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Pinellas Environmental Restoration Project

Long-Term Surveillance and Maintenance Plan for the Pinellas Site

December 2010

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Abbreviations

bls	below land surface
CFR	*Code of Federal Regulations*
CMS	Corrective Measures Study
CMIP	Corrective Measures Implementation Plan
CMT	continuous multi-channel tubing
COPC	contaminant of potential concern
CTL	cleanup target level
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
F.A.C.	*Florida Administrative Code*
FDEP	Florida Department of Environmental Protection
FOIA	Freedom of Information Act
ft	feet
ft/day	feet per day
ft/ft	feet per foot
ft/yr	feet per year
HSWA	Hazardous and Solid Waste Amendments
IATA	International Air Transport Association
ICs	institutional control
IWNF	Industrial Wastewater Neutralization Facility
LDA	large-diameter auger
LDR	land disposal restriction
LM	Office of Legacy Management
LMS	Legacy Management Support
LTS&M	Long-Term Surveillance and Maintenance
MCL	maximum contaminant level
mg/L	milligrams per liter
NAPL	non-aqueous phase liquid
NARA	National Archives and Records Administration
NEPA	National Environmental Policy Act

NNSA	National Nuclear Security Administration
PCIC	Pinellas County Industrial Council
POTW	Publicly Owned Treatment Works
RBCA	Risk-Based Corrective Action
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
STAR Center	Young - Rainey Science, Technology, and Research Center
SWMU	solid-waste management unit
VOCs	volatile organic compounds
WWNA	Wastewater Neutralization Area

Executive Summary

The Long-Term Surveillance and Maintenance Plan (LTS&M Plan) for the Pinellas Environmental Restoration Project was developed to document the process and requirements for the long-term care, or legacy management, of the U.S. Department of Energy (DOE) restoration sites at the Young - Rainey Science, Technology, and Research Center and adjacent 4.5 Acre Site in Pinellas County, Florida. There are currently four sites that have contaminants in surficial aquifer groundwater at levels that exceed protective standards.

The LTS&M Plan includes a brief summary of the history of the site and the remedial actions that have been conducted to date. The plan discusses the regulatory basis for the site, including the permits, agreements, and regulatory requirements that apply to the site. It describes the current status of the site, including hydrogeology, contaminant distribution, and site controls. It explains how DOE will conduct long-term surveillance and maintenance at the site, including annual inspections, environmental monitoring, and records and data management. The LTS&M Plan discusses the institutional controls DOE plans to develop and implement at the site, and how these requirements will be implemented and monitored. The appendixes to the LTS&M Plan include the Annual Monitoring Plan, institutional control documentation, permits, agreements, the annual inspection checklist, and contact lists.

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1.0 Introduction

This Long-Term Surveillance and Maintenance (LTS&M) Plan for the Pinellas Environmental Restoration Project was developed to document the process and requirements for the long-term care, or legacy management, of the U.S. Department of Energy (DOE) restoration sites at the Young - Rainey Science, Technology, and Research Center (STAR Center) and adjacent 4.5 Acre Site in Pinellas County, Florida. This plan describes site background information (Section 3), regulatory basis (Section 4), current conditions (Section 5), LTS&M activities (Section 6), and the site institutional controls (ICs) plan (Section 7). Supporting information includes the Annual Monitoring Plan (Appendix A), ICs documentation (Appendix B; currently being developed), the Hazardous and Solid Waste Amendments (HSWA) permit (Appendix C), the 4.5 Acre Site Consent Agreement (Appendix D), an inspection checklist (Appendix E), and a contact list (Appendix F).

The former DOE Pinellas Plant consisted of the property currently known as the STAR Center and the property adjacent to the western boundary, known as the 4.5 Acre Site. The Pinellas Plant was constructed in the mid-1950s as part of a nationwide nuclear weapons research, development, and production complex. The 99-acre STAR Center is located in Pinellas County to the northwest of the intersection of Bryan Dairy Road and Belcher Road in Largo, Florida (Figure 1). The address is 7887 Bryan Dairy Road, Largo, Florida 33777. The facility lies in the northeast quarter of Section 13, Township 30 South, Range 15 East.

The facility, while owned by DOE, primarily manufactured weapons parts including radioisotope-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 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 dissolved, and ownership of the STAR Center changed to the Pinellas County government.

In November 2000, the State of Florida received HSWA authorization from EPA, which granted the State the authority to manage the HSWA program. HSWA was an amendment to RCRA, which was enacted in 1984 and includes the corrective action program. The Florida Department of Environmental Protection (FDEP) issued a new HSWA permit to DOE in January 2002. The HSWