	<0.5	16.2
		4/15/2005	<0.5	4.6	4.6	2.9	<1	<0.5	<0.5	7.5
M03D	15–25	4/17/2004	<2.5	<2.5	ND	<2.5	<5	<2.5	<2.5	ND
		4/15/2005	<0.5	<0.5	ND	0.79J	<1	<0.5	<0.5	ND
M03S	2.5–12	4/17/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		1/11/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/15/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M12D	22.5–32.5	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/14/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M12S	5–14.5	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/14/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M14D	18.5–28.5	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/8/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M14S	4–14	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/8/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M16D	18.5–28.5	4/17/2004	<0.5	<0.5	ND	0.58J	<1	<0.5	<0.5	ND
		4/15/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M16S	5–14.5	4/17/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/15/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M24D	20–30	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/8/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M27D	21–31	4/15/2004	<0.5	<0.5	ND	<0.5	<1	1.6	<0.5	1.6
		4/7/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M27S	6–16	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/7/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND

Table 9 (continued). COPC Concentrations at the Northeast Site (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[c]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1,000**	
M29D	20–30	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		10/8/2004	<0.5	<0.5	ND	<0.5	1.2	<0.5	<0.5	1.2
		1/13/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/6/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M29S	5–15	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		10/8/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		1/13/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/6/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M30D	20.5–30.5	4/16/2004	<100	8,550	8,550	2,740	<200	<100	<100	11,290
		10/8/2004	<25	500	500	2,120	<50	<25	<25	2,620
		1/12/2005	<0.5	578	579.7	2,020	<1	6.1	<0.5	2,605.8
		4/15/2005	<0.5	294	296	1,440	<1	4.4	<0.5	1,740.4
M30S	5.5–15.5	4/16/2004	<0.5	<0.5	ND	27.7	<1	<0.5	<0.5	27.7
		10/8/2004	<0.5	1.1	1.1	4.3	<1	<0.5	<0.5	5.4
		1/12/2005	<0.5	0.72J	0.72J	2.1	<1	<0.5	<0.5	2.1
		4/15/2005	<0.5	<0.5	ND	1.8	<1	<0.5	<0.5	1.8
M31D	19.5–29.5	4/16/2004	<2.5	<2.5	ND	21.3	<5	13	<2.5	34.3
		7/13/2004	<0.5	<0.5	ND	19.3	<1	17.9	1.8	39
		10/8/2004	<0.5	<0.5	ND	3	1.4	19.8	2.8	27
		1/13/2005	<0.5	<0.5	ND	<0.5	<1	24.5	2	26.5
		4/15/2005	<0.5	<0.5	ND	5.7	<1	17.3	1.6	24.6
M31S	4.5–14.5	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		7/13/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		10/8/2004	<0.5	<0.5	ND	0.99J	<1	<0.5	<0.5	ND
		1/13/2005	<0.5	<0.5	ND	4.2	<1	<0.5	<0.5	4.2
		4/15/2005	<0.5	<0.5	ND	1.7	<1	<0.5	<0.5	1.7
M32D	14–24	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/15/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M32S	3–13	4/16/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/15/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M33D	20–30	4/15/2004	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		4/14/2005	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
RW16	20–30	4/16/2004	<2.5	65.6	65.6	388	<5	3.3J	<2.5	453.6
		7/13/2004	<10	373	373	968	<20	<10	<10	1,341
		4/15/2005	<0.5	1.6	1.6	110	<1	2.5	<0.5	114.1
X11	–	4/11/2005	<50	443	443	3,610	<100	<50	149	4,202

[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 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.
ND = Not detected.
J = Estimated value, result is between the reporting limit and the method detection limit.

Table 10. COPC Concentrations at the Building 100 Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	1,1-DCE	Vinyl chloride	Total COPC[c]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
PIN06	**Industrial Drain Leaks Bldg 100 / Old Drum Storage Site**								
0500	3–13	4/22/2004	<0.5	0.82J	<0.5	0.82J	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0501	3–13	4/23/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
PIN09									
0500	3–13	4/22/2004	<0.5	1	<0.5	1	<0.5	<0.5	1
		4/12/2005	<0.5	0.52J	<0.5	0.52J	<0.5	<0.5	ND
PIN10									
0500	3–13	4/22/2004	0.74J	3	<0.5	3	<0.5	0.61J	3
		4/12/2005	<0.5	1.8	<0.5	1.8	<0.5	<0.5	1.8
PIN12									
0508	3–13	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0509	3–13	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0510	3–13	4/23/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0511	3–13	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/9/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0512	3–13	4/17/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/9/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0513	15–25	4/18/2004	<0.5	0.76J	2	2	<0.5	3.7	5.7
		7/21/2004	<0.5	2.8	2.1	4.9	<0.5	9.1	14
		4/12/2005	<0.5	2.4	1.3	3.7	<0.5	6.1	9.8
0514	30–40	4/18/2004	<0.5	12.4	40.3	52.7	<0.5	54.5	107.2
		7/21/2004	<0.5	14.6	36.3	50.9	<0.5	71.8	122.7
		4/12/2005	<0.5	5.1	21.8	26.9	<0.5	24.5	51.4
0515	15–25	4/17/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/9/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0516	30–40	4/17/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/9/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0517	15–25	4/17/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/9/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0518	30–40	4/17/2004	<2.5	<2.5	<2.5	ND	<2.5	<2.5	ND
		4/9/2005	<0.5	<0.5	<0.5	ND	<0.5	1.4	1.4
0520	36–46	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	21.1	21.1
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	19.5	19.5

Table 10 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	1,1-DCE	Vinyl chloride	Total COPC[c]
FDEP MCL			3	70	100	63	7	1	
0521	19.5–29.5	4/22/2004	1.7	2.2	<0.5	2.2	<0.5	1.9	5.8
		4/12/2005	1.5	1.6	<0.5	1.6	<0.5	<0.5	3.1
0522	32–42	4/23/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0523	18–28	4/23/2004	<0.5	0.79J	<0.5	0.79J	<0.5	0.61J	ND
		4/12/2005	<0.5	0.66J	<0.5	0.66J	<0.5	0.57J	ND
0524	27–37	4/17/2004	1,220	5,990	<50	5,990	207	1,040	8,457
		4/11/2005	356	3,390	<50	3,390	182	1,440	5,368
0525	12–22	4/17/2004	<0.5	2.3	<0.5	2.3	<0.5	<0.5	2.3
		4/9/2005	<0.5	2	<0.5	2	<0.5	<0.5	2
0526	19.5–29.5	4/17/2004	<0.5	2.5	1.3	3.8	<0.5	1.6	5.4
		7/22/2004	<0.5	2.8	1.2	4	<0.5	1.1	5.1
		4/11/2005	<0.5	1.5	0.58J	1.5	<0.5	1.1	2.6
0527	118–137.9	4/21/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/14/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0528	127–146.9	4/18/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/9/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
RW01	19–29	4/6/2004	6,130	2,940	70.2	3,010.2	51.8	845	10,037
		7/6/2004	4,840	2,950	<50	2,950	<50	874	8,664
		10/5/2004	4,200	2,000	<50	2,000	<50	550	6,750
		1/6/2005	4,250	2,450	<50	2,450	<50	634	7,334
		4/5/2005	4,390	2,770	<50	2,770	<50	996	8,156
RW02	25–35	4/6/2004	499	674	74.3	748.3	25.7	92.1	1,365.1
		7/6/2004	538	765	60.4	825.4	21.9	95.9	1,481.2
		10/5/2004	349	590	48.9	638.9	16.8	66	1,070.7
		1/6/2005	432	670	55.4	725.4	17.3	58.4	1,233.1
		4/5/2005	298	556	42.6	598.6	13.6	89.4	999.6
S29C	14–24	3/31/2004	<0.5	9.8	7.1	16.9	<0.5	52.3	69.2
		4/6/2005	<0.5	<0.5	3.3	3.3	<0.5	<0.5	3.3
S30B	5–15	3/31/2004	77.3	2,600	120	2,720	<25	40.9J	2,797.3
		4/6/2005	545	18,800	919	19,719	376	2,210	22,850
S31B	5–15	3/31/2004	<0.5	0.59J	<0.5	0.59J	<0.5	<0.5	ND
		4/6/2005	<0.5	0.95J	<0.5	0.95J	<0.5	<0.5	ND
S32B	5.5–15.5	3/31/2004	<0.5	4.6	<0.5	4.6	<0.5	1.4	6
		4/6/2005	<0.5	1.6	<0.5	1.6	<0.5	<0.5	1.6
S33C	11–21	3/31/2004	13.4	233	163	396	6.7	1,920	2,336.1
		4/6/2005	<5	74.1	18	92.1	<5	385	477.1
S35B	5–15	3/31/2004	15,700	62,900	6,200	69,100	<500	17,800	102,600
		4/8/2005	23,800	67,600	8,210	75,810	211	15,000	114,821
S36B	5–15	3/31/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/6/2005	<0.5	1.1	<0.5	1.1	<0.5	2.2	3.3
S37B	5–15	3/31/2004	<5	379	<5	379	<5	191	570
		4/6/2005	<0.5	58.9	1.1	60	<0.5	80.8	140.8

Table 10 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	1,1-DCE	Vinyl chloride	Total COPC[c]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
S54D	36–41	4/1/2004	11,000	33,600	280J	33,600	596	4,100	49,296
		4/8/2005	7,280	36,200	308	36,508	465	6,460	50,713
S55B	10–19.8	4/1/2004	<10	1,130	16.1J	1,130	<10	8,910	10,040
		4/7/2005	7	1,030	13.1	1,043.1	4.8	6,690	7,744.9
S55C	20.5–30.3	4/1/2004	<25	4,940	47.3J	4,940	<25	1,390	6,330
		4/7/2005	4.7	6,450	44.7	6,494.7	38.8	1,460	7,998.2
S56B	10–19.8	4/1/2004	31	199	2.3	201.3	2.7	29.1	264.1
		4/7/2005	1.9	74.1	0.99J	74.1	0.91J	46.3	122.3
S56C	20.5–30.3	4/1/2004	23.9	125	1.9	126.9	2	16.7	169.5
		4/7/2005	1.4	56.9	1.3	58.2	<0.5	39.8	99.4
S56D	31–40.8	4/1/2004	32.8	157	2.2	159.2	2.4	17.6	212
		4/7/2005	1.8	33.5	0.9J	33.5	0.64J	10.4	45.7
S57B	10–19.8	4/1/2004	<1	3.1	<1	3.1	<1	1.5J	3.1
		4/7/2005	<0.5	<0.5	0.74J	0.74J	<0.5	0.92J	ND
S57C	20.5–30.3	4/1/2004	10,900	21,200	<250	21,200	1,020	11,000	44,120
		4/7/2005	820	5,950	39.1	5,989.1	207	6,030	13,046.1
S57D	31.5–41.3	4/1/2004	48.5	438	6.9J	438	16.9	407	910.4
		4/7/2005	37.5	857	11.7	868.7	38.4	565	1,509.6
S59B	10–19.8	4/15/2004	<0.5	0.58J	<0.5	0.58J	<0.5	1.1	1.1
		4/7/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S59C	20.5–30.3	4/15/2004	<0.5	7.1	<0.5	7.1	<0.5	17.3	24.4
		4/7/2005	<0.5	7.9	<0.5	7.9	<0.5	8.2	16.1
S59D	31–40.8	4/15/2004	<2.5	<2.5	<2.5	ND	<2.5	<2.5	ND
		4/7/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S60B	10–19.8	4/15/2004	<0.5	4.9	<0.5	4.9	0.74J	1.9	6.8
		4/7/2005	<0.5	3.9	<0.5	3.9	0.86J	<0.5	3.9
S60C	20.5–30.3	4/15/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/7/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S60D	31–40.8	4/15/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/7/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S67B	10–19.83	4/15/2004	<0.5	33.2	5.3	38.5	<0.5	518	556.5
		4/12/2005	<5	25.1	<5	25.1	<5	572	597.1
S67C	20–29.83	4/15/2004	<5	519	104	623	<5	415	1,038
		4/12/2005	<10	616	88.2	704.2	<10	304	1,008.2
S67D	30–39.83	4/15/2004	<0.5	105	23.1	128.1	1.3	91.6	221
		4/11/2005	<1	147	16	163	1.6J	126	289
S68B	10–20	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/11/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S68C	18–28	4/22/2004	<0.5	4	<0.5	4	<0.5	5.3	9.3
		4/11/2005	<0.5	3.6	<0.5	3.6	<0.5	4.6	8.2
S68D	30–40	4/22/2004	<0.5	58.9	1.1	60	<0.5	55.7	115.7
		4/11/2005	<0.5	56.7	0.87J	56.7	<0.5	45.6	102.3
S69B	10–20	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND

Table 10 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	1,1-DCE	Vinyl chloride	Total COPC[c]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
S69C	20–30	4/22/2004	<0.5	0.91J	<0.5	0.91J	<0.5	1.1	1.1
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S69D	30–40	4/22/2004	<0.5	1.6	<0.5	1.6	<0.5	<0.5	1.6
		4/12/2005	<0.5	0.53J	<0.5	0.53J	<0.5	<0.5	ND
S70B	10–20	4/18/2004	<0.5	27.4	0.6J	27.4	<0.5	33.7	61.1
		4/12/2005	<0.5	18.5	<0.5	18.5	<0.5	<0.5	18.5
S70C	20–30	4/18/2004	<0.5	24.3	8	32.3	0.79J	17.1	49.4
		4/12/2005	<0.5	18.1	4.7	22.8	0.59J	<0.5	22.8
S70D	30–40	4/18/2004	<0.5	11.2	4.2	15.4	<0.5	5.8	21.2
		4/12/2005	<0.5	11.3	4.1	15.4	0.51J	<0.5	15.4
S71B	10–20	4/22/2004	<0.5	2.4	1.4	3.8	<0.5	<0.5	3.8
		4/13/2005	<0.5	0.58J	<0.5	0.58J	<0.5	<0.5	ND
S71C	20–30	4/22/2004	<0.5	67.5	35.3	102.8	1.7	59.3	163.8
		4/13/2005	<0.5	53.2	26.8	80	1.2	59.3	140.5
S71D	30–40	4/22/2004	<0.5	6.1	1.6	7.7	<0.5	2	9.7
		4/13/2005	<0.5	5.2	1.6	6.8	<0.5	2.7	9.5
S72B	10–20	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S72C	20–30	4/22/2004	<0.5	0.81J	<0.5	0.81J	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S72D	30–40	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S73B	10–20	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		7/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
S73C	20–30	4/22/2004	<0.5	14	10.1	24.1	<0.5	13.8	37.9
		7/22/2004	<0.5	6.6	5.2	11.8	<0.5	10	21.8
		4/13/2005	<0.5	2	5.1	7.1	<0.5	13	20.1
S73D	30–40	4/22/2004	<0.5	1.7	0.65J	1.7	<0.5	<0.5	1.7
		7/22/2004	<0.5	0.66J	<0.5	0.66J	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
TE03	–	4/17/2004	<2.5	<2.5	<2.5	ND	<2.5	9	9
		4/9/2005	<0.5	<0.5	<0.5	ND	<0.5	4.2	4.2
PIN21	**Perimeter Monitoring Wells**								
0500	7–17	4/20/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/13/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0501	20–28	4/20/2004	<0.5	2.4	<0.5	2.4	<0.5	<0.5	2.4
		4/13/2005	<0.5	1.5	<0.5	1.5	<0.5	<0.5	1.5
0502	7–17	4/21/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0503	20–28	4/21/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/12/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0504	7–17	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/11/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND

Table 10 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[b]	1,1-DCE	Vinyl chloride	Total COPC[c]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
0505	20–28	4/22/2004	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		4/11/2005	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0512	20–29.5	4/21/2004	<0.5	3	<0.5	3	<0.5	4.9	7.9
		4/12/2005	<0.5	1.7	<0.5	1.7	<0.5	<0.5	1.7

[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 11. COPC Concentrations at the Wastewater Neutralization Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	Vinyl chloride	Arsenic	Total COPC[b]
FDEP MCL			**1**	**50**	
PIN18	**Wastewater Neutralization Area**				
0500	11–16	4/21/2004	<0.5	68.1	68.1
		7/21/2004	--	68.1	68.1
		10/13/2004	--	63.4	63.4
		1/14/2005	--	60.1	60.1
		4/11/2005	<0.5	44.1	44.1
0502	11–16	4/21/2004	<0.5	28.7	28.7
		7/21/2004	--	41	41
		10/13/2004	--	10	10
		1/14/2005	--	38	38
		4/11/2005	<0.5	16.9	16.9
0503	10–20	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0504	13–22	4/21/2004	<0.5	<3.5	ND
		4/11/2005	<0.5	<3.5	ND
0505	10.5–20.5	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0506	12–22	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0507	27–37	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0508	31–41	4/20/2004	<0.5	<3.5	ND
		4/11/2005	<0.5	<3.5	ND
0509	27.5–37.5	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0510	27.5–37.5	4/17/2004	0.52J	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0511	32–42	4/21/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0512	21–31	4/21/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0513	12–22	4/21/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0514	32.5–42.5	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0515	22.5–32.5	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0516	12.5–22	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0517	31.5–41.5	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND

Table 11 (continued). COPC Concentrations at the Wastewater Neutralization Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	Vinyl chloride	Arsenic	Total COPC[b]
FDEP MCL			**1**	**50**	
0518	22.5–32.5	4/17/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
0519	12.5–22.5	4/17/2004	4.9	<3.5	4.9
		4/9/2005	<0.5	<3.5	ND
0520	32.5–42.5	4/19/2004	<0.5	<3.5	ND
		4/11/2005	<0.5	<3.5	ND
0521	20–30	4/19/2004	<0.5	6.4B	ND
		7/21/2004	--	6.5B	ND
		10/12/2004	--	<3.5	ND
		1/14/2005	--	<3.5	ND
		4/11/2005	<0.5	<3.5	ND
0522	5–15	4/19/2004	<0.5	9.6B	ND
		7/21/2004	--	9.8B	ND
		10/12/2004	--	8.2B	ND
		1/14/2005	--	11.5	11.5
		4/11/2005	<0.5	5.5B	ND
0523	32.5–42.5	4/19/2004	<0.5	<3.5	ND
		7/21/2004	--	<3.5	ND
		10/12/2004	--	<3.5	ND
		1/14/2005	--	<3.5	ND
		4/11/2005	<0.5	<3.5	ND
0524	20–30	4/19/2004	<0.5	19.4	19.4
		7/21/2004	--	10.9	10.9
		10/12/2004	--	11.8	11.8
		1/14/2005	--	<3.5	ND
		4/11/2005	<0.5	14.6	14.6
0525	5–15	4/19/2004	<0.5	117	117
		7/21/2004	--	130	130
		10/12/2004	--	53.7	53.7
		1/14/2005	--	60.5	60.5
		4/11/2005	<0.5	62.7	62.7
0526	19.5–29	4/21/2004	<0.5	<3.5	ND
		4/9/2005	<0.5	<3.5	ND
RW02	10–20	4/6/2004	<0.5	50.7	50.7
		7/6/2004	<0.5	564	564
		10/5/2004	--	64.3	64.3
		1/6/2005	--	34.6	34.6
		4/5/2005	<0.5	50.9	50.9
RW03	9–24	4/6/2004	<0.5	48.3	48.3
		7/6/2004	<0.5	698	698
		10/5/2004	--	35.3	35.3
		1/6/2005	--	31.2	31.2
		4/5/2005	<0.5	83.8	83.8

Table 11 (continued). COPC Concentrations at the Wastewater Neutralization Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	Vinyl chloride	Arsenic	Total COPC[b]
FDEP MCL			**1**	**50**	
RW0501	11–16	4/6/2004	<0.5	147	147
		7/6/2004	<0.5	123	123
		10/5/2004	--	116	116
		1/6/2005	--	88.8	88.8
		4/5/2005	<0.5	91.6	91.6

[a]Before December 18, 2003 "<" values are reporting limits. On or after December 18, 2003 "<" values are method detection limits.
[b]Total COPC is the sum of the individual COPC concentrations. "J" values or "B"-qualified arsenic values are not included in the total COPC value.

ND = Not detected.
-- = Not measured.
J = Estimated value for VOCs; result is between the reporting limit and the method detection limit.
B = Estimated value for inorganics; result is between the instrument detection limit and the reporting limit.

Table 12. Relative Percent Difference (RPD) for Duplicate Samples

Sample ID	Duplicate ID	Case Number	Constituent	S[a]	D[b]	RPD Value	5 times RL[c]	Fail[d]
PIN09–0500	PIN12–0580	F31053	cis-1,2-Dichloroethene	0.52	0.67	25.2	2.5	
			Arsenic	0.0035	0.0035	NA	0.0175	
PIN12–0520	PIN12–0581	F31053	Vinyl chloride	19.5	0.25	194.9	2.5	Fail
PIN12–S72C	PIN12–0582	F31144	1,1-Dichloroethane	1.5	1.5	0.0	2.5	
PIN15–0557	PIN15–0580	F30915	Florida Petroleum Range Organics	0.547	0.506	7.8	0.8	
		F31177	1,1-Dichloroethene	0.65	0.66	1.5	2.5	
			Benzene	5.6	5.5	1.8	2.5	
			cis-1,2-Dichloroethene	49.5	50.2	1.4	2.5	
PIN15–0567	PIN15–0581	F31177	Florida Petroleum Range Organics	0.749	0.568	27.5	0.85	
			trans-1,2-Dichloroethene	11.1	11.3	1.8	2.5	
			Trichloroethene	1.2	1.3	8.0	2.5	
			Vinyl chloride	24.7	25.5	3.2	2.5	
PIN15–0570	PIN15–0582	F31146	nondetect for VOCs					
			Arsenic	0.00175	0.0035	NA	0.0175	
PIN15–M29D	PIN15–0583	F30968	nondetect for VOCs					
			nondetect for Arsenic					
PIN15–M29S	PIN15–0584	F30968	nondetect for VOCs					
			Arsenic	0.0037	0.0035	NA	0.0175	
PIN21–0500	PIN15–0585	F31089	nondetect for VOCs					

[a]S = Original sample (N001), VOC concentrations in µg/L and metals in mg/L.
[b]D = Duplicate sample (N002), VOC concentrations in µg/L and metals in mg/L.
[c]RL = Reporting limit.
[d]Fail = Volatiles "Fail" when the RPD is greater than ± 30% and the concentration is more than 5 times the reporting limit. Metals "Fail" when the samples are more than 5 times the reporting limit and the RPD is greater than 20%. For metals samples that are less than 5 times the reporting limit the difference must be less than ± the reporting limit (this includes the case when only one of the duplicate/sample values is less than 5 times the reporting limit).

Table 13. Dissolved Gas and Bacteria

Location		Date Sampled	Ethane µg/L	Ethene µg/L	Hydrogen nmol/L	Methane µg/L	Carbon dioxide mg/L	Dehalococcoides ethenogenes copy numbers/L
Industrial Drain Leaks Bldg 100 / Old Drum Storage Site								
PIN12	0523	4/12/2005	0.011	0.015	0.67	88	52	NS
	0524	4/11/2005	0.38	21	1	4,200	110	NS
	0526	4/11/2005	<0.005	<0.005	1.4	9,300	240	NS
	S35B	4/8/2005	130	1800	0.86	4,100	160	NS
	S67C	4/12/2005	5.4	7.5	0.93	390	51	NS
Pinellas Northeast Site								
PIN15	0537	4/6/2005	360	12	0.52	1,900	98	3,180,000
	0562	4/6/2005	0.059	<0.005	0.93	870	100	Not detected
	0569	4/12/2005	680	0.36	21	1,800	150	NS
	0574	4/7/2005	0.24	0.46	0.89	430	200	29,200,000,000
	0577	4/15/2005	0.67	310	0.98	2,600	130	NS
	M34D	4/12/2005	320	8500	1.2	5,500	230	197,200,000
	M37D	4/8/2005	830	7.9	1	3,800	330	1,100,000
	RW06	4/11/2005	230	0	16	6,400	450	159,400,000
	X11	4/11/2005	25	170	0.96	1,900	120	252,500,000

"<"=not detected above the associated value
NS = not sampled for this analyte

Table 14. Summary of Analytical Results for the Building 100 Area 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]	1,1-DCE	Vinyl chloride	Total COPC[d]	$CaCO_3$ mg/L	Fe mg/L
PIN12	**Industrial Drain Leaks Bldg 100**									
TRTI	4/6/2005	987	1,300	25.5	1,325.5	10.9J	150	2,462.5	370	4.97
	5/6/2005	926	1,250	26.9	1,276.9	12.5J	151	2,353.9	364	4.92
	6/6/2005	1,020	1,350	26.1	1,376.1	<10	143	2,539.1	378	5.11
TRTE	4/6/2005	<0.5	1.6	<0.5	1.6	<0.5	<0.5	1.6	1,230	53.4
	5/6/2005	6.9	16.5	<0.5	16.5	<0.5	<0.5	23.4	356	4.77
	6/6/2005	212	353	6.6	359.6	2.2	26.9	600.7	375	5.34
	6/29/2005	<0.5	1.5	<0.5	1.5	<0.5	<0.5	1.5	--	--

[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 and trans-1,2-DCE values are 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.
-- = Not measured.

