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Pinellas Environmental Restoration Project

Sitewide Environmental Monitoring Semiannual Progress Report for the Young - Rainey STAR Center December 2006 through May 2007

June 2007

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.

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Acronyms and Abbreviations

bls	below land surface
°C	degrees Celsius
CMS	Corrective Measures Study
CMIP	Corrective Measures Implementation Plan
COPC	contaminants of potential concern
CTL	Cleanup Target Level
DCE	dichloroethene
DOE	U.S. Department of Energy
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
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 Amendments
HRC	Hydrogen Release Compound®
ICM	interim corrective measure
IDL	instrument detection limit
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
RBCA	Risk-Based Corrective Action
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
VC	vinyl chloride
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 facility, 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 Amendments (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, 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 1994b). 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 for a total of 13 SWMUs remediated. 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 SWMUs that have contamination in the surficial aquifer ground water at levels in excess of protective standards. These four SWMUs are 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). Two SWMUs, PIN06 and PIN12, 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 semiannual progress report for each of these four SWMUs. The results of monitoring activities 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 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 *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 a proven 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 dechlorination 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.

Several years have passed since the Building 100 Area CMS Report (DOE 1994a), the CMIP (DOE 1996a) and the CMIP Addendum (DOE 1998) were written. Therefore, in July 2006, the Building 100 Area CMS Report Addendum was prepared to update site conditions, discuss the regulatory framework, and re-evaluate active remediation alternatives for this SWMU. Based upon the recommendations included in this report, FDEP and DOE continue to discuss the closure strategy for this SWMU. One recommendation agreed upon by FDEP has already been implemented with the shutdown of the two recovery wells at Building 100 on August 21, 2006.

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 1996b).

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 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 corrective measure (ICM) to remediate non-aqueous phase liquids (NAPLs) at the Northeast Site. An ICM was considered to be warranted because it supported the long-term corrective action to remediate the dissolved phase contamination in the surficial aquifer to FDEP drinking water MCLs. Without this measure, NAPLs would 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 ICM 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* (EA) *of Corrective Action at the Northeast Site* (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 2003b), 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 was completed in early August 2005. Operations began on August 16, 2005 and were completed on June 12, 2006. Heating resumed in a focused area from July 19, 2006 until August 25, 2006 to address ground water concentrations that exceeded remediation goals at two locations. The treatment system was permanently shut down on August 29, 2006. Approximately 18,000 pounds of contaminants were removed during operations. Confirmatory sampling activities were completed by the end of September 2006. The *Final Report Northeast Site Area B NAPL Remediation Project at the Young - Rainey STAR Center Largo, Pinellas County, Florida* (DOE 2007) describes Area B remediation.

Currently there is no ongoing remedial action at the Northeast Site. Monitoring wells have been installed at the former NAPL areas to monitor the remaining dissolved phase plumes.

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 (VC), 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. This well was designed to 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. Part of DOE's proposed final action for the WWNA was to shut down the three extraction wells and begin a 1-year monitoring period. Verbal approval for this action was received from FDEP on December 20, 2005, and the wells were shut down that day. A No Further Action With Controls Proposal for the WWNA/ Building 200 Area was submitted to FDEP on March 14, 2007.

1.4 Site Update

Risk-Based Corrective Action (RBCA) rules are currently being evaluated for applicability to assist in expediting closure at some or all of the SWMUs at the STAR Center. Technical discussions continued between FDEP and DOE regarding RBCA as the proposed final action. Additionally, DOE is currently evaluating remediation alternatives for the Building 100 Area in light of the RBCA rules.

1.5 Site Activities

- Obtained water-level measurements from all accessible monitoring wells, recovery wells, and ponds on February 28, 2007.
- Conducted the semiannual sampling event in March 2007. The sampling event included collecting water samples from 181 monitoring and former recovery wells.
- Bioremediation parameters were also collected.
- Reported the results of the semiannual sampling event (this document).

2.0 Water-Level Elevations

2.1 Work Conducted and Methods

Within an 8-hour period on February 28, 2006, depth-to-water measurements were taken at all accessible monitoring wells, former extraction wells, and ponds at the STAR Center. The water levels were measured with an electronic water-level indicator or directly from a staff gauge. Ground water elevations are listed in Table 1.

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).

Previously, water levels throughout the STAR Center indicated that the water table was highest in the general area around the West Pond (Plates 1 and 2). As ground water flowed from this recharge area, it dispersed to the west, south, and east. A new pattern was observed in the shallow surficial aquifer around the West Pond and Pond 5 in September 2006, and was observed again in December 2006 and February 2007. As shown on Plate 1, the West Pond and Pond 5 now act as discharge points for the surficial aquifer. During recent construction activities at the site, the West Pond was cleaned out, Pond 5 was excavated, and the two ponds were connected by an underground pipe. This construction work seems to have changed the flow pattern in this area of the site to what we observe now. The flow pattern in the deep surficial aquifer is consistent with previously observed flow patterns.

At the Northeast Site, a return to the natural flow pattern of flow to the east was again observed in February 2007 following completion of NAPL remediation in August 2006. 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 February 2007. As seen on Figure 4, in February there was a differential of almost 0.5 ft between the downgradient and upgradient sides of the wall as measured in monitoring wells PIN15−M24D and −M33D, respectively. This differential is less than the historical range of about 2 to 5 ft, but consistent with the differentials observed the past year. Water-table elevations indicate that the East Pond was acting as a discharge point for the shallow surficial aquifer in February 2007 (Figure 3).

In the shallow surficial aquifer at the Northeast Site, the hydraulic gradient was about 0.003 feet per foot (ft/ft), with flow toward the east (Plate 1). Calculations using Darcy's Law along with approximations of 1 ft/day for hydraulic conductivity and 0.3 for effective porosity indicate that ground water at the Northeast Site is estimated to move about 3 to 4 ft/year. This velocity is less than the historical estimates of 17 to 22 ft/year, but consistent with the velocities observed since March 2006. Similar flow patterns were observed in the deep surficial aquifer (Plate 2).

At the WWNA, there was a small ground water mound in the surficial aquifer from which there was radial flow in all directions. This flow pattern is consistent with that observed the previous year.

At Building 100, the surficial aquifer is no longer influenced by ground water withdrawals from recovery wells PIN12−RW01 and –RW02 which were shut off in August 2006. For the past 4 years, shallow ground water beneath Building 100 has been observed to flow to the southeast under a very slight gradient. This flow pattern was observed again in February 2007. 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.

Water-level elevations in the three wells screened in the upper part of the Floridan aquifer are presented in Table 2. The water levels in these wells indicate that the potentiometric surface of the Floridan aquifer at the site was about 1 ft lower in February 2007 than in September 2006.

Surface-water elevations were recorded from the East, South, Southwest, and West Ponds, and Pond 5 and are presented in Table 3. All the ponds are hydraulically connected to the shallow surficial aquifer system (Plate 1). Two new staff gauges were installed in Pond 5 during the previous 6 months. Two staff gauges are required because the water levels in the north and south parts of Pond 5 can be different. The north and south parts of Pond 5 are connected by a thin channel that can run dry, essentially making Pond 5 a two-pond system.

3.0 Ground Water Sampling and Analytical Results

3.1 Work Performed

During annual sampling in March 2007, ground water samples were collected from 181 monitoring and former recovery wells. VOCs analyses were performed on 152 samples using EPA SW-846 Method 8260. Arsenic was analyzed in 35 samples using EPA SW-846 Method 6010. Laboratory reports are provided in Appendix A.

Samples were also collected for dissolved gases and microbial analyses (Table 4). The dissolved gases are ethene, ethane, and methane. The microbiological analysis is for *Dehalococcoides ethenogenes.*

All samples were collected in accordance with the Stoller *Sampling Procedures for the Young - Rainey STAR Center and 4.5 Acre Site* (DOE 2006a), using FDEP procedures. All samples were submitted to Severn-Trent Laboratories in Tampa, Florida, for analysis. Severn-Trent Laboratories is accredited by the Florida Department of Health in accordance with the National Environmental Laboratory Accreditation Conference, certification number E84282. All monitoring wells were micropurged using a dedicated bladder pump, and sampling was performed when the field measurements stabilized. Table 5 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)

Concentrations of contaminants of potential concern (COPCs) in samples collected from wells at the Northeast Site (PIN15) are presented in Table 6, which also shows the previous year of data for comparison purposes. Figure 7 shows the total COPCs (TCOPCs) concentrations. The highest TCOPCs concentration was measured in well PIN15−0587 at 33,390 micrograms per liter (µg/L). Table 7 shows the results of arsenic sampling at four Northeast Site wells. Arsenic concentrations ranged from 0.01 to 0.057 mg/L, with the highest value detected in well PIN15−M32S.

As described in the Annual Monitoring Plan (DOE 2006b), special sampling was conducted at the Northeast Site during this sampling event to determine the aluminum, iron, manganese, and 4-methylphenol concentrations remaining following NAPL remediation. Water samples from six monitoring wells located inside former NAPL Area A and eight monitoring wells located inside and adjacent to former NAPL Area B were sampled and analyzed for 4-methylphenol via EPA Method 8270C. All Northeast Site monitoring wells were sampled and analyzed for aluminum, iron, and manganese using EPA Method 6010B. The results, listed in Table 8, will be evaluated in the Annual Monitoring Plan that will be completed during the summer of 2007.

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

TCOPCs concentrations in samples collected from wells at the Building 100 Area are included in Table 9, which also shows the previous year of data for comparison purposes. Well PIN12−S71D was scheduled for sampling in March 2007, but no sample was collected due to an oversight during the sampling event. Figure 8 shows the TCOPCs concentrations, the highest of which was measured in well S35B at 52,850 µg/L. Table 7 shows the results of arsenic sampling in the Building 100 Area. The highest arsenic concentration was measured in well S68B at 0.061 mg/L.

3.2.3 Wastewater Neutralization Area (PIN18)

Twenty wells at the WWNA were sampled for arsenic in March 2007. Well RW0501 contained the highest arsenic concentration, 300 µg/L (Table 10).

3.3 Quality Assurance/Quality Control

The results from the analytical laboratory, Severn-Trent Laboratories, were checked for quality assurance/quality control (QA/QC) through duplicate samples and trip blanks. Detected analytes for each duplicate sample collected from the STAR Center are listed in Table 11. The duplicate sample results were compared and the relative percent differences (RPDs) between the results were calculated. All data passed QA/QC criteria at a Class A level, indicating that the data may be used for quantitative and qualitative purposes.

As specified in the *Sampling Procedures for the Young - Rainey STAR Center and 4.5 Acre Site* (DOE 2006a), duplicate samples should be collected at a frequency of one duplicate for every 20 or fewer samples. For the STAR Center and the 4.5 Acre Site, there were 174 ground water samples collected, with 8 duplicate samples collected. The duplicate requirements for this sampling event were nearly met. There were 20 trip blanks collected during this event.

Bromoform and dibromochloromethane were detected in seven of the 20 trip blanks analyzed, but these compounds were not detected in any of the associated samples.

A data validation software module for identifying and tracking anomalous ground water data points within the SeePRO database was used to generate a report of analytical results that fall outside of historical minimum or maximum values. No anomalous data were identified for this sampling event.

4.0 Data Interpretation

The purpose of this data interpretation section is to aid in evaluation of plume stability. Time versus concentration plots and plume maps were generated to aid the interpretation.

While most of the previous documents for the Pinellas site have compared ground water contaminant concentrations to drinking water standards (i.e., MCLs), those standards are not the applicable default Cleanup Target Levels (CTLs) for the purposes of evaluating site remediation under RBCA. Based on a comprehensive review of background data for the site (DOE 2003a), it was determined that the shallow ground water in the site vicinity is naturally elevated in aluminum and iron at levels far exceeding State of Florida Secondary Drinking Water Standards (Chapter 62-550, Florida Administrative Code [F.A.C.]). Specifically, the average background concentration of 1.1 mg/L for aluminum exceeds the 0.2 mg/L secondary standard, and the average background concentration for iron of 9.3 mg/L exceeds the 0.3 mg/L secondary standard. The ambient shallow ground water in the area is therefore designated as "poor quality" as defined in 62-780.200 (35), F.A.C. Thus, the applicable ground water CTLs are those for ground water of "low yield/poor quality" provided in Table 1 of Chapter 62-777, F.A.C. In essence, these CTL values are a factor of 10 higher than the MCL values. On the plume maps in Section 4.2, the current plumes are based on the CTL, and the previous year's plumes were revised from being based on the MCL to being based on the CTL.

4.1 Contaminant Concentration Trends

Monitoring well PIN15–0569 was chosen to evaluate plume stability at the Northeast Site. Well PIN15−0569 is located near the leading edge of the contaminant plume at the Northeast Site (Figure 7). The VC concentration in this well shows an overall decreasing concentration trend (Figure 9). This well was out of the area of influence of the NAPL Area B ground water pumping, so this decreasing trend probably is due to biodegradation. This conclusion is supported by the presence of the biodegradation daughter products ethene and ethane; Dehalococcoides ethenogenes has been detected in this well in the past, but decreased to below the detection limit in March 2007 (Table 4). This decreasing concentration trend indicates a stable or shrinking contaminant plume in the vicinity of this well.

At the WWNA, three wells were chosen to illustrate plume stability. Wells PIN18−0500, −0522, and −0525 were chosen because they are shallow wells containing high arsenic concentrations (Figure 10). The arsenic concentration in wells 0500 and 0522 continues to show a general decreasing trend. The arsenic concentration in well 0525 has previously shown an increasing trend, but has shown an overall decreasing trend over the last 2 years. The arsenic concentration in all of these wells remains below the 100 µg/L CTL.

Monitoring wells PIN21–0512 and PIN12–S73C were chosen to evaluate plume stability 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 (Figure 8). Figure 11 illustrates the VC concentration over time in well 0512, and Figure 12 shows the VC concentration in well S73C. Well 0512 shows a consistent VC concentration trend (considering the inherent sampling and analytical variability of low concentrations), with concentrations ranging between 0.3 and 8.6 µg/L since November 1998. Well S73C shows a decreasing VC concentration trend from 2002 to late 2003, followed by a stable trend since that time. These stable and decreasing concentration trends indicate a stable or shrinking contaminant plume near the property boundaries.

Figure 13 shows the TCE, cis-1,2-DCE, trans-1,2-DCE, and VC concentrations in well PIN12−0524, located near the southeast corner of Building 100. The concentration trends in this well suggest that a localized slug of TCE, DCE, and VC is moving through the aquifer. The concentration trends in well 0524, particularly the significant TCE decrease, indicate that the slug is nearly past the well.

4.2 Plume Maps

For each SWMU, plume maps were generated for the TCOPCs as well as selected COPCs. The compound-specific CTL has been utilized to draw the inferred plume boundary for each COPC (i.e., concentrations below the CTL 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 2006 plume is also shown on the maps for comparison.

Plume maps for the Northeast Site have been generated for TCOPCs (Figure 7), TCE (Figure 14), cDCE (Figure 15), VC (Figure 16), methylene chloride (Figure 17), toluene (Figure 18), and benzene (Figure 19). 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, 2005, and 2006 (during NAPL remediation). After NAPL remediation was completed in September 2006, new monitoring wells were installed and sampled for the first time in March 2007.

The highest COPCs concentrations were measured in the new monitoring wells in former NAPL Area B. When these wells were installed in Area B in February 2007, their locations targeted areas where the highest soil and ground water contaminant concentrations were measured during NAPL remediation confirmatory sampling in September 2006. Confirmatory sampling used 32 monitoring wells and 162 soil samples from 34 boring locations over the 0.8 acre area, so the remaining high concentrations areas are well defined. In general, the COPCs plumes now are small and isolated, with the exception of VC that appears slightly more widespread. Significantly, methylene chloride, a COPC previously found as a NAPL, was not detected in any monitoring wells at the Northeast Site.

Figure 20 shows the current arsenic plume at the WWNA. The arsenic concentrations exceeded the 100 μg/L CTL in only one well, RW0501.

Plume maps for the Building 100 Area have been generated for TCOPCs (Figure 8), TCE (Figure 21), cDCE (Figure 22), and VC (Figure 23). The 2007 plumes generally are similar to the 2006 plumes.

4.3 Geochemical Parameters

Geochemical parameters measured in the field in all wells at the STAR Center during March 2007 are summarized in Table 5. Conditions across the STAR Center generally are reducing as evidenced by the low values of dissolved oxygen and oxygen reduction potential.

5.0 Tasks to be Performed Semiannually

The following tasks are expected to be conducted during the next semiannual period (June through November 2007):

- Semiannual sampling and analysis of ground water in September 2007.
- Collect water level measurements in September 2007.
- Utilization of the dedicated bladder pumps for semiannual sampling using the micropurging technique will continue.

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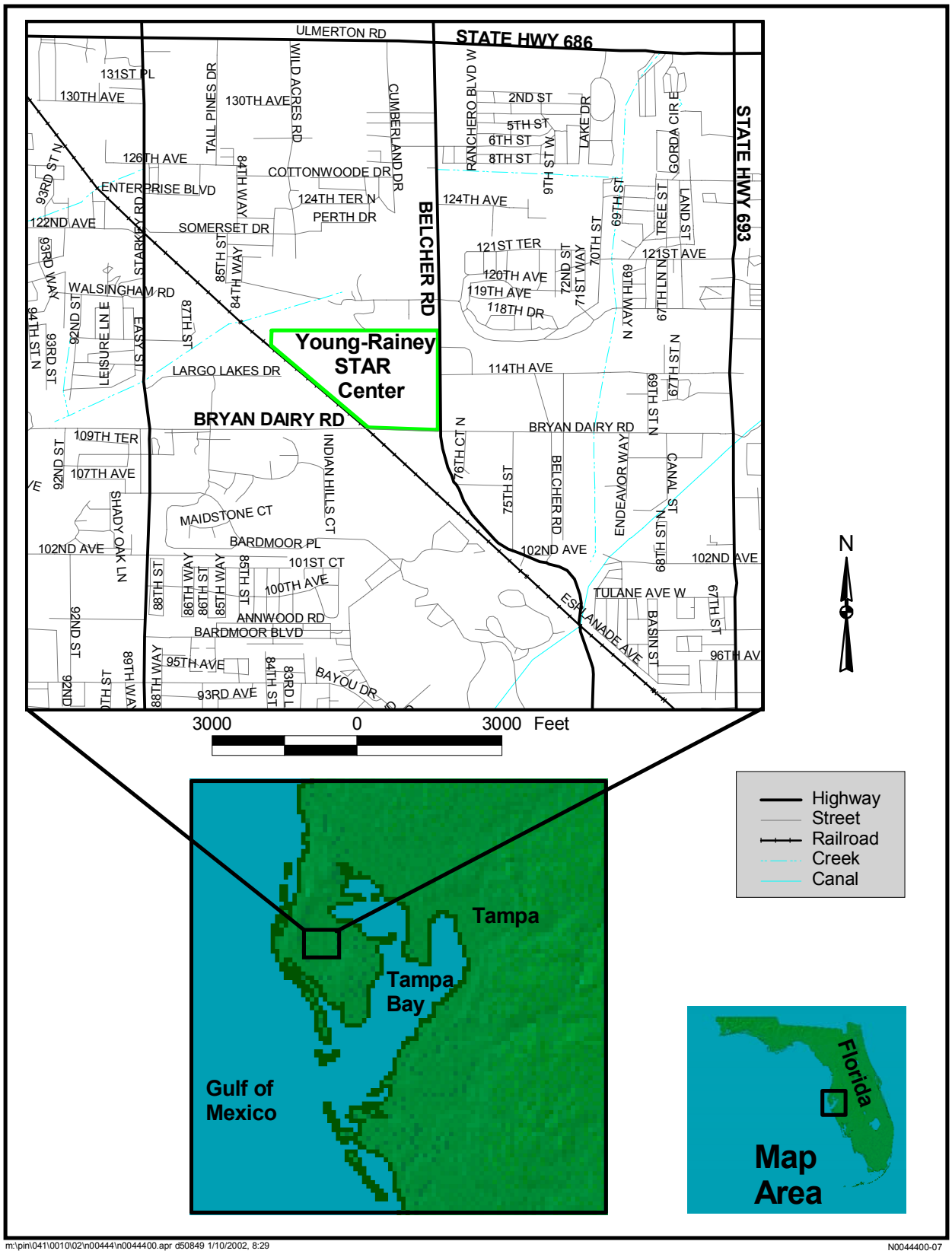

Figure 1. Young - Rainey STAR Center Location

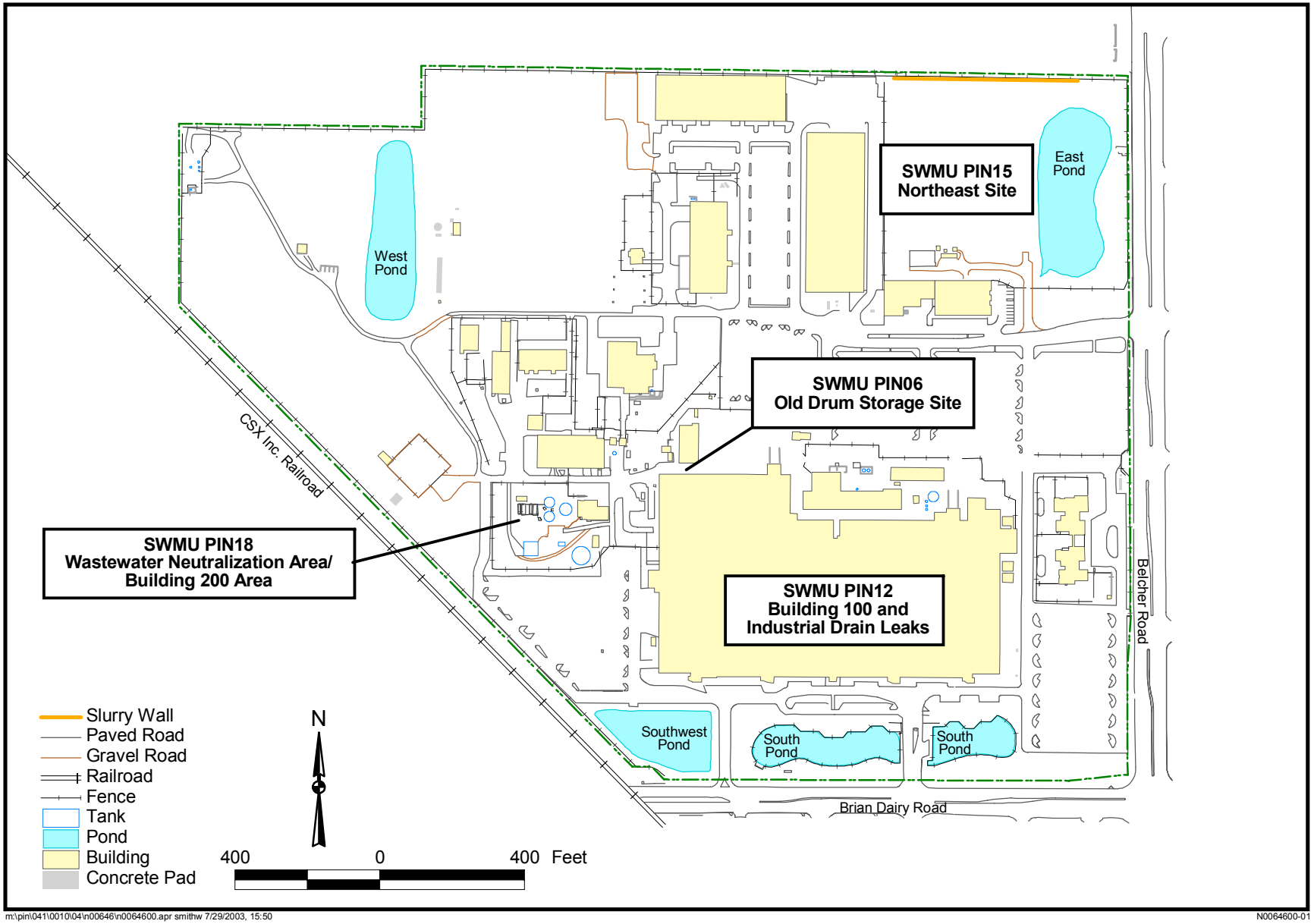

Figure 2. Location of STAR Center Solid Waste Management Units (SWMUs)

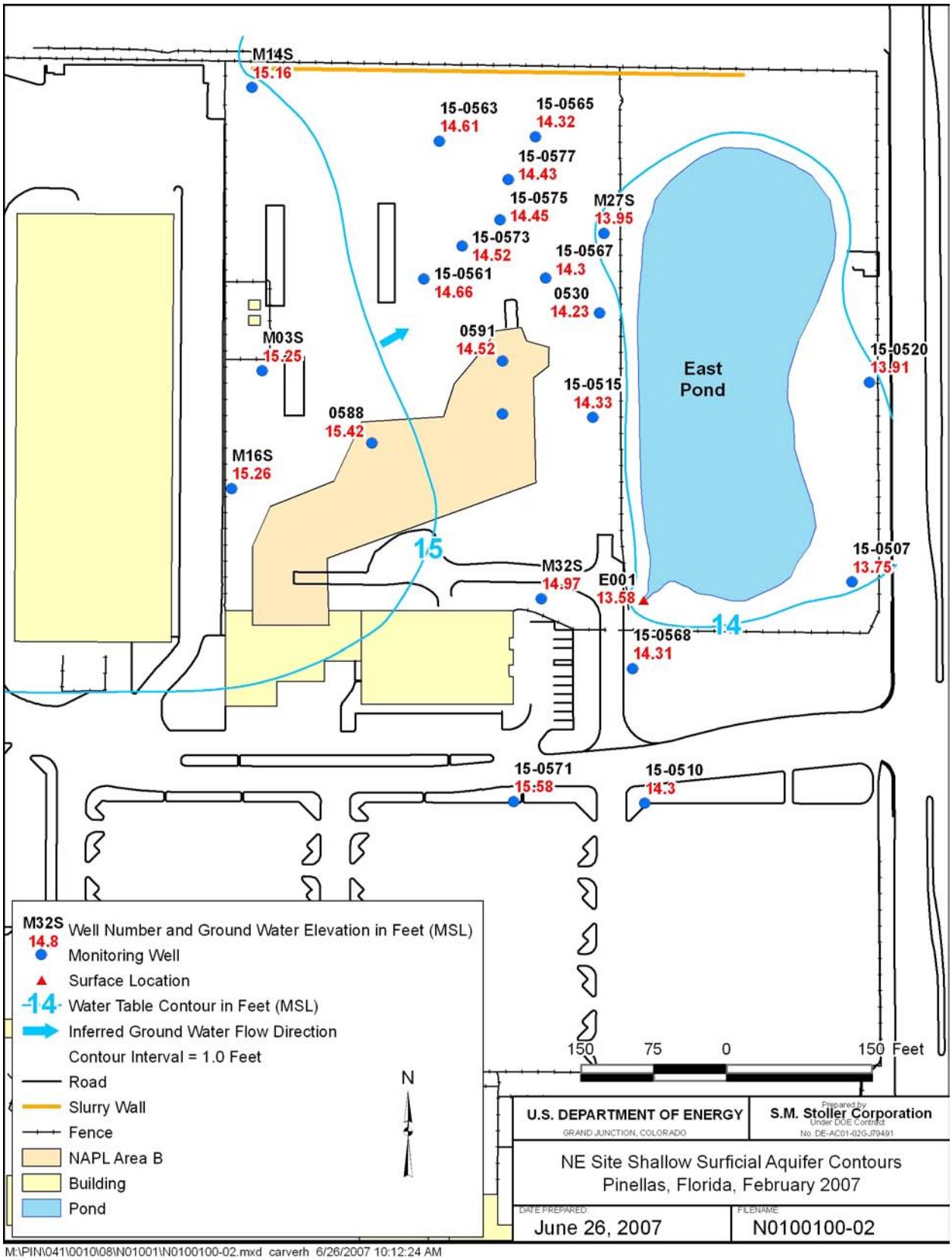

Figure 3. Ground Water Elevations and Shallow Surficial Aquifer Flow, Northeast Site, February 2007

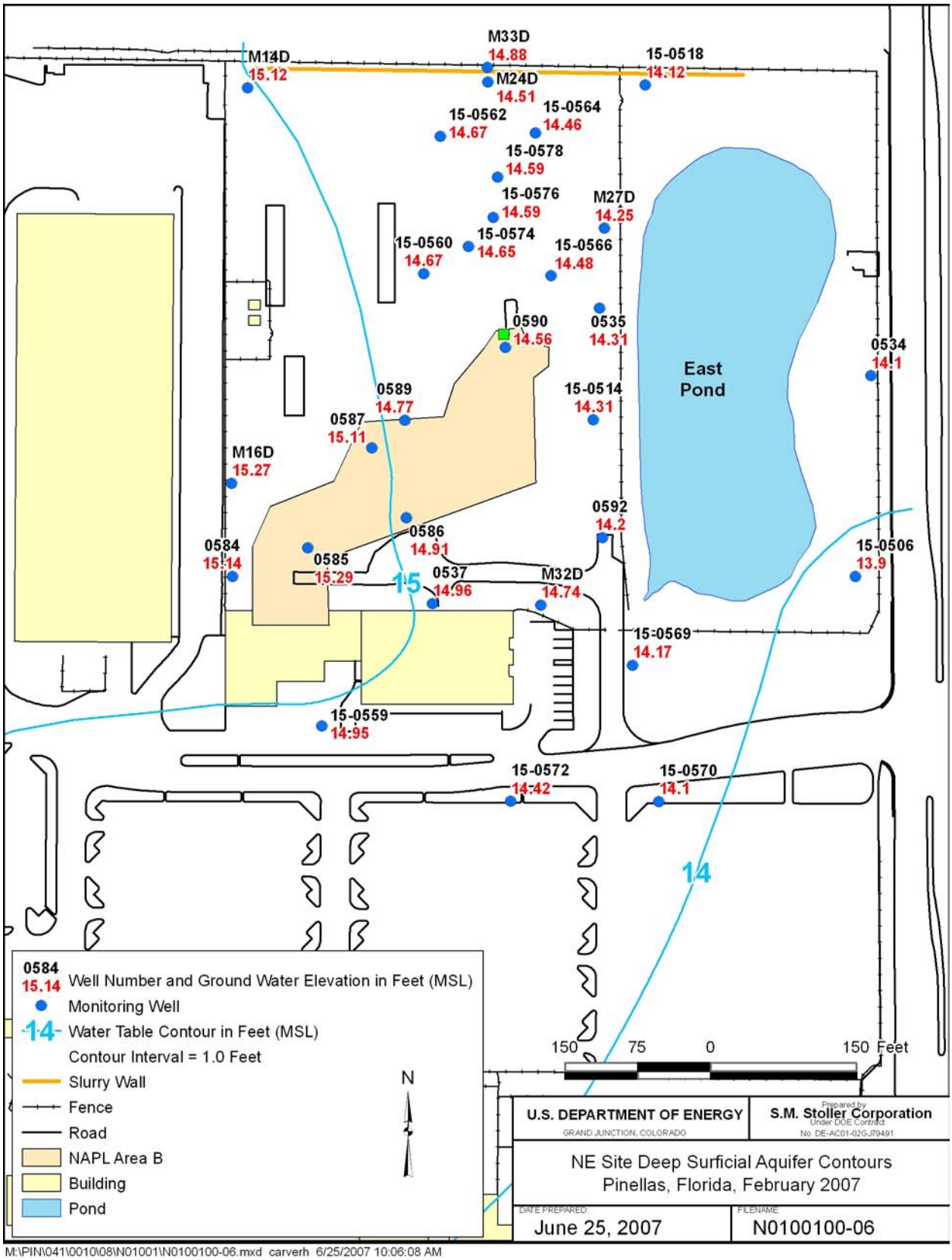

Figure 4. Ground Water Elevations and Deep Surficial Aquifer Flow, Northeast Site, February 2007

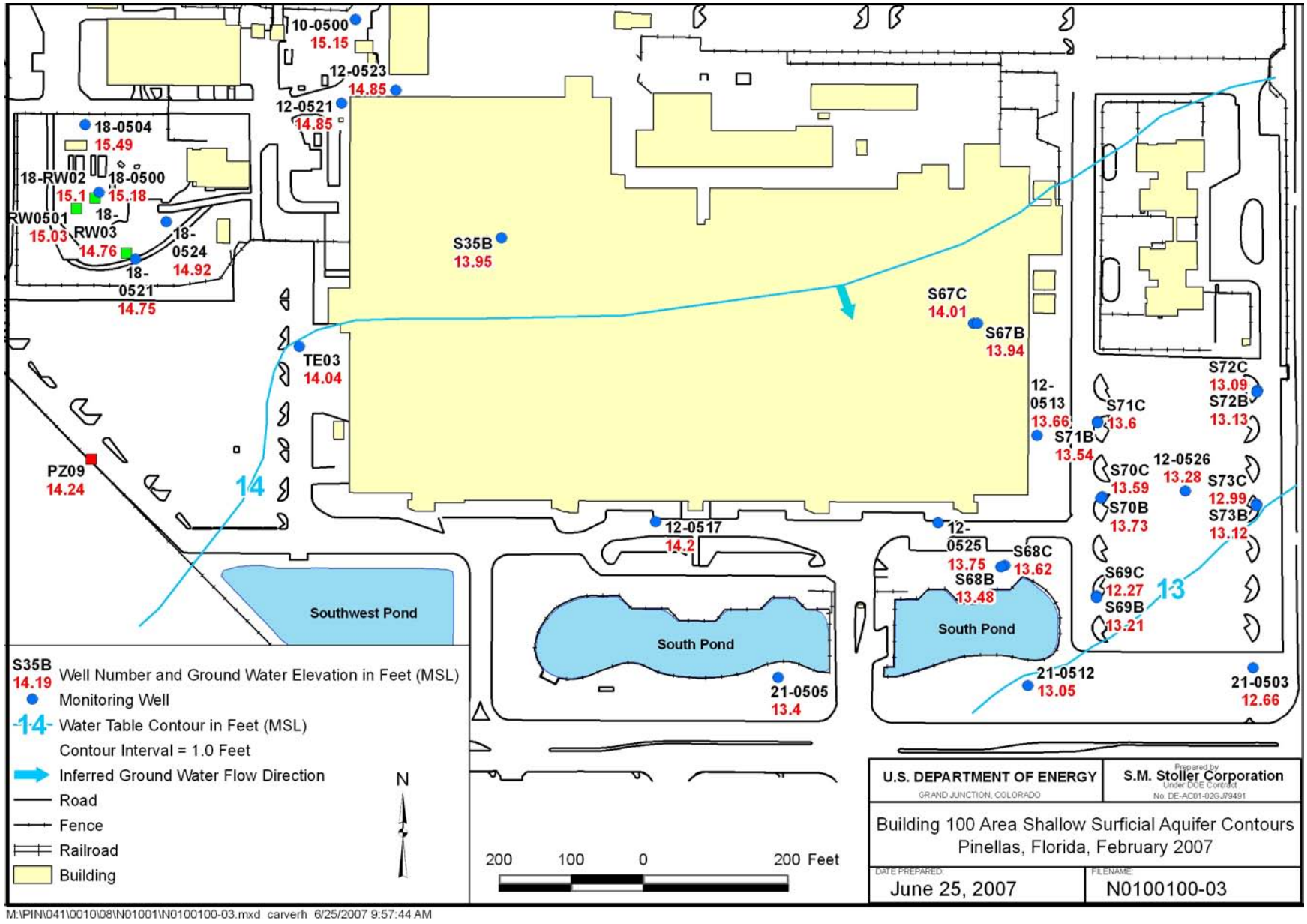

Figure 5. Ground Water Elevations and Shallow Surficial Aquifer Flow, Building 100 Area, February 2007

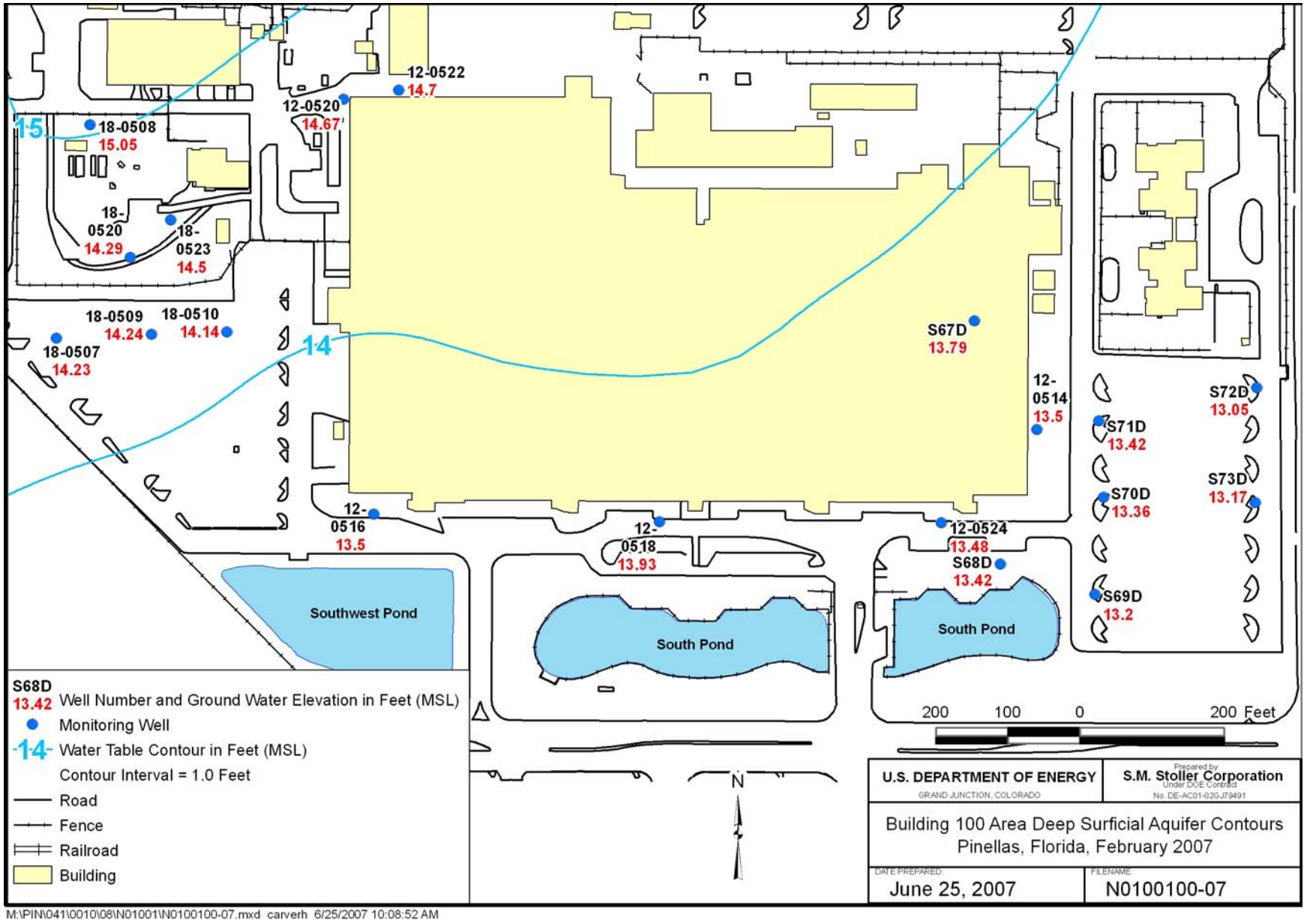

Figure 6. Ground Water Elevations and Deep Surficial Aquifer Flow, Building 100 Area, February 2007

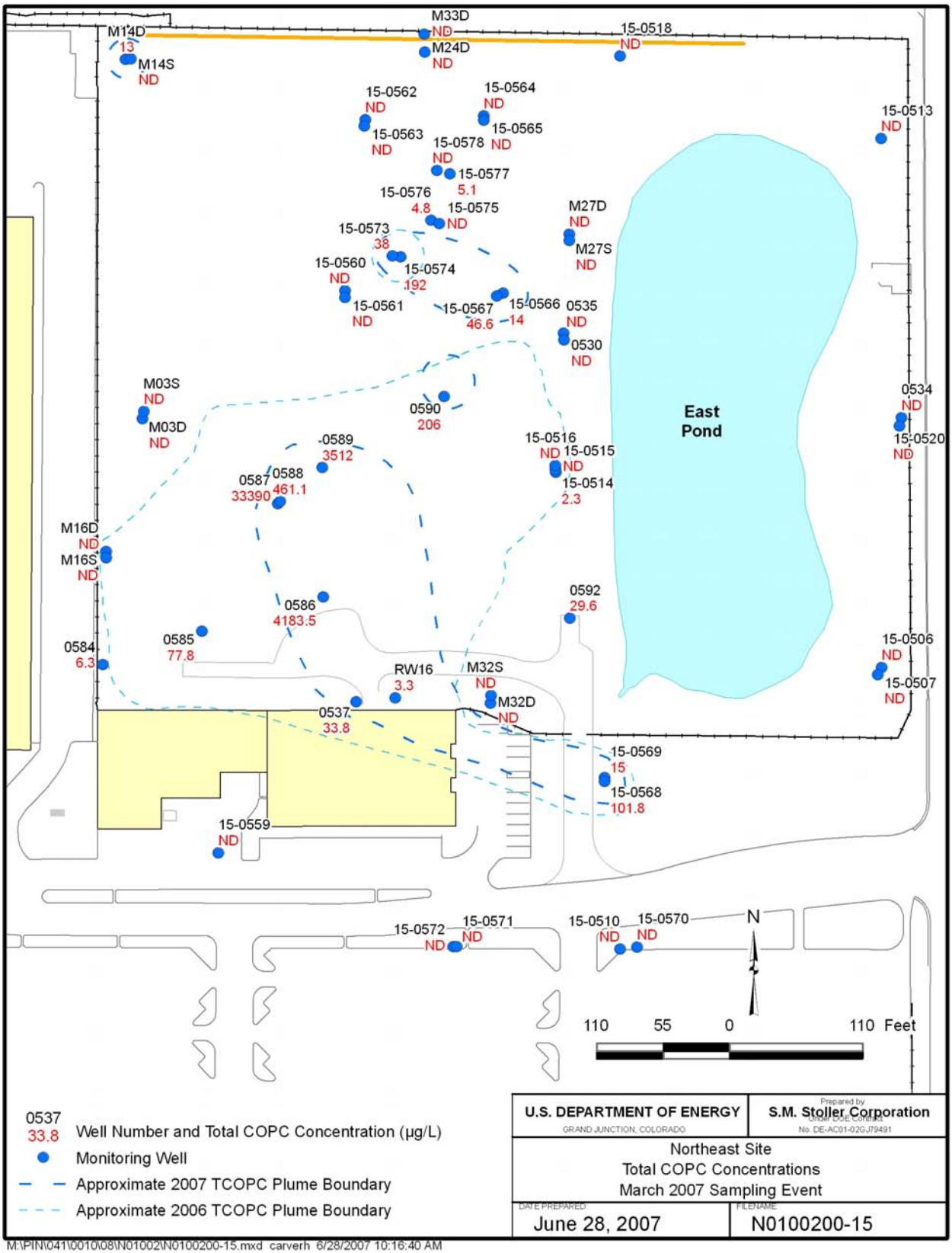

Figure 7. Northeast Site Total COPC Concentrations March 2007 Sampling Event

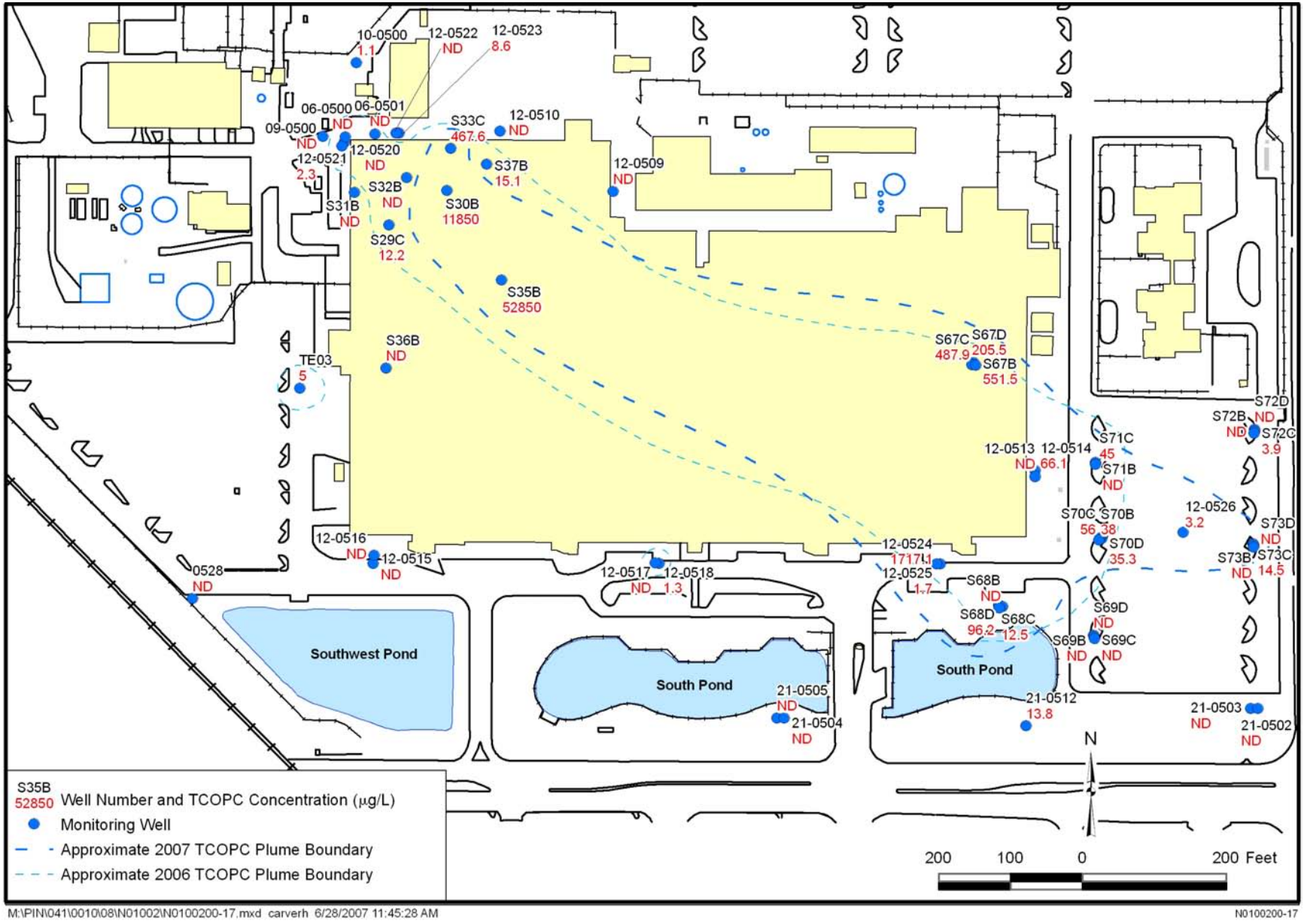

Figure 8. Building 100 Area Total COPC Concentrations March 2007 Sampling Event

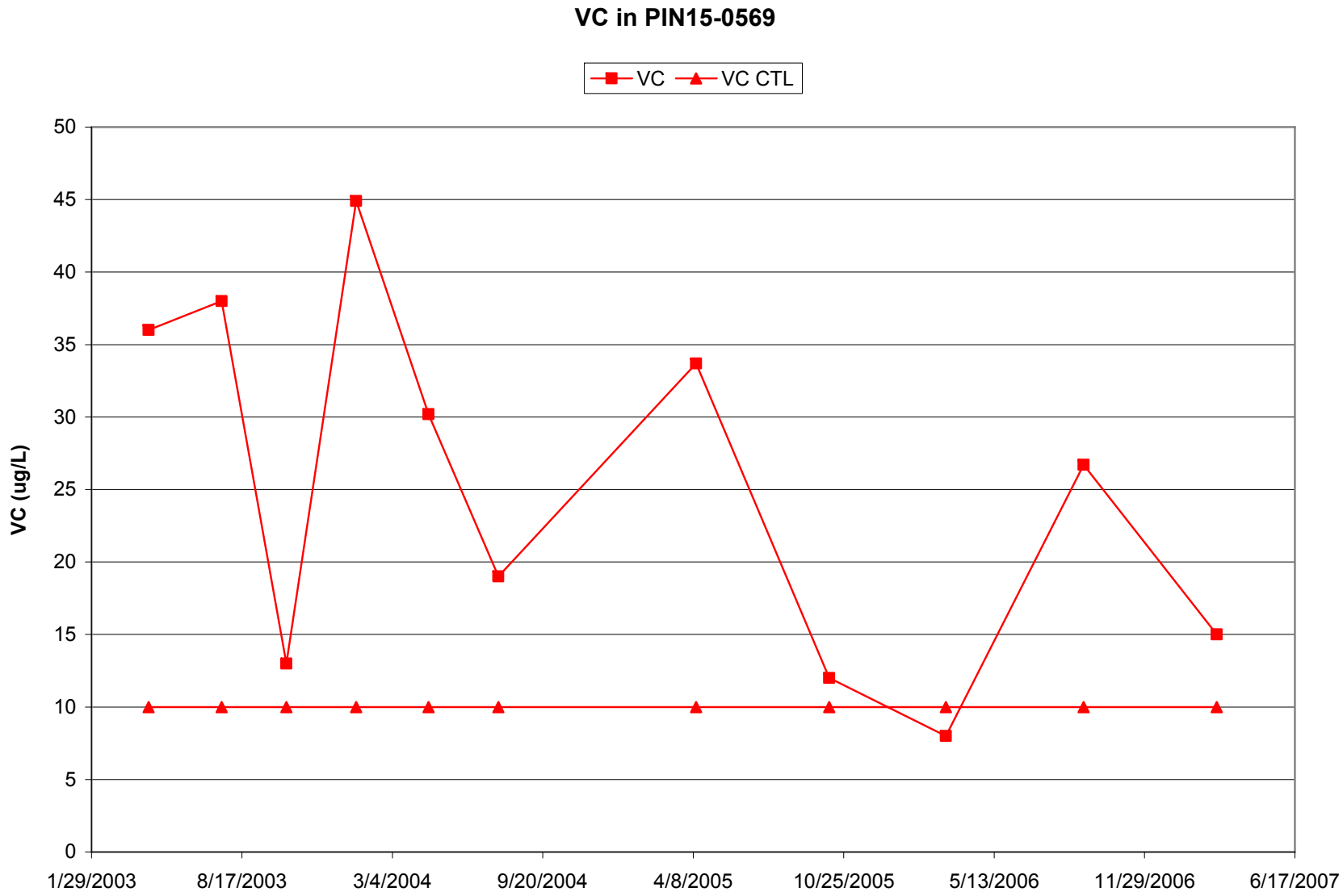

Figure 9. VC in PIN15−0569

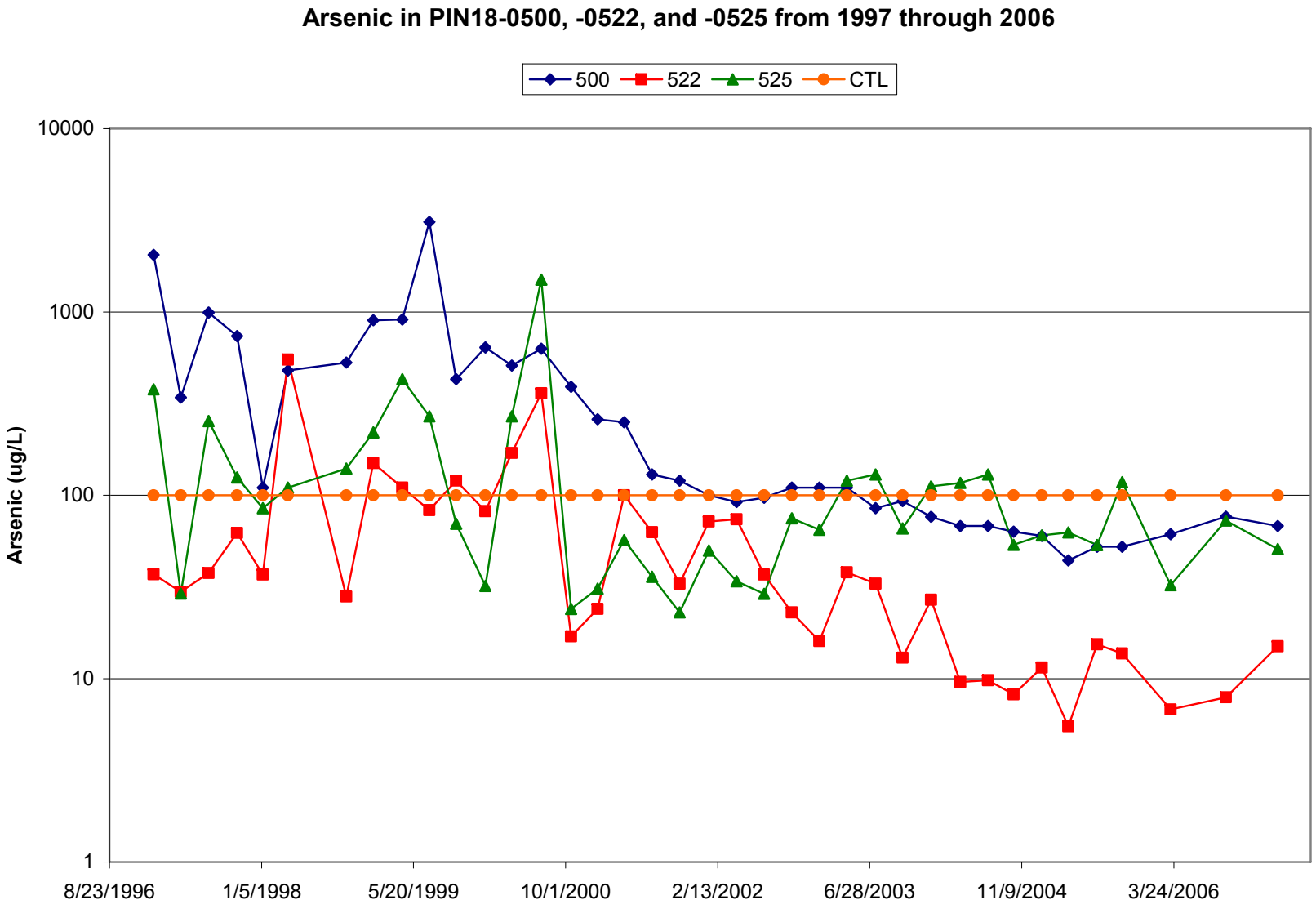

Figure 10. Arsenic in PIN18−0500, −0522, and −0525 from 1997 through 2006

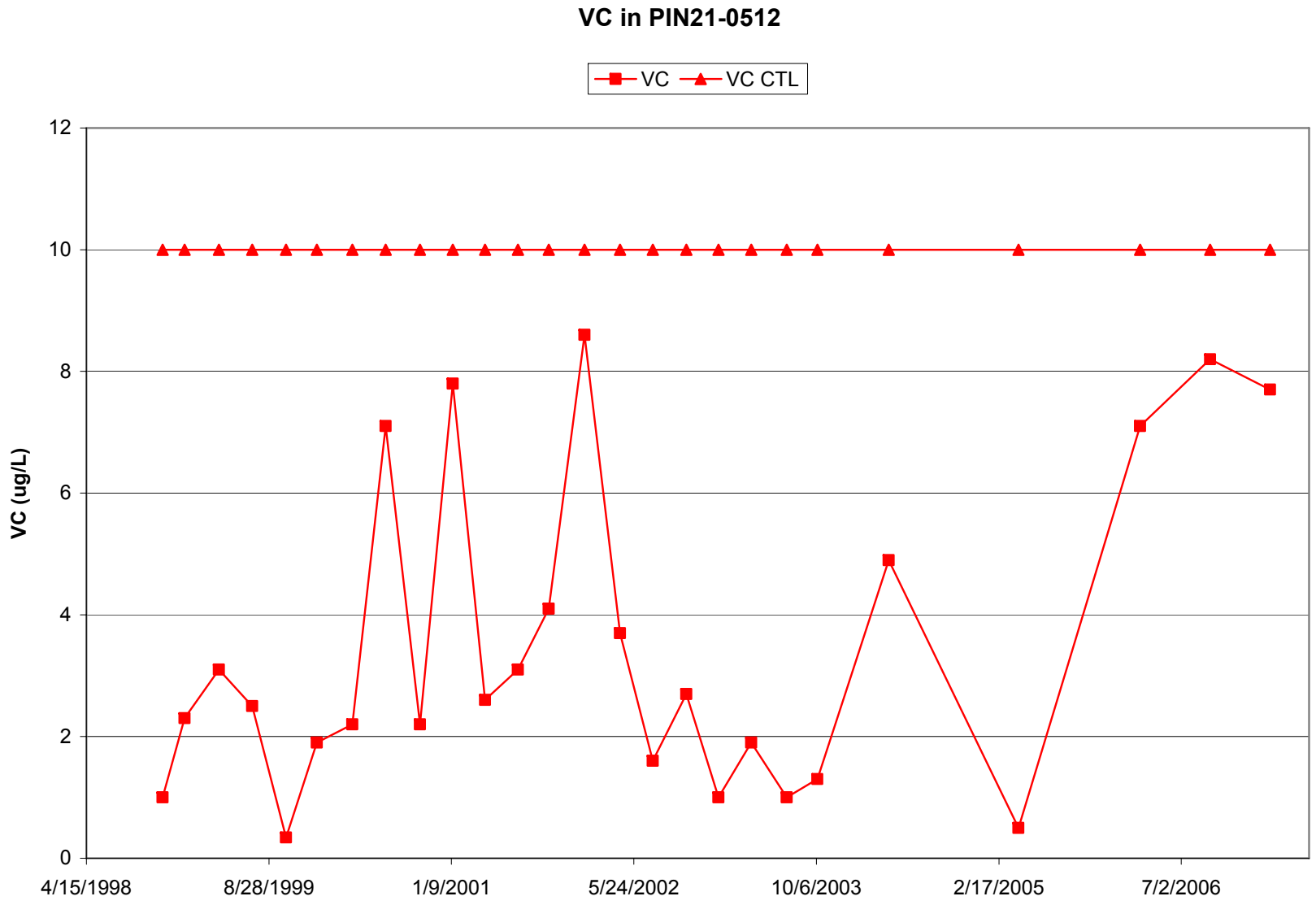

Figure 11. VC in PIN21−0512