Table 15. Summary of Historical Ground Water Recovery from the Building 100 Recovery Wells

Report Date	Quarterly (gallons)	Cumulative Total To Date (gallons)
April−June 2004	188,490	188,490
July−September 2004	410,734	599,224
October−December 2004	589,242	1,188,466
January−March 2005	470,708	1,659,174
April−June 2005	490,041	2,149,215

Note: The Building 100 Ground Water Treatment System started operations in May 2004.

Table 16. Estimated Mass of VOCs Recovered from the Building 100 Recovery Wells During April, May, and June 2005

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 2005	160,471	1,300	25.5	5	987	10	150	2,478
May 2005	160,715	1,250	26.9	5	926	10	151	2,369
June 2005	168,855	1,350	26.1	5	1,020	10	143	2,554

Month	Volume Treated (gallons)	Mass Recovered[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 2005	160,471	1.74	0.03	0.01	1.32	0.01	0.2	3.32
May 2005	160,715	1.68	0.04	0.01	1.24	0.01	0.2	3.18
June 2005	168,855	1.9	0.04	0.01	1.44	0.01	0.2	3.6

[a]These concentrations represent the average of monthly 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.

S55C 14.22 Well Number and Ground Water Elevation in Feet (MSL)
Monitoring Well
Recovery Well
Surface Sample
Building
Fence
Pond
Road
Slurry Wall
Railroad
14 Water Table Contour in Feet (MSL)
Contour Interval = 1.0 Feet
Inferred Ground Water Flow Direction
N
100 0 100 Feet
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
Prepared by
S.M. Stoller Corporation
Under DOE Contract
No. DE-AC01-02GJ79491
Plate 1: Sitewide Shallow Surficial Aquifer Contours
Pinellas, Florida, April 2005
DATE PREPARED:
July 26, 2005
FILENAME:
N0084700-08


0516
13.63
Well Number and Ground Water Elevation in Feet (MSL)
Monitoring Well
Recovery Well
Building
Fence
Pond
Road
Slurry Wall
Railroad
14
Water Table Contour in Feet (MSL)
Contour Interval = 1.0 Feet
N
100
0
100
Feet
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
S.M. Stoller Corporation
Plate 2: Sitewide Deep Surficial Aquifer Contours
Pinellas, Florida, April 2005
July 26, 2005
N0084700-07
M023 9.83
M055 8.09
RW01 4.71
M38D 11.29
0502 11.29
M054 12.74
M056 9.96
M015 11.09
RW02 7.14
M053 10.17
M001 12.64
M064 13.58
MWL4 14.17
M011 14.19
MWL3 13.93
M063 13.69
MWL5 14.34
MWL6 14.56
MWL1 13.24
M057 11.63
M18D 12.33
M41D 12.33
MWL2 13.27
M062 14.19
M049 14.28
M058 12.80
M019 12.82
RW03 6.79
M060 13.73
M028 14.75
M059 13.50
M061 13.90
M40D 13.55
M22D 13.84
M005 14.36
TE01 15.35
M036 13.87
M007 15.09
M33D 15.41
M14D 15.46
M24D 14.87
15-0518 14.45
M12D 14.28
0562 15.02
0564 14.81
0578 14.93
0576 14.90
M27D 14.76
0574 14.94
0560 15.00
0566 14.74
0535 14.64
RW15 14.73
0534 14.31
M30D 15.45
15-0514 14.57
M29D 14.68
M16D 15.44
M31D 15.10
0506 14.04
0557 15.54
0537 15.14
RW16 14.93
M32D 14.84
0569 14.44
0559 15.03
0572 14.81
0570 14.46
0511 15.68
RW02 8.06
0522 13.23
20-0520 13.88
0508 14.85
0523 14.13
18-0520 13.74
S54D 14.04
0509 13.89
0510 13.91
S57D 14.30
S59D 14.29
S67D 14.08
S60D 14.01
S72D 13.34
S71D 13.69
12-0514 13.70
18-0514 14.16
0517 14.00
S70D 13.57
S73D 13.11
0516 13.63
12-0518 14.16
0524 13.71
S68D 13.58
S69D 13.28
8
9
10
11
12
13
14
15