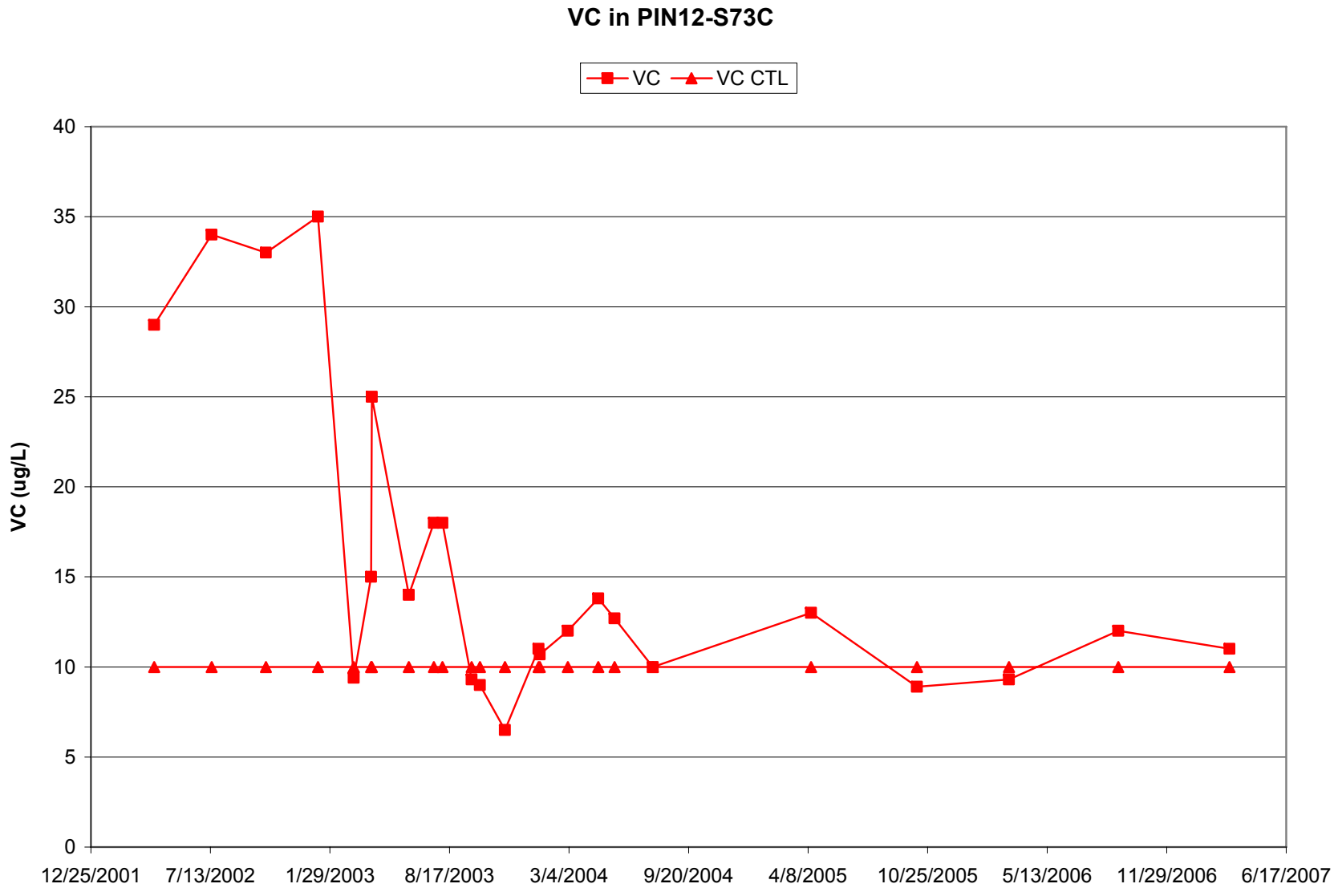

Figure 12. VC in PIN12−S73C

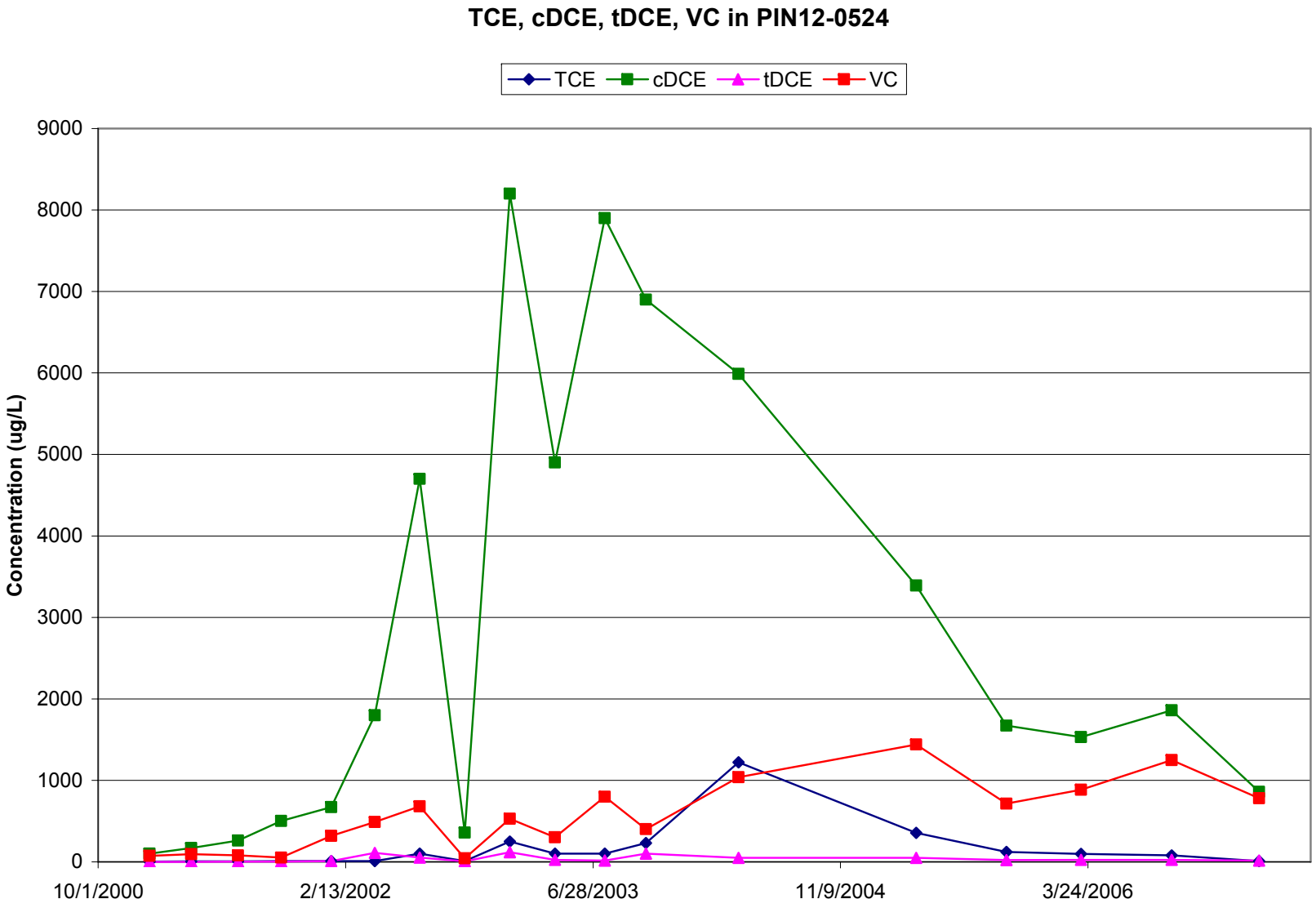

Figure 13. TCE, cDCE, tDCE, VC in PIN12−0524

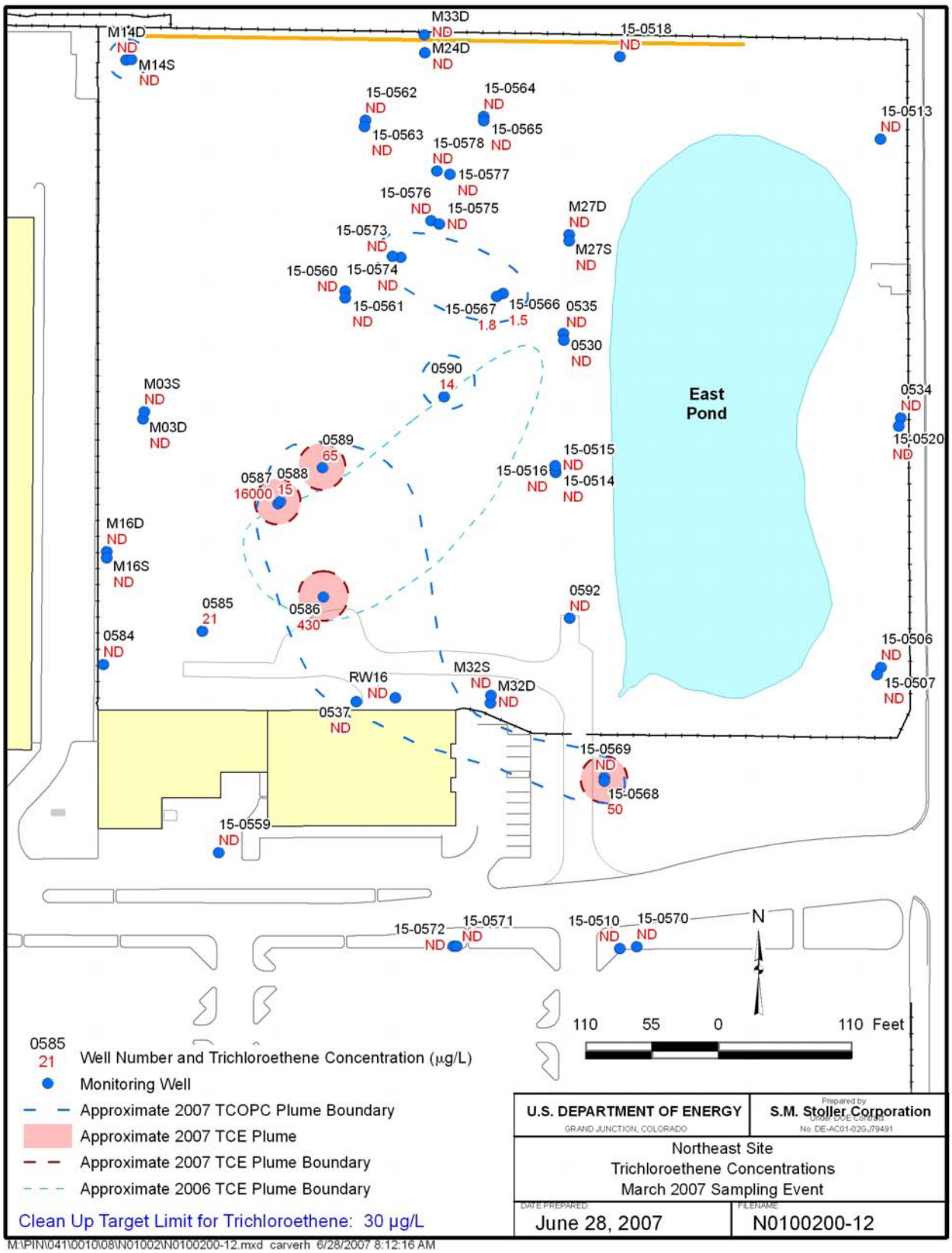

Figure 14. Northeast Site TCE Concentrations—March 2007 Sampling Event

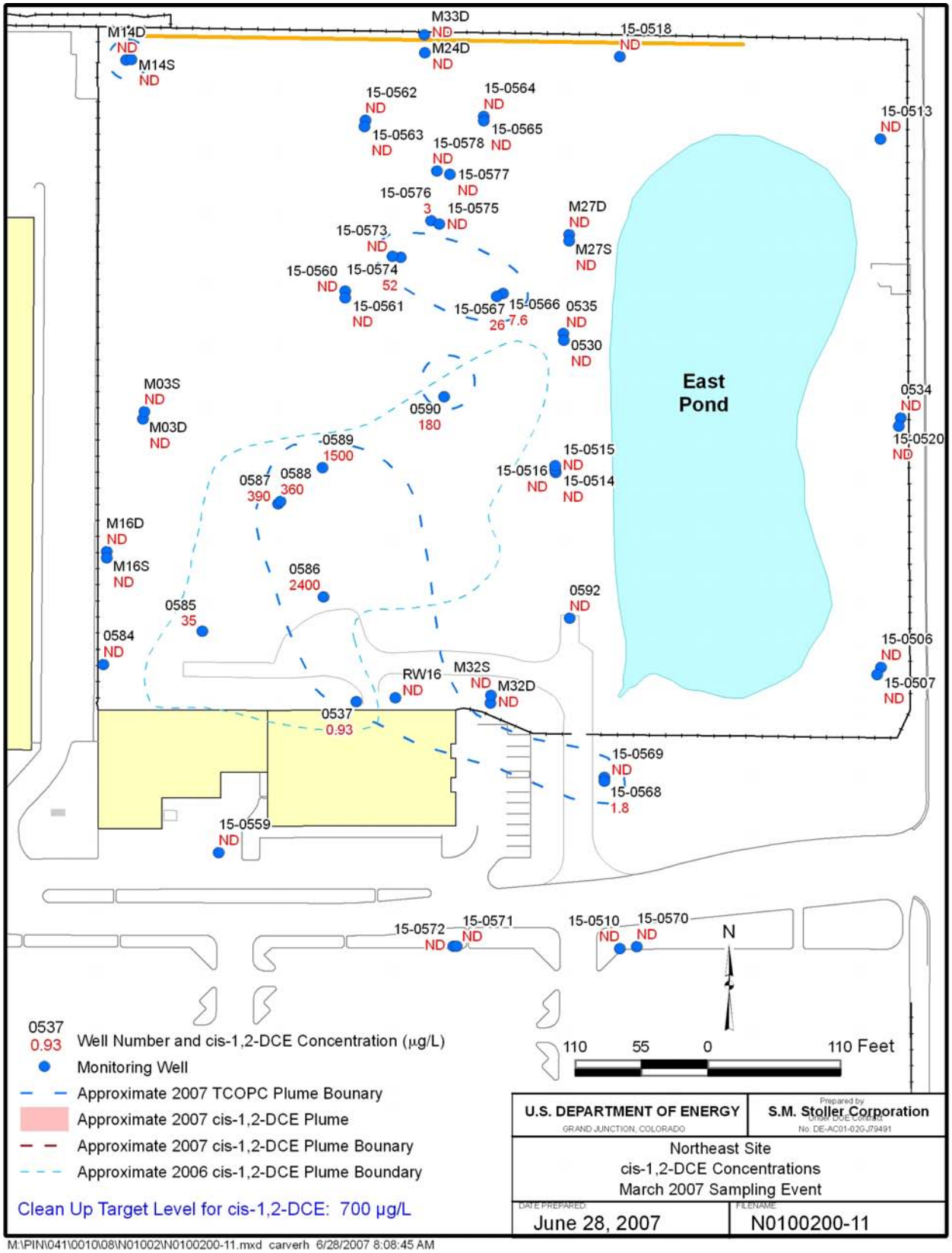

Figure 15. Northeast Site cDCE Concentration—March 2007 Sampling Event

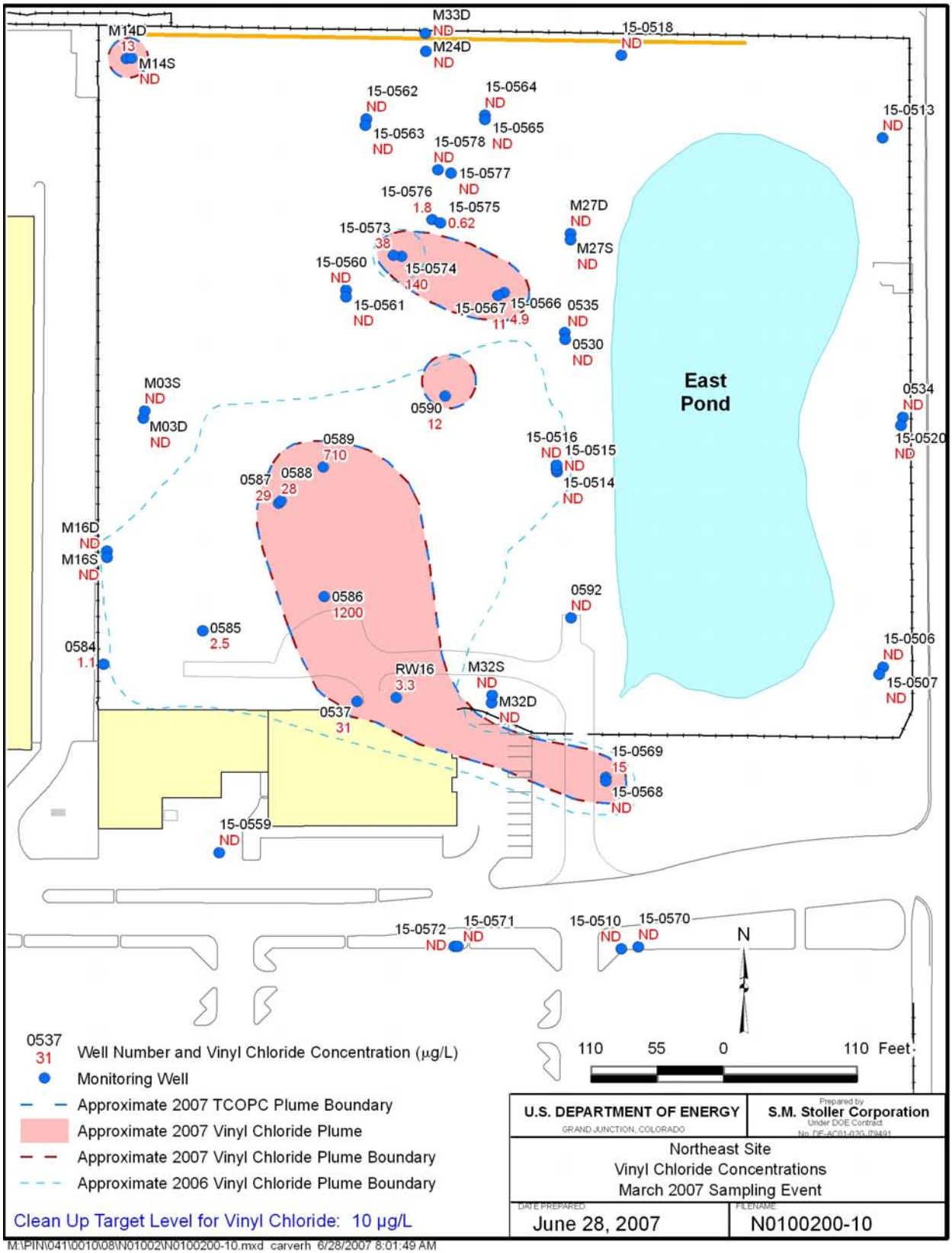

Figure 16. Northeast Site VC Concentrations—March 2007 Sampling Event

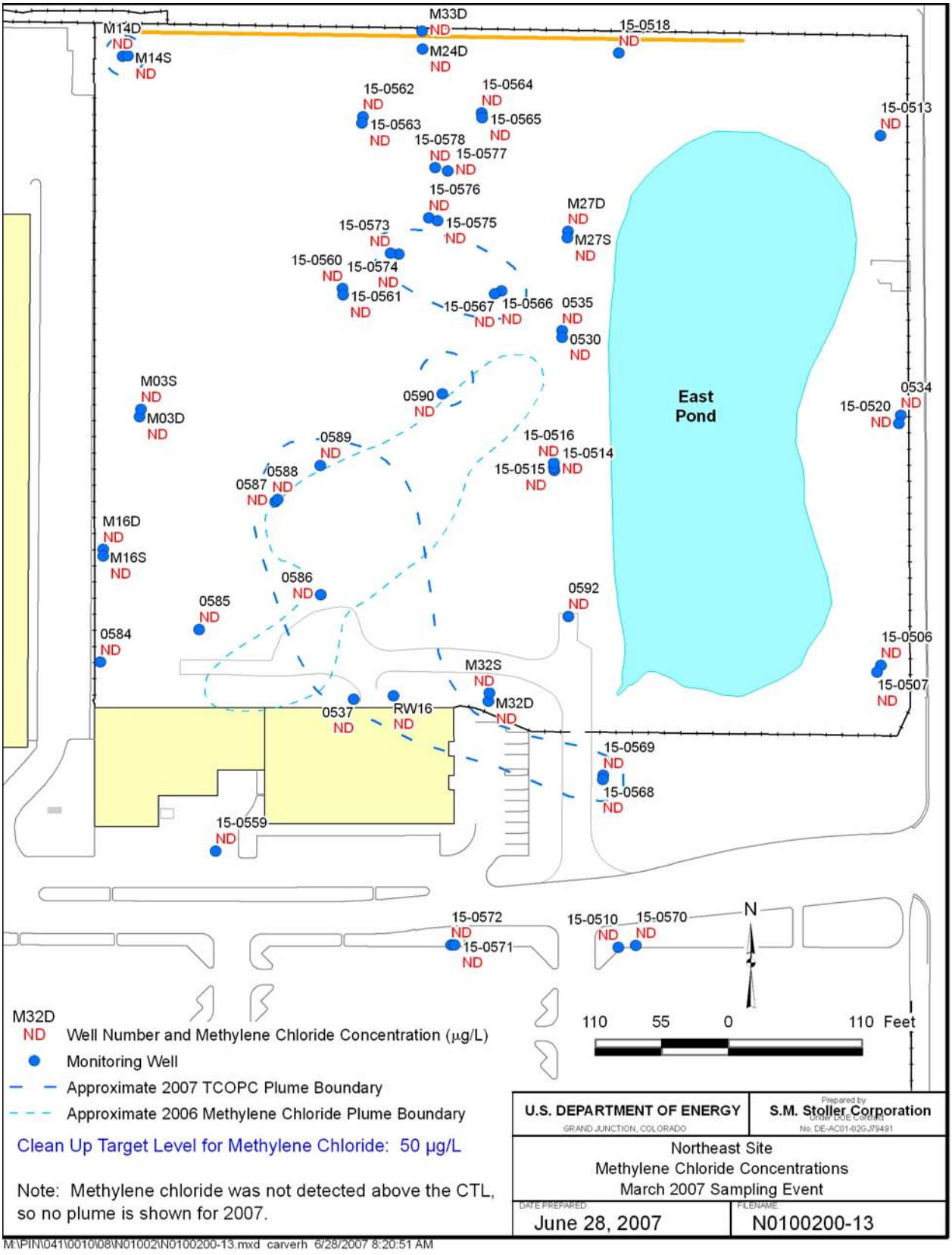

Figure 17. Northeast Site Methylene Chloride Concentrations—March 2007 Sampling Event

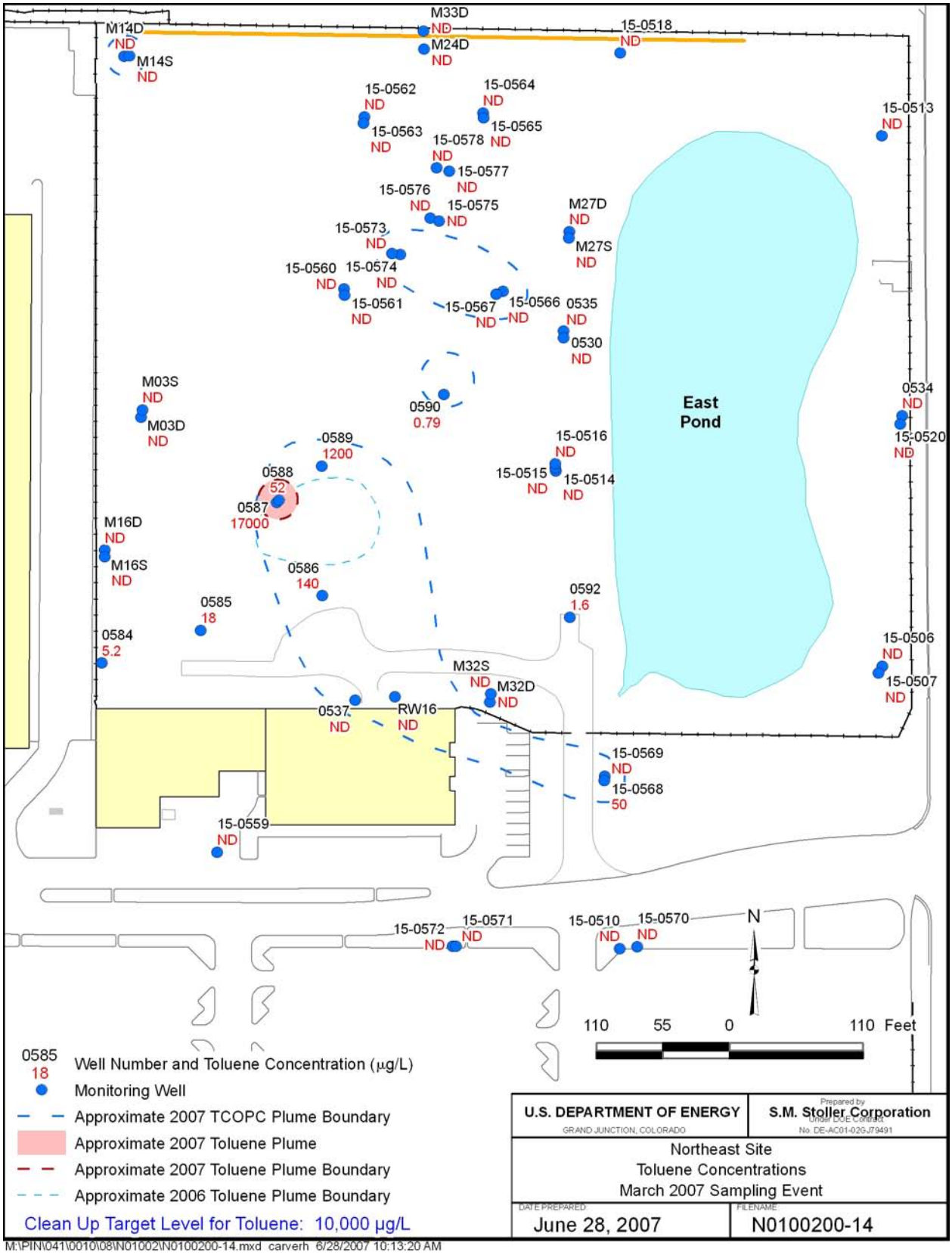

Figure 18. Northeast Site Toluene Concentrations—March 2007 Sampling Event

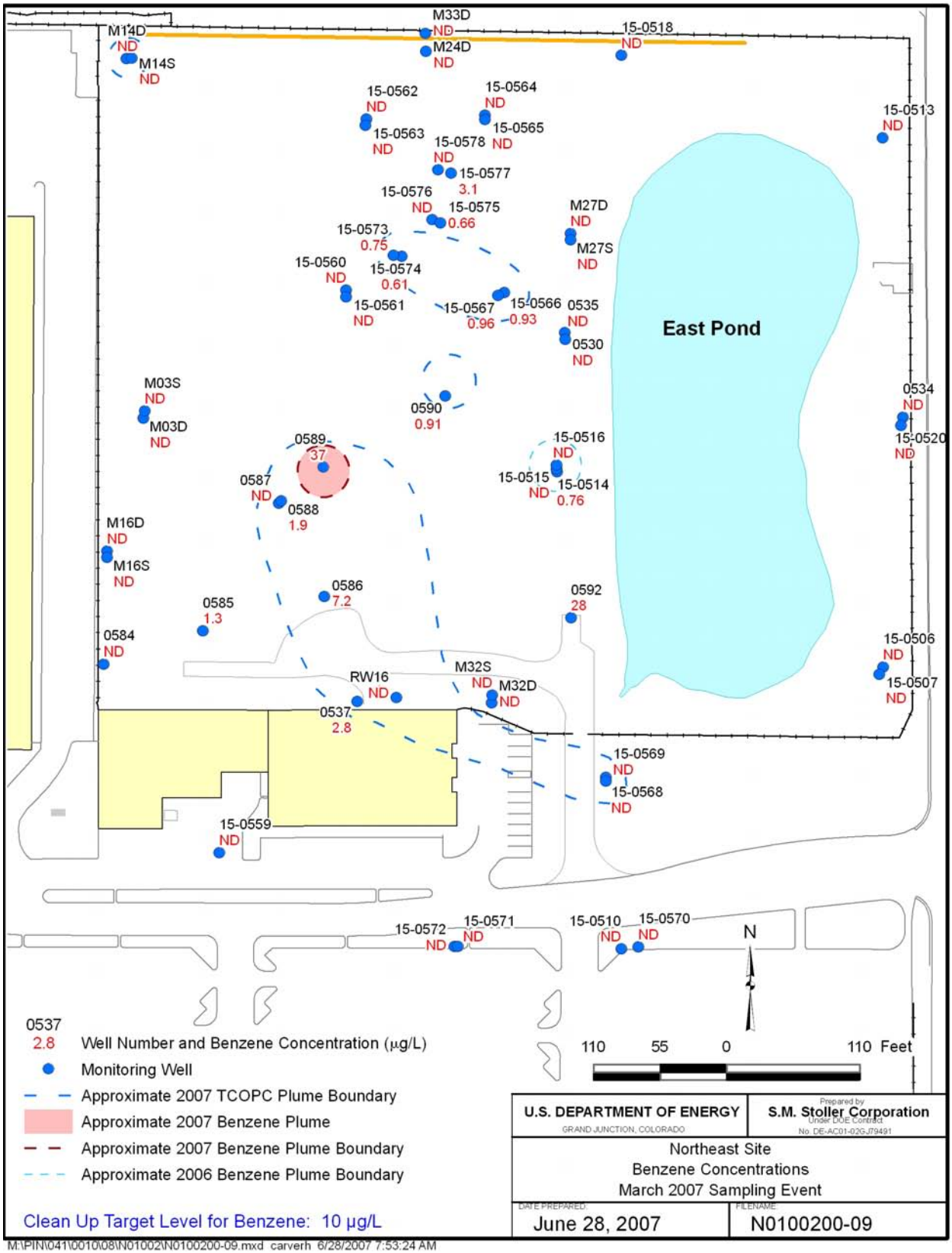

Figure 19. Northeast Site Benzene Concentrations—March 2007 Sampling Event

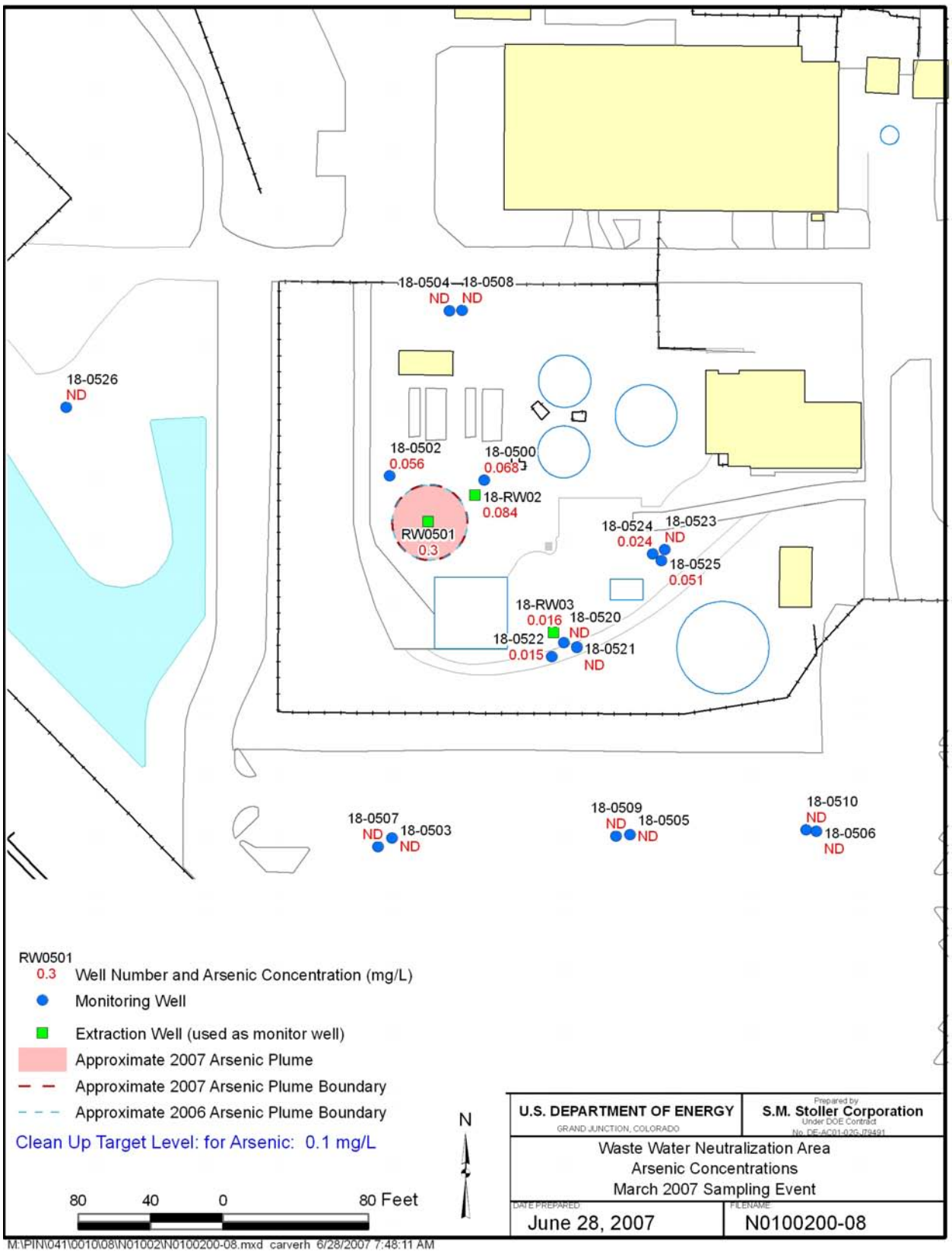

Figure 20. Wastewater Neutralization Area Arsenic Concentrations—March 2007 Sampling Event

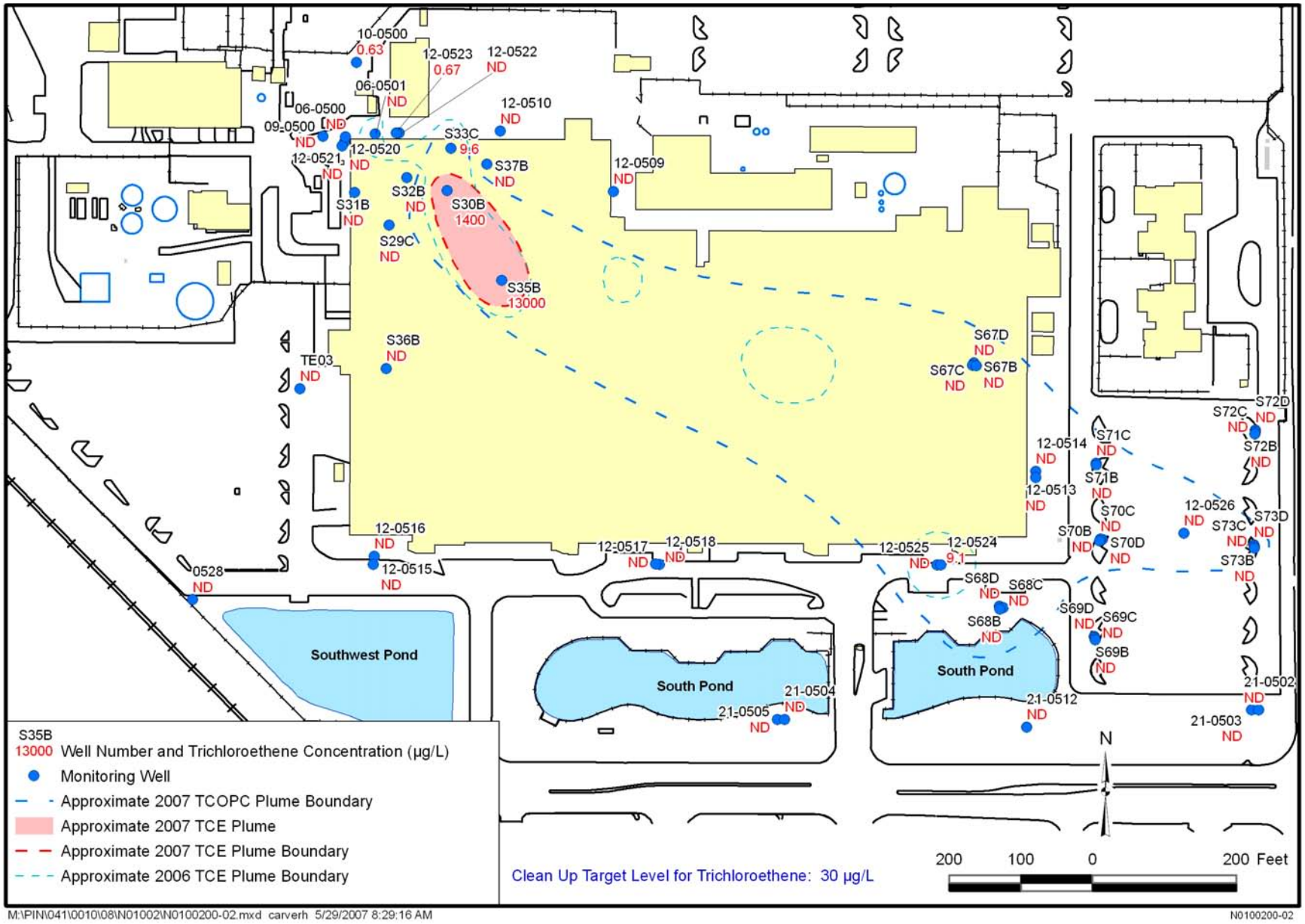

Figure 21. Building 100 TCE Concentrations—March 2007 Sampling Event

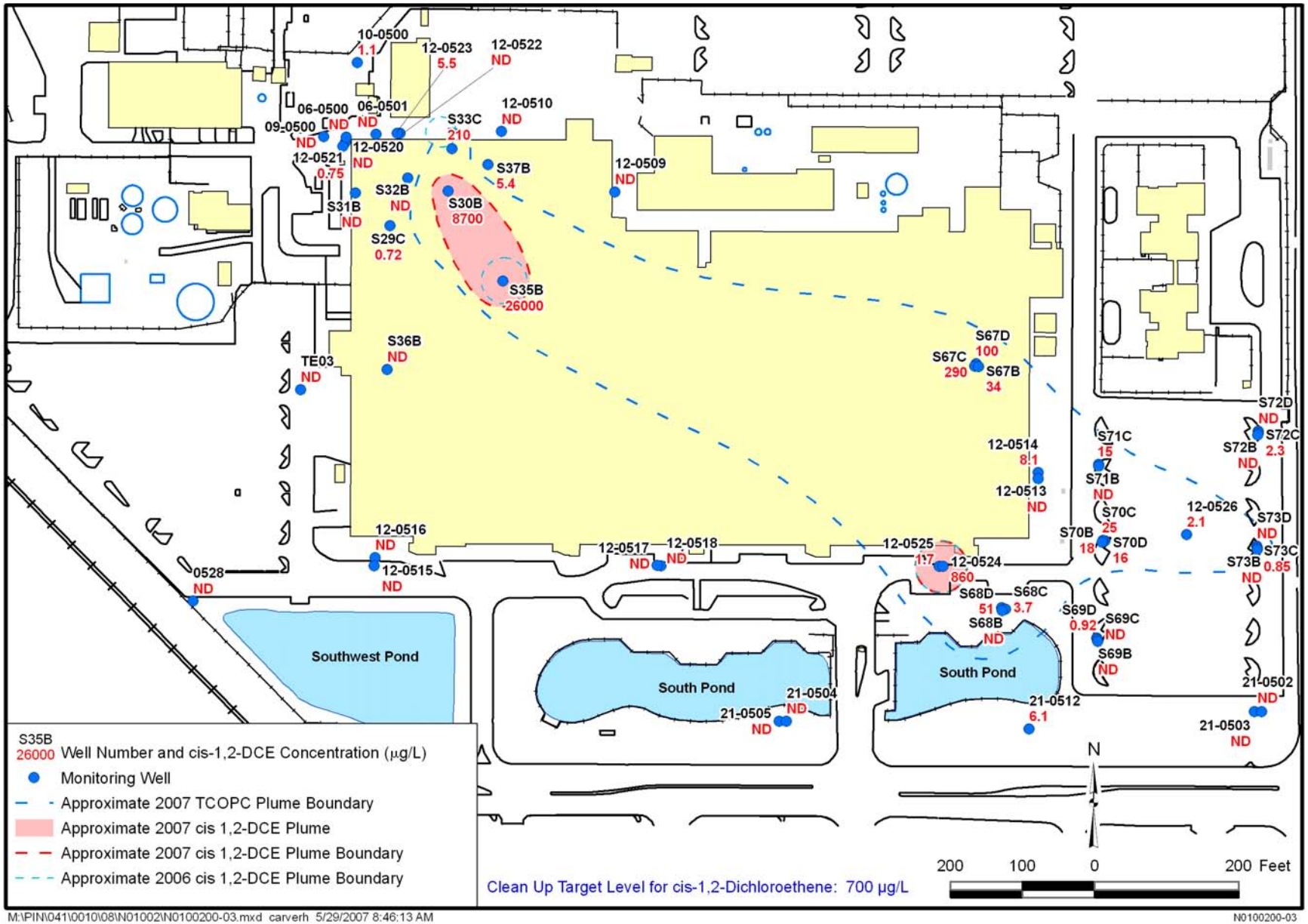

Figure 22. Building 100 cDCE Concentrations—March 2007 Sampling Event

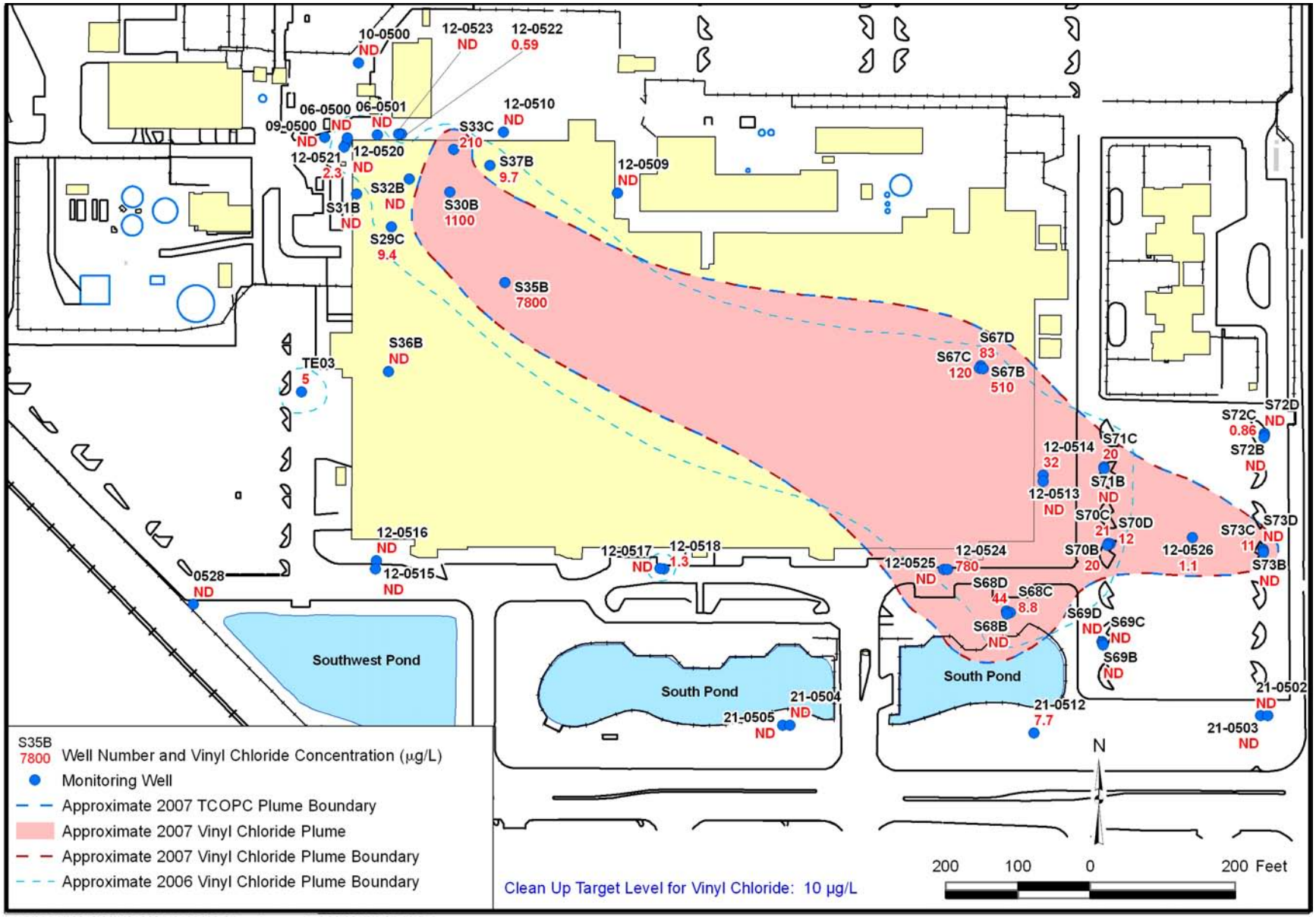

Figure 23. Building 100 VC Concentrations—March 2007 Sampling Event

Table 1. 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	02/28/07	14:25	3.31	14.69
0501	02/28/07	14:29	3.52	14.78
PIN09				
0500	02/28/07	14:28	3.26	14.71
PIN10				
0500	02/28/07	14:22	3.10	14.80
PIN12				
0509	02/28/07	14:36	3.44	14.60
0510	02/28/07	14:33	3.42	14.64
0513	02/28/07	11:01	5.00	13.50
0514	02/28/07	11:02	5.00	13.50
0515	02/28/07	08:54	4.37	13.53
0516	02/28/07	08:52	4.50	13.50
0517	02/28/07	09:00	4.09	13.81
0518	02/28/07	08:59	4.01	13.93
0520	02/28/07	14:27	3.34	14.67
0521	02/28/07	14:22	3.40	14.65
0522	02/28/07	14:32	3.50	14.70
0523	02/28/07	14:31	3.50	14.66
0524	02/28/07	09:02	3.93	13.48
0525	02/28/07	09:03	3.92	13.50
0526	02/28/07	10:13	3.69	13.13
0527	02/28/07	13:17	11.86	6.21
0528	02/28/07	08:49	11.52	6.08
S29C	02/28/07	09:17	4.15	14.36
S30B	02/28/07	09:41	4.02	14.49
S31B	02/28/07	09:10	4.06	14.45
S32B	02/28/07	09:25	3.96	14.55
S33C	02/28/07	09:30	3.86	14.65
S35B	02/28/07	09:50	4.32	14.19
S36B	02/28/07	09:03	4.53	13.98
S37B	02/28/07	09:35	3.90	14.61
S67B	02/28/07	10:46	4.60	13.87
S67C	02/28/07	10:46	4.51	13.96
S67D	02/28/07	10:47	4.69	13.79
S68B	02/28/07	09:08	4.33	13.57
S68C	02/28/07	09:10	4.47	13.43
S68D	02/28/07	09:09	4.48	13.42
S69B	02/28/07	10:45	2.93	13.07
S69C	02/28/07	10:43	2.98	13.02
S69D	02/28/07	10:42	2.80	13.20

Table 1 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
S70B	02/28/07	10:31	3.12	13.58
S70C	02/28/07	10:30	3.27	13.43
S70D	02/28/07	10:29	3.34	13.36
S71B	02/28/07	10:22	4.79	13.61
S71C	02/28/07	10:23	4.97	13.43
S71D	02/28/07	10:24	4.98	13.42
S72B	02/28/07	10:01	5.00	13.20
S72C	02/28/07	10:02	5.14	13.06
S72D	02/28/07	10:03	5.15	13.05
S73B	02/28/07	09:53	3.98	13.02
S73C	02/28/07	09:56	4.01	12.99
S73D	02/28/07	09:57	3.83	13.17
TE03	02/28/07	08:34	3.02	13.98
PIN15	**Northeast Site**			
0506	02/28/07	14:37	3.10	13.90
0507	02/28/07	14:38	3.09	13.91
0510	02/28/07	13:37	3.23	14.29
0513	02/28/07	14:30	11.38	6.22
0514	02/28/07	14:47	3.19	14.31
0515	02/28/07	14:46	3.19	14.31
0516	02/28/07	14:45	3.38	14.02
0518	02/28/07	14:26	3.68	14.12
0520	02/28/07	14:34	3.23	13.97
0530	02/28/07	14:50	3.20	14.20
0534	02/28/07	14:33	3.20	14.10
0535	02/28/07	14:49	3.29	14.31
0537	02/28/07	14:37	3.64	14.96
0559	02/28/07	13:50	3.84	14.95
0560	02/28/07	14:59	3.33	14.67
0561	02/28/07	14:59	3.24	14.76
0562	02/28/07	14:18	3.13	14.67
0563	02/28/07	14:19	3.10	14.70
0564	02/28/07	14:22	2.74	14.46
0565	02/28/07	14:23	2.88	14.32
0566	02/28/07	14:52	3.02	14.48
0567	02/28/07	14:53	3.22	14.28
0568	02/28/07	13:23	4.28	14.22
0569	02/28/07	13:25	4.21	14.17
0570	02/28/07	13:31	3.88	14.10
0571	02/28/07	13:47	2.83	14.64
0572	02/28/07	13:42	3.09	14.42
0573	02/28/07	14:58	3.78	14.60

Table 1 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
0574	02/28/07	14:55	3.77	14.65
0575	02/28/07	14:59	3.30	14.54
0576	02/28/07	15:02	2.89	14.59
0577	02/28/07	15:01	3.22	14.42
0578	02/28/07	15:03	2.93	14.59
0584	02/28/07	08:32		15.13
0585	02/28/07	08:31		15.28
0586	02/28/07	08:22		14.91
0587	02/28/07	08:29		15.11
0588	02/28/07	08:30		15.14
0589	02/28/07	08:24		14.77
0590	02/28/07	08:27		14.56
0591	02/28/07	08:26		14.51
0592	02/28/07	08:19		14.20
M03D	02/28/07	14:27	2.76	15.34
M03S	02/28/07	14:24	2.85	15.25
M14D	02/28/07	14:04	2.88	15.12
M14S	02/28/07	14:05	2.86	15.14
M16D	02/28/07	14:30	2.93	15.27
M16S	02/28/07	14:31	2.95	15.25
M24D	02/28/07	14:19	3.29	14.51
M27D	02/28/07	14:53	3.35	14.25
M27S	02/28/07	14:51	3.64	13.96
M32D	02/28/07	14:42	3.06	14.74
M32S	02/28/07	14:41	3.00	14.80
M33D	02/28/07	14:21	2.72	14.88
PIN18	**Wastewater Neutralization Area**			
0500	02/28/07	14:14	5.45	14.65
0502	02/28/07	14:11	5.47	14.53
0503	02/28/07	08:24	3.43	14.25
0504	02/28/07	14:09	4.79	14.81
0505	02/28/07	08:28	3.60	14.28
0507	02/28/07	08:22	3.50	14.23
0508	02/28/07	14:10	4.45	15.05
0509	02/28/07	08:27	3.59	14.24
0510	02/28/07	08:31	3.62	14.14
0519	02/28/07	08:39	4.19	14.09
0520	02/28/07	14:16	3.71	14.29
0521	02/28/07	14:16	3.69	14.41
0522	02/28/07	14:15	3.70	14.40
0523	02/28/07	14:18	4.90	14.50
0524	02/28/07	14:18	4.41	14.59
0525	02/28/07	14:17	4.36	14.54
0526	02/28/07	13:58	4.51	14.09

Table 1 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
RW02	02/28/07	14:13	5.54	14.56
RW03	02/28/07	14:15	3.90	14.40
RW0501	02/28/07	14:13	5.46	14.54
PIN21	**Perimeter Monitoring Wells**			
0502	02/28/07	09:50	2.73	12.47
0503	02/28/07	09:48	2.77	12.43
0504	02/28/07	09:22	4.58	13.02
0505	02/28/07	09:24	4.26	13.14
0512	02/28/07	09:18	4.44	12.86

Table 2. Floridan Aquifer Monitoring Well Water Elevations

Well Identification	September 2006 Water Level Elevation (ft, MSL)	February 2007 Water Level Elevation (ft, MSL)
PIN15−0513	7.25	6.22
PIN12−0527	7.33	6.21
PIN12−0528	7.19	6.08

Table 3. Surface Water Elevations

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
PIN15	**Northeast Site**			
E001	02/28/07	14:40	2.44	13.58
PIN23	**Southwest Pond**			
SW01	02/28/07	09:33		13.32
PIN37	**South Pond**			
S001	02/28/07	09:26		13.37

Table 4. Dissolved Gas and Dehalococcoides ethenogenes

Location		Date Sampled	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	Dehalococcoides ethenogenes (copy numbers/L)
PIN12	0524	3/5/07	0.68	19	5,600	500,000
	S35B	3/5/07	230	1,000	4,400	3,000J
	S68D	3/2/07	0.42	1	2,300	<5,000
	S71C	3/5/07	0.72	0.47	1,600	<20,000
PIN21	0512	3/2/07	0.51	0.29	630	<7,000
PIN15	0537	3/2/07	310	0.43	2,200	700,000
	0569	3/5/07	890	0.13	3,200	<5,000
	0585	3/3/07	NM	NM	NM	<10,000
	0587	3/3/07	NM	NM	NM	<10,000
	0588	3/3/07	NM	NM	NM	<10,000

Notes:
"<"=not detected above the associated value
J = Estimated value, result is between the reporting limit and the method detection limit.
NM = not measured

Table 5. 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	22.97	628	11	6.8	-53.1	0.37
0501	3–13	21.41	766	4.1	6.77	96.1	0.51
PIN09							
0500	3–13	23.2	696	7.9	6.95	-100.3	0.39
PIN10							
0500	3–13	21.4	718	3.1	7.11	-108.4	0.62
PIN12							
0509	3–13	21.67	783	5	6.92	-6.1	0.49
0510	3–13	20.84	1,340	22.6	6.15	94.6	0.55
0513	15–25	23	829	6.5	6.77	NM	0.53
0514	30–40	23.7	1,534	>1,000	6.77	NM	0.46
0515	15–25	23.81	557	1.86	6.78	-83.5	0.21
0516	30–40	23.63	1,543	5.38	6.64	-102	0.11
0517	15–25	24.87	537	4.11	6.94	-118.9	0.31
0518	30–40	25.07	727	12.2	6.71	-71	0.16
0520	36–46	24.1	1,134	8.8	6.82	-79	0.86
0521	19.5–29.5	25.1	521	27.3	6.99	-100.7	0.37
0522	32–42	23.4	797	7.7	6.73	-95.8	0.35
0523	18–28	23.65	692	8.1	6.88	-73.2	0.3
0524	27–37	22.92	1,470	12.1	6.52	-124.3	1.76
0525	12–22	23.62	808	7.47	6.73	-112.3	0.2
0526	19.5–29.5	26.01	2,046	2.58	6.4	-104	0.06
0527	118–137.9	27	1,634	2.53	6.85	-297	1.23
0528	127–146.9	23.1	1,265	0.68	7.02	-189	0.31
S29C	14–24	23	969	4.4	6.98	-101.6	0.4
S30B	5–15	22.6	1,376	7.7	6.91	-40.8	0.94
S31B	5–15	23.1	622	6.9	6.84	44.3	0.84
S32B	5.5–15.5	22.5	1,613	2	6.99	12	0.63
S33C	11–21	23	1,296	34.2	6.47	-113	0.37
S35B	5–15	23.1	1,818	11	6.66	7.6	0.59
S36B	5–15	23.1	725	13.5	6.59	-55.5	1.64
S37B	5–15	22	868	13.9	6.99	-99.5	0.4
S67B	10–19.83	21.55	1,191	21.4	6.52	-82.5	0.39
S67C	20–29.83	21.6	1,005	28	6.61	-87.1	0.63
S67D	30–39.83	21.7	1,142	167	6.61	-92.9	0.55
S68B	10–20	22.88	860	7.9	6.6	NM	1.19
S68C	18–28	23.86	1,018	29.9	6.65	NM	1.26
S68D	30–40	24.92	1,366	3.2	6.56	-189.6	3.73
S69B	10–20	25.8	642	31.8	6.83	NM	1.28
S69C	20–30	25	792	15.9	6.77	NM	2.46
S69D	30–40	25.71	1,485	10.5	6.74	NM	1.61
S70B	10–20	26.3	1,442	154	6.7	NM	0.89
S70C	20–30	27.58	1,494	326	6.61	NM	1.09
S70D	30–40	27.63	1,526	27.7	6.61	NM	1.43
S71B	10–20	25.1	1,666	38	6.6	NM	1.06

Table 5 (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)
S71C	20–30	25.85	1,608	315	6.55	-182.3	1.55
S72B	10–20	28.1	1,907	80.5	6.21	NM	1.57
S72C	20–30	29.06	845	12.9	6.67	NM	1.28
S72D	30–40	28.81	1,448	76.3	6.72	NM	1.2
S73B	10–20	27.1	1,097	80.4	6.45	NM	0.82
S73C	20–30	27.8	1,979	60.1	6.46	NM	1.06
S73D	30–40	27.34	2,444	154	6.33	NM	4.37
TE03	–	23.74	801	3.87	6.74	-87.7	0.17
PIN15	**Northeast Site**						
0506	12–21.5	24.27	1,371	45.1	6.86	-89.7	0.37
0507	5–14.5	22.55	996	13.4	6.75	-15.9	0.18
0510	4–13.5	26.01	431	15.3	6.98	-219.5	0.67
0513	135–149.6	24.2	1,413	5.08	7.01	-291.6	1.93
0514	15.5–25.5	23.59	1,611	67.4	6.58	-244.6	0.72
0515	7.6–17.6	22.77	496	4.56	6.84	-233.4	0.71
0516	0.3–10.3	21.24	682	28.7	6.96	-199.6	0.74
0518	23–28	23.44	1,922	7.78	6.63	-177.3	1.38
0520	5–14.5	22.43	750	3	6.85	-47.4	0.78
0530	5–14.5	22.98	551	107	6.91	-218.5	0.5
0534	19.5–29	25.03	1,835	87.4	6.66	-64.3	0.87
0535	20.5–30	23.06	1,827	235	6.64	-51.3	0.85
0537	17.5–30	22.71	1,132	27	6.62	-160.4	3.19
0559	22–31.5	26.41	1,330	58.1	6.6	-260.9	1.24
0560	19–28.5	24.9	958	10.4	6.64	NM	0.7
0561	5–14.5	23.8	1,669	1.6	6.72	NM	1.19
0562	20–29.5	24.56	1,233	15.9	6.58	-57.4	0.45
0563	5–14.5	23.9	1,698	12.5	6.7	0.7	0.69
0564	20–29.5	23.64	1,579	8.37	6.58	-17	0.19
0565	5–14.5	22.04	907	4.85	6.77	24.1	1
0566	19–28.5	25.1	1,491	657	6.77	NM	0.53
0567	5–14.5	23.5	1,264	9.7	6.74	-145.3	1.81
0568	10–20	23.62	1,160	10.6	6.75	-168.1	0.85
0569	20–30	24.99	1,454	14.8	6.62	-196.9	1.61
0570	20–30	27.85	2,183	115	6.57	-254.9	1.23
0571	10–20	25.29	858	174	6.8	-231.6	1.05
0572	20–30	25.4	1,099	278	6.69	-255.3	1.48
0573	5–15	25	2,042	3.8	6.86	NM	1.38
0574	18–28	27.2	1,537	1.4	6.66	NM	1.31
0575	5–15	23.72	2,420	28.8	6.99	NM	1.42
0576	20–30	29.48	1,463	17.4	7.1	NM	0.88
0577	5–15	25.07	1,756	7.96	6.77	-172.7	0.93
0578	20–30	27.58	1,261	18.4	6.39	-329.2	0.38
0584	20–30	28.31	1,060	156	6.78	-265.4	0.64
0585	20–30	50.67	917	54.3	6.96	-340.7	0.62
0586	20–30	43.44	1,430	202	6.6	-266.3	1.07
0587	20–30	48.15	1,283	101	6.5	-243.4	4.09
0588	5–15	35.54	2,199	12.2	7.12	-288.1	3.28

Table 5 (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)
0589	20–30	39.47	1,819	211	6.38	-287.4	1.19
0590	20–30	44.79	1,419	44.1	6.73	-278.6	0.92
0592	20–30	23.39	1,874	158	6.48	-240.2	0.64
M03D	15–25	23.42	1,057	173	6.48	-241.3	0.89
M03S	2.5–12	21.55	769	47.2	6.72	-155.8	1.48
M14D	18.5–28.5	24.15	900	78.3	6.57	-69.7	0.17
M14S	4–14	22.6	689	17.2	6.72	-36.3	0.13
M16D	18.5–28.5	24.81	844	36.2	6.67	-129.4	0.78
M16S	5–14.5	23.96	1,221	37.8	6.68	-136.9	0.94
M24D	20–30	23.45	1,553	108	6.64	-125.9	0.04
M27D	21–31	23.49	1,869	24.4	6.45	-45.5	0.18
M27S	6–16	21.63	591	9.36	6.61	-30.5	1.04
M32D	14–24	23.09	833	43	6.84	-158.8	0.61
M32S	3–13	21.59	613	11.9	7.01	-180.4	0.62
M33D	20–30	23.4	709	39.5	6.69	-74.5	0.12
RW16	20–30	22.21	1,270	4.54	6.7	-187.4	0.86
PIN18	**Wastewater Neutralization Area**						
0500	11–16	23.12	497	5.9	7.12	-69.9	0.72
0502	11–16	23.17	392	8	6.84	-23.3	0.57
0503	10–20	25	934	2.4	6.51	-126.1	0.75
0504	13–22	23.9	563	4.6	6.67	81.6	0.73
0505	10.5–20.5	24.7	682	18.1	6.63	-31.4	0.64
0506	12–22	24.4	775	13.8	6.62	-35.5	0.6
0507	27–37	26.1	1,190	4.1	6.63	-80.2	0.86
0508	31–41	25.01	787	8.1	6.62	-72.1	0.73
0509	27.5–37.5	25.5	1,137	3.2	6.85	-83.5	0.53
0510	27.5–37.5	25.4	1,235	59	6.72	-102.4	0.59
0519	12.5–22.5	24.22	977	9.66	6.79	-115.5	0.16
0520	32.5–42.5	24.64	1,393	34.3	6.92	-40.9	0.73
0521	20–30	24.2	723	8.1	6.92	-57.4	0.46
0522	5–15	22.69	564	12.7	6.57	108.5	0.62
0523	32.5–42.5	25	805	28.9	6.9	-95	0.52
0524	20–30	24.7	640	31.4	6.89	-101.3	0.63
0525	5–15	22.6	336	14.6	6.72	46.9	0.58
0526	19.5–29	24.4	586	248	6.53	-88.9	0.5
RW02	10–20	23.84	352	8.3	7.13	62.7	1.64
RW03	9–24	24.58	587	6.9	6.93	49.6	1.05
RW0501	11–16	23.77	588	9.99	6.75	-10.6	1.09
PIN21							
0502	7–17	22.5	1,055	14.1	6.74	NM	0.51
0503	20–28	24.2	863	25.4	6.76	NM	0.46
0504	7–17	21.2	749	6.7	6.85	NM	0.5
0505	20–28	23.3	1,000	7.1	6.84	NM	0.38
0512	20–29.5	23.97	994	12.9	6.65	-181.1	3.61

[a]Temperature corrected to 25°C.
NM = Not Measured

Table 6. 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]
Cleanup Target Level			**30**	**700**	**630**	**10**	**50**	**10**	**10,000**	**–**
PIN15	**Northeast Site**									
0506	12–21.5	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/7/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0507	5–14.5	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/8/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0510	4–13.5	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0513	135–149.6	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0514	15.5–25.5	3/16/2006	<0.5	0.73J	0.73J	6.3	<1	12.9	<0.5	19.2
		3/8/2007	<0.5	<0.65	2.3	<0.5	<4	0.76J	<0.51	2.3
0515	7.6–17.6	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/8/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0516	0.3–10.3	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/8/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0518	23–28	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0520	5–14.5	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/7/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0523	5–14.5	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0530	5–14.5	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/28/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0534	19.5–29	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/7/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0535	20.5–30	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0537	17.5–30	3/16/2006	<0.5	2.2	2.2	111	<1	3.2	<0.5	116.4
		3/2/2007	<0.5	0.93J	0.93J	31	<4	2.8	<0.51	33.8
0559	22–31.5	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0560	19–28.5	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		9/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/12/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0561	5–14.5	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		9/15/2006	25.9	14.2	14.2	11.4	<1	0.61J	<0.5	51.5
		3/12/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0562	20–29.5	3/14/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		9/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/8/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND

Table 6 (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]
Cleanup Target Level			**30**	**700**	**630**	**10**	**50**	**10**	**10,000**	**–**
0563	5–14.5	3/14/2006	<0.5	0.95J	0.95J	<0.5	<1	<0.5	<0.5	ND
		9/15/2006	<0.5	1.5	1.5	<0.5	<1	<0.5	<0.5	1.5
		3/8/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0564	20–29.5	3/14/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		9/14/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0565	5–14.5	3/14/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		9/14/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0566	19–28.5	3/15/2006	<0.5	1.2	1.2	2	<1	0.79J	<0.5	3.2
		9/18/2006	<0.5	2.7	2.7	7.4	<1	0.86J	<0.5	10.1
		3/12/2007	1.5	7.6	7.6	4.9	<4	0.93J	<0.51	14
0567	5–14.5	3/13/2006	0.53J	5.7	7.3	2.1	<1	<0.5	<0.5	9.4
		9/7/2006	<0.5	5.2	6.8	1.1	<1	<0.5	<0.5	7.9
		3/12/2007	1.8	26	33.8	11	<4	0.96J	<0.51	46.6
0568	10–20	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	50	1.8	1.8	<0.5	<4	<0.5	50	101.8
0569	20–30	3/10/2006	2.2	1.1	1.1	8	<1	<0.5	<0.5	11.3
		9/9/2006	<0.5	<0.5	ND	26.7	<1	<0.5	<0.5	26.7
		3/5/2007	<0.5	<0.65	ND	15	<4	<0.5	<0.51	15
0570	20–30	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0571	10–20	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0572	20–30	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0573	5–15	3/13/2006	<0.5	<0.5	ND	26.4	<1	<0.5	<0.5	26.4
		9/18/2006	<0.5	<0.5	ND	28	<1	<0.5	<0.5	28
		3/12/2007	<0.5	<0.65	0.69J	38	<4	0.75J	<0.51	38
0574	18–28	3/13/2006	<0.5	4.1	4.1	3.1	<1	<0.5	<0.5	7.2
		9/7/2006	<0.5	<0.5	0.52J	32.5	<1	0.66J	<0.5	32.5
		3/13/2007	<0.5	52	52	140	<4	0.61J	<0.51	192
0575	5–15	3/14/2006	<0.5	1.1	4.3	1.8	<1	1.3	0.51J	7.4
		9/18/2006	<0.5	1.2	2.2	1.1	<1	0.83J	<0.5	3.3
		3/13/2007	<0.5	<0.65	0.77J	0.62J	<4	0.66J	<0.51	ND
0576	20–30	3/13/2006	<0.5	1.4	1.4	0.58J	<1	<0.5	<0.5	1.4
		9/7/2006	<0.5	1.6J	1.6	0.86J	<1	<0.5	<0.5	1.6
		3/13/2007	<0.5	3	3	1.8	<4	<0.5	<0.51	4.8
0577	5–15	3/13/2006	<0.5	<0.5	3.5	0.92J	<1	2.6	<0.5	6.1
		9/7/2006	<0.5	<0.5	3	2.3J	<1	3.2J	0.85J	8.5
		3/8/2007	<0.5	<0.65	2	<0.5	<4	3.1	<0.51	5.1

Table 6 (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]
Cleanup Target Level			**30**	**700**	**630**	**10**	**50**	**10**	**10,000**	**–**
0578	20–30	3/13/2006	<0.5	1.5	1.5	1.9	<1	<0.5	<0.5	3.4
		9/15/2006	<0.5	0.76J	0.76J	0.58J	<1	<0.5	<0.5	ND
		3/8/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
0579	5–15	9/11/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		9/25/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0580	20–30	9/11/2006	<0.5	1.1	1.1	2.8	<1	<0.5	<0.5	3.9
		9/25/2006	<0.5	<0.5	ND	1.2	<1	<0.5	<0.5	1.2
0581	5–15	9/11/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		9/26/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0582	20–30	9/11/2006	<0.5	<0.5	ND	<0.5	<1	1.2	<0.5	1.2
		9/26/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0583	5–15	9/12/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		9/25/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
0584	3.34–3.34	3/7/2007	<0.5	<0.65	ND	1.1	<4	<0.5	5.2	6.3
0585	2.89–2.89	3/3/2007	21	35	35	2.5	<4	1.3	18	77.8
0586	3.26–3.26	3/7/2007	430	2,400	2,406.3	1,200	<4	7.2	140	4,183.5
0587	3.5–3.5	3/3/2007	16,000	390	390	29J	<250	<50	17,000	33,390
		3/28/2007	23,000	1,100	1,100	60	<200	<25	22,000	46,160
0588	3.4–3.4	3/3/2007	15	360	364.2	28	<4	1.9	52	461.1
0589	3.61–3.61	3/7/2007	65	1,500	1,500	710	<4	37	1,200	3,512
0590	3.01–3.01	3/8/2007	14	180	180	12	<4	0.91J	0.79J	206
0592	3.36–3.36	3/8/2007	<0.5	<0.65	ND	<0.5	<4	28	1.6	29.6
M03D	15–25	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M03S	2.5–12	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M12D	22.5–32.5	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M12S	5–14.5	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
M14D	18.5–28.5	3/14/2006	<0.5	<0.5	ND	3.2	<1	<0.5	<0.5	3.2
		3/7/2007	<0.5	<0.65	ND	13	<4	<0.5	<0.51	13
M14S	4–14	3/14/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/7/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M16D	18.5–28.5	3/16/2006	<0.5	<0.5	ND	1.7	<1	<0.5	<0.5	1.7
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M16S	5–14.5	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/6/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M24D	20–30	3/14/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M27D	21–31	3/15/2006	<0.5	<0.5	ND	0.73J	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M27S	6–16	3/15/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND

Table 6 (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]
Cleanup Target Level			**30**	**700**	**630**	**10**	**50**	**10**	**10,000**	**–**
M32D	14–24	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/7/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M32S	3–13	3/16/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/7/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
M33D	20–30	3/14/2006	<0.5	<0.5	ND	<0.5	<1	<0.5	<0.5	ND
		3/5/2007	<0.5	<0.65	ND	<0.5	<4	<0.5	<0.51	ND
RW16	20–30	3/16/2006	<0.5	<0.5	ND	7.9	<1	<0.5	<0.5	7.9
		3/7/2007	<0.5	<0.65	ND	3.3	<4	<0.5	<0.51	3.3

[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.
Arsenic, while a COPC, is not included in this table, nor in the Total COPC value.

Table 7. Sitewide Arsenic Measurements

Location	Sample Date	Concentration (mg/L)
PIN06	**Industrial Drain Leaks Bldg 100 / Old Drum Storage Site**	
0501	3/6/07	0.012
PIN09		
0500	3/2/07	0.013
PIN10		
0500	3/2/07	<0.01
PIN12		
0525	3/3/07	0.02
S31B	3/5/07	0.02
S32B	3/5/07	0.012
S33C	3/5/07	0.0063B
S35B	3/5/07	0.012
S68B	3/16/07	0.061
PIN15	**Northeast Site**	
0567	3/12/07	0.01
M03S	3/6/07	0.012
M14S	3/7/07	0.021
M32S	3/7/07	0.057

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

Table 8. Aluminum, Iron, Manganese, and 4-methylphenol Concentrations Measured at the Northeast Site (reported in µg/L)

Well	Aluminum	Iron	Manganese	3- & 4-methylphenol
Cleanup Target Level:	**2,000**	**3,000**	**500**	**(1)**
0506	3,400	2,100	11	-
0507	700	930	17	-
0510	350	1,700	26	-
0513	88 B	84	1.8 B	-
0514	3,100	2,100	9.5 B	-
0515	110 B	910	10	-
0516	430	8,500	30	-
0518	370	700	12	-
0520	280	570	18	-
0530	2,100	2,300	30	-
0534	1,700	740	19	-
0535	11,100	3,600	11	-
0537	230	2,400	13	-
0559	5,100	1,300	8.4 B	-
0560	650	7,200	4.8 B	-
0561	85 B	920	16	-
0562	510	5,800	12	-
0563	490	2,100	68	-
0564	660 B	1,200	21	-
0565	140 B	610	65	-
0566	34,400	12,400	21	-
0567	70 U	5,100	100	-
0568	1,800	1,600	9.7 B	-
0569	500	3,200	20	-
0570	5,500	1,200	25	-
0571	2,200	2,400	5.3 B	-
0572	2,500	880	11	-
0573	72 B	1,700	170	2.4 U
0574	120 B	1,800	13	2.4 U
0575	230	11,700	260	2.4 U
0576	540	1,400	12	2.4 U
0577	270	12,000	280	2.4 U
0578	440	940	130	2.4 U
0584	13,300	12,400	74	2.4 U
0585	4,600	3,500	31	5.1 J
0586	5,300	8,600	61	2.4 U
0587	3,100	22,300	13	36
0588	740	9,900	290	37
0589	7,200	19,700	99	2.4 U
0590	1,700	3,000	49	2.4 U
0592	3,000	7,600	46	2.4 U
M03D	4,300	6,100	5.4 B	-
M03S	160 B	6,200	43	-

Table 8 (continued). Aluminum, Iron, Manganese, and 4-methylphenol Concentrations Measured at the Northeast Site (reported in µg/L)

Well	Aluminum	Iron	Manganese	3- & 4-methylphenol
Cleanup Target Level:	**2,000**	**3,000**	**500**	**(1)**
M14D	5,600	5,700	9 B	-
M14S	110 B	5,300	11	-
M16D	1,600	4,000	4 B	-
M16S	960	750	26	-
M24D	6,200	820	14	-
M27D	1,600	1,100	10	-
M27S	320	2,200	59	-
M32D	670	8,200	11	-
M32S	250	9,300	65	-
M33D	2,300	1,500	11	-
RW16	200 U	2,200	20	-

(1) poor water quality CTLs for 3- and 4-methylphenol are 350 and 35 µg/L, respectively
U = not detected
B = estimated value Metals
J = estimated value Organics
- = not sampled

Table 9. 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**	
Industrial Drain Leaks Bldg 100 / Old Drum Storage Site									
PIN06									
0500	3–13	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/29/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/6/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0501	3–13	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/20/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/6/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
PIN09									
0500	3–13	3/14/06	<0.5	0.51J	<0.5	0.51J	<0.5	<0.5	ND
		9/29/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/2/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
PIN10									
0500	3–13	3/14/06	<0.5	0.56J	<0.5	0.56J	<0.5	<0.5	ND
		9/20/06	0.84J	1.3	<0.5	1.3	<0.5	<0.5	1.3
		3/2/07	0.63J	1.1	<0.44	1.1	<0.45	<0.5	1.1
PIN12									
0508	3–13	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0509	3–13	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/20/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/6/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0510	3–13	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/20/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/7/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0511	3–13	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0512	3–13	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0513	15–25	3/11/06	<0.5	0.58J	1.1	1.1	<0.5	1.9	3
		9/21/06	<0.5	<0.5	0.94J	0.94J	<0.5	<0.5	ND
		3/14/07	<0.5	<0.65	0.64J	0.64J	<0.45	<0.5	ND
0514	30–40	3/13/06	<0.5	4.5	21.7	26.2	<0.5	32.9	59.1
		9/9/06	<0.5	9.9	24.6	34.5	<0.5	41.3	75.8
		3/14/07	<0.5	8.1	26	34.1	<0.45	32	66.1
0515	15–25	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/3/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0516	30–40	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/3/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0517	15–25	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/20/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/3/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0518	30–40	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	1.3	1.3
		9/20/06	<0.5	<0.5	<0.5	ND	<0.5	1.1	1.1
		3/3/07	<0.5	<0.65	<0.44	ND	<0.45	1.3	1.3

Table 9 (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**	
0520	36–46	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	27.3	27.3
		9/29/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/2/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0521	19.5–29.5	3/15/06	1.5	1.9	<0.5	1.9	<0.5	0.91J	3.4
		9/29/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/2/07	<0.5	0.75J	<0.44	0.75J	<0.45	2.3	2.3
0522	32–42	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/20/06	<0.5	<0.5	<0.5	ND	<0.5	1.7	1.7
		3/7/07	<0.5	<0.65	<0.44	ND	<0.45	0.59J	ND
0523	18–28	3/15/06	<0.5	0.72J	<0.5	0.72J	<0.5	<0.5	ND
		9/20/06	<0.5	10.3	6.1	16.4	<0.5	9	25.4
		3/6/07	0.67J	5.5	3.1	8.6	<0.45	<0.5	8.6
0524	27–37	3/10/06	98.6	1,530	<25	1,530	62.7	885	2,576.3
		9/9/06	78.9	1,860	<25	1,860	83.5	1,250	3,272.4
		3/5/07	9.1	860	15	875	53	780	1,717.1
0525	12–22	3/11/06	<0.5	1.9	<0.5	1.9	<0.5	<0.5	1.9
		9/20/06	<0.5	2.5	<0.5	2.5	<0.5	<0.5	2.5
		3/3/07	<0.5	1.7	<0.44	1.7	<0.45	<0.5	1.7
0526	19.5–29.5	3/9/06	<0.5	1.4	0.61J	1.4	<0.5	<0.5	1.4
		9/9/06	<0.5	3.5	1.3	4.8	<0.5	2.2	7
		3/3/07	<0.5	2.1	0.97J	2.1	<0.45	1.1	3.2
0527	118–137.9	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/18/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/6/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0528	127–146.9	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/19/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/3/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S29C	14–24	3/8/06	<0.5	<0.5	3	3	<0.5	11.6	14.6
		9/12/06	<0.5	<0.5	1.2	1.2	<0.5	5.2	6.4
		3/5/07	<0.5	0.72J	2.8	2.8	<0.45	9.4	12.2
S30B	5–15	9/12/06	5,560	13,700	901	14,601	176J	802	20,963
		3/5/07	1,400	8,700	510	9,210	140	1,100	11,850
S31B	5–15	3/8/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/13/06	<0.5	1.3	<0.5	1.3	<0.5	0.93J	1.3
		3/5/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S32B	5.5–15.5	3/8/06	<0.5	0.92J	<0.5	0.92J	<0.5	<0.5	ND
		9/13/06	<0.5	2.3	<0.5	2.3	<0.5	<0.5	2.3
		3/5/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S33C	11–21	3/8/06	1.9	72.6	14.6	87.2	1	318	408.1
		9/13/06	6.7J	69	10.9	79.9	<5	193	272.9
		3/5/07	9.6	210	21	231	17	210	467.6

Table 9 (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**	
S35B	5–15	3/9/06	16,600	53,200	9,150	62,350	139J	16,000	94,950
		9/12/06	19,400	71,700	10,900	82,600	<500	18,700	120,700
		3/5/07	13,000	26,000	5,900	31,900	150	7,800	52,850
S36B	5–15	3/8/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/13/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/5/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S37B	5–15	3/8/06	<0.5	44.8	0.87J	44.8	<0.5	59.2	104
		9/12/06	<0.5	25.2	<0.5	25.2	<0.5	30.2	55.4
		3/5/07	<0.5	5.4	<0.44	5.4	<0.45	9.7	15.1
S67B	10–19.83	3/16/06	<0.5	25.5	5.1	30.6	<0.5	406	436.6
		9/13/06	<5	19.8	<5	19.8	<5	288	307.8
		3/6/07	<0.5	34J	7.5J	41.5	<0.45	510	551.5
S67C	20–29.83	3/16/06	<0.5	267	49.5	316.5	4.1	210	530.6
		9/13/06	<1	193	36.3	229.3	2.7	95.2	327.2
		3/6/07	<0.5	290J	72J	362	5.9J	120	487.9
S67D	30–39.83	3/16/06	<1	87.9	13.5	101.4	1.4J	77.1	178.5
		9/13/06	<0.5	95.4	15.4	110.8	1.4	69.2	181.4
		3/6/07	<0.5	100	19	119	3.5	83	205.5
S68B	10–20	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/21/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/16/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S68C	18–28	3/11/06	<0.5	2.2	<0.5	2.2	<0.5	5.9	8.1
		9/21/06	<0.5	2.1	<0.5	2.1	<0.5	4.5	6.6
		3/16/07	<0.5	3.7	<0.44	3.7	<0.45	8.8	12.5
S68D	30–40	3/11/06	<0.5	45.7	0.72J	45.7	<0.5	66.2	111.9
		9/21/06	<0.5	56.5	0.98J	56.5	<0.5	58	114.5
		3/2/07	<0.5	51	1.2	52.2	<0.45	44	96.2
S69B	10–20	3/14/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/19/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/15/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S69C	20–30	3/14/06	<0.5	<0.5	<0.5	ND	<0.5	1	1
		9/21/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/15/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S69D	30–40	3/14/06	<0.5	1	<0.5	1	<0.5	0.5J	1
		9/21/06	<0.5	1.1	<0.5	1.1	<0.5	<0.5	1.1
		3/15/07	<0.5	0.92J	<0.44	0.92J	<0.45	<0.5	ND
S70B	10–20	3/14/06	<0.5	18.8	<0.5	18.8	<0.5	23.4	42.2
		9/21/06	<0.5	19.8	0.9J	19.8	<0.5	17.3	37.1
		3/15/07	<0.5	18	0.72J	18	<0.45	20	38
S70C	20–30	3/14/06	<0.5	26.1	8.8	34.9	0.95J	26	60.9
		9/21/06	<0.5	25.8	9.5	35.3	0.94J	19.6	54.9
		3/15/07	<0.5	25	10	35	0.98J	21	56
S70D	30–40	3/14/06	<0.5	14.9	5.6	20.5	<0.5	11.3	31.8
		9/21/06	<0.5	14.4	5.4	19.8	<0.5	8.3	28.1
		3/15/07	<0.5	16	7.3	23.3	0.71J	12	35.3

Table 9 (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**	
S71B	10–20	3/14/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/21/06	<0.5	0.65J	<0.5	0.65J	<0.5	<0.5	ND
		3/16/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S71C	20–30	3/14/06	<0.5	32.5	19.8	52.3	0.73J	41.5	93.8
		9/21/06	<0.5	37.2	19.5	56.7	0.69J	46	102.7
		3/5/07	<0.5	15	10	25	<0.45	20	45
		3/16/07	<0.5	14	8.9	22.9	<0.45	19	41.9
S71D	30–40	3/14/06	<0.5	5.2	2.3	7.5	<0.5	6.3	13.8
		9/21/06	<0.5	7	3.1	10.1	<0.5	8	18.1
S72B	10–20	3/13/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/18/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/13/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S72C	20–30	3/13/06	<0.5	1.2	<0.5	1.2	0.57J	1.1	2.3
		9/18/06	<0.5	1.2	<0.5	1.2	0.62J	0.75J	1.2
		3/13/07	<0.5	2.3	<0.44	2.3	1.6	0.86J	3.9
S72D	30–40	3/13/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/18/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/13/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S73B	10–20	3/14/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/18/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/14/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
S73C	20–30	3/10/06	<0.5	<0.5	2.3	2.3	<0.5	9.3	11.6
		9/9/06	<0.5	2.5	3.5	6	<0.5	12	18
		3/14/07	<0.5	0.85J	3.5	3.5	<0.45	11	14.5
S73D	30–40	3/14/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/18/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/13/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
TE03	–	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	4.2	4.2
		3/3/07	<0.5	<0.65	<0.44	ND	<0.45	5	5
PIN21		**Perimeter Monitoring Wells**							
0500	7–17	3/13/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
0501	20–28	3/13/06	<0.5	1.4	<0.5	1.4	<0.5	<0.5	1.4
0502	7–17	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/19/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/14/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0503	20–28	3/15/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/19/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/14/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0504	7–17	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/19/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/14/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND
0505	20–28	3/11/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		9/19/06	<0.5	<0.5	<0.5	ND	<0.5	<0.5	ND
		3/14/07	<0.5	<0.65	<0.44	ND	<0.45	<0.5	ND

Table 9 (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**	
0512	20–29.5	3/11/06	<0.5	2.4	<0.5	2.4	<0.5	7.1	9.5
		9/19/06	<0.5	4.9	<0.5	4.9	<0.5	8.2	13.1
		3/2/07	<0.5	6.1	<0.44	6.1	<0.45	7.7	13.8

[a]"<" values are reporting 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.
Arsenic, while a COPC, is not included in this table, nor in the Total COPC value.

Table 10. Arsenic Concentrations at the Wastewater Neutralization Area (reported in micrograms per liter)[a]

Location	Screen Depth (ft)	Date Sampled	Arsenic
FDEP MCL			**50**
PIN18	**Wastewater Neutralization Area**		
0500	11–16	3/14/06	61.3
		9/11/06	76.5
		3/1/07	68
0502	11–16	3/14/06	40.3
		9/11/06	116
		3/1/07	56
0503	10–20	3/11/06	<2.9
		10/3/06	<2.8
		3/3/07	<4.8
0504	13–22	3/13/06	<2.9
		10/3/06	<2.8
		3/1/07	<4.8
0505	10.5–20.5	3/11/06	<2.9
		10/5/06	3.6B
		3/3/07	<4.8
0506	12–22	3/11/06	<2.9
		10/5/06	<2.8
		3/3/07	<4.8
0507	27–37	3/11/06	<2.9
		10/3/06	<2.8
		3/3/07	<4.8
0508	31–41	3/13/06	<2.9
		10/3/06	<2.8
		3/1/07	<4.8
0509	27.5–37.5	3/11/06	<2.9
		10/5/06	<2.8
		3/3/07	<4.8
0510	27.5–37.5	3/11/06	3.2B
		10/5/06	<2.8
		3/3/07	<4.8
0519	12.5–22.5	10/3/06	<2.8
0520	32.5–42.5	3/14/06	<2.9
		10/4/06	<2.8
		3/1/07	<4.8
0521	20–30	3/14/06	3.5B
		9/11/06	3.7B
		3/2/07	<4.8
0522	5–15	3/14/06	6.8B
		9/11/06	7.9B
		3/1/07	15
0523	32.5–42.5	3/13/06	<2.9
		9/11/06	<2.8
		3/2/07	<4.8

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

Location	Screen Depth (ft)	Date Sampled	Arsenic
FDEP MCL			**50**
0524	20–30	3/13/06	38.4
		9/11/06	35.9
		3/2/07	24
0525	5–15	3/13/06	32.3
		9/11/06	72.8
		3/2/07	51
0526	19.5–29	3/15/06	<2.9
		10/3/06	<2.8
		3/2/07	<4.8
RW02	10–20	3/14/06	41.5
		9/11/06	76.4
		3/1/07	84
RW03	9–24	3/14/06	11.4
		9/11/06	36.1
		3/1/07	16
RW0501	11–16	3/14/06	145
		9/11/06	150
		3/1/07	300

[a]"<" values are reporting limits.
ND = Not detected.
B = Estimated value for inorganics; result is between the instrument detection limit and the reporting limit.

Table 11. Relative Percent Difference (RPD) for Duplicate Samples

Sample ID	Duplicate ID	Job Number	Analyte	S	D	RPD	RL	5xRL	Fail
PIN12-0525	PIN24-0503	660-14310	Arsenic	0.02	0.021	4.9	0.01	0.05	
			cis-1,2-Dichloroethylene	1.7	1.9	11.1	0.65	3.3	
PIN12-S68B	PIN24-0504	660-14576	Arsenic	0.061	0.059	3.3	0.005	0.025	
PIN15-0516	PIN24-0505	660-14395	Aluminum	0.43	0.042	2.35	0.07	0.35	
			Iron	8.5	8.0	6.1	0.05	0.25	
			Manganese	0.03	0.029	3.4	0.001	0.005	
PIN15-0563	PIN24-0506	660-14395	Aluminum	0.49	0.49	0	0.07	0.35	
			Iron	2.1	2.1	0	0.05	0.25	
			Manganese	0.068	0.071	4.3	0.001	0.005	
PIN15-0584	PIN24-0508	660-14377	Aluminum	13.3	12.8	3.8	0.07	0.35	
			Iron	12.4	13.0	4.7	0.05	0.25	
			Manganese	0.074	0.077	4.0	0.001	0.005	
			Toluene	5.2	5.5	5.6	0.51	2.55	

S = Original sample (N001), VOC concentrations in μg/L and metals in mg/L.
D = Duplicate sample (N002), VOC concentrations in μg/L and metals in mg/L.
RL = Reporting limit.
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).

M025 14.55
M024 14.79
20-RW01 14.64
20-0503 14.75
20-RW02 14.81
M012 15.16
PZ02 14.99
PZ03 15.26
PZ04 15.58
M14S 15.14
15-0563 14.7
15-0565 14.32
15-0577 14.42
15-0575 14.54
15-0573 14.6
15-0561 14.76
15-0567 14.28
M27S 13.96
0530 14.2
0591 14.51
M03S 15.25
15-0515 14.31
15-0520 13.97
15-0507 13.91
M32S 14.8
E001 13.58
15-0568 14.22
15-0571 14.64
15-0510 14.29
M03S 15.02
20-RW03 15.2
M40S 15.22
M003 15.28
PZ01 15.6
02-PZ07 15.4
W005 13.78
West Pond
East Pond
Pond 5
PS02 13.79
PZ08 14.24
PZ05 14.92
10-0500 14.8
12-0523 14.66
12-0521 14.65
18-0504 14.81
18-0526 14.09
18-RW02 14.56
18-0500 14.65
RW0501 14.54
18-0524 14.59
18-RW03 14.4
18-0521 14.41
P501 13.39
S35B 14.19
S67C 13.96
S67B 13.87
TE03 13.98
PZ09 14.13
12-0513 13.5
S72C 13.06
S72B 13.2
S71C 13.43
S71B 13.61
12-0526 13.13
S70B 13.58
S70C 13.43
S73C 12.99
S73B 13.02
12-0517 13.81
12-0525 13.5
S68B 13.57
S68C 13.43
S69C 13.02
S69B 13.07
Southwest Pond
South Pond
South Pond
SW01 13.32
S001 13.37
21-0505 13.14
21-0512 12.86
21-0503 12.43
14
15
13

S35B 14.19 Well Number and Ground Water Elevation in Feet (MSL)
Monitoring Well
Recovery Well
Surface Sample
Piezometer
14 Water Table Contour in Feet (MSL)
Contour Interval = 1.0 Feet
Inferred Ground Water Flow Direction
Slurry Wall
Road
Fence
Railroad
Tank
Building
Pond
NAPL Area B

N

100 50 0 100 Feet

U.S. DEPARTMENT OF ENERGY, GRAND JUNCTION, COLORADO	Prepared by S.M. Stoller Corporation, UNDER DOE CONTRACT No. DE-AC01-02CLP5460
Plate 1: Sitewide Shallow Surficial Aquifer Contours Pinellas, Florida, February 2007	
DATE PREPARED: June 26, 2007	DRAWING NUMBER: N0100100-01

M:\PIN\041\0010\08\N01001\N0100100-01.mxd carverh 6/26/2007 10:44:09 AM

M023 14.65
M055 14.58
20-0502 14.76
M054 14.69
M038D 13.93
M015 14.83
M056 14.69
M064 15.63
M001 15.05
M011 15.1
M053 14.74
M063 15.3
MWL2 15.14
MWL4 15.26
MWL5 15.22
MWL6 15.25
M057 14.9
MWL1 14.68
MWL3 15.24
M049 15.15
M041D 14.75
20-M18D 14.89
M062 15.54
M058 14.99
M019 15.12
M028 15.23
M060 15.35
M061 15.57
M059 15.22
M040D 15.17
M22D 15.18
M005 15.3
M036 15.2
M007 15.28
West Pond
Pond 5
Southwest Pond
South Pond
South Pond
East Pond
M33D 14.88
M14D 15.12
M24D 14.51
15-0518 14.12
15-0562 14.67
15-0564 14.46
15-0578 14.59
15-0576 14.59
M27D 14.25
15-0574 14.65
15-0560 14.67
15-0566 14.48
0535 14.31
0590 14.56
0534 14.1
0589 14.77
15-0514 14.31
0587 15.11
M16D 15.27
0586 14.91
0585 15.29
0592 14.2
0584 15.14
15-0506 13.9
0537 14.96
M32D 14.74
15-0569 14.17
15-0559 14.95
15-0572 14.42
15-0570 14.1
12-0522 14.7
12-0520 14.67
18-0508 15.05
18-0523 14.5
18-0520 14.29
18-0507 14.23
18-0509 14.24
18-0510 14.14
S67D 13.79
12-0514 13.5
S72D 13.05
S71D 13.42
S70D 13.36
S73D 13.17
12-0516 13.5
12-0518 13.93
12-0524 13.48
S68D 13.42
S69D 13.2
14
15
Value not used in contouring
S67D 13.79 Well Number and Ground Water Elevation in Feet (MSL)
Monitoring Well
14 Water Table Contour in Feet (MSL)
Inferred Contour
Contour Interval = 1.0 Feet
Inferred Ground Water Flow Direction
Fence
Slurry Wall
Road
Fence
Railroad
Tank
Railroad
NAPL Area B
Building
Pond
N
100 50 0 100 Feet

U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
Operated by S.M. Stoller Corporation
for DE-AC01-02GJ79491

Plate 2: Sitewide Deep Surficial Aquifer Contours
Pinellas, Florida, February 2007

DATE PREPARED: June 25, 2007
FILENAME: N0100100-05

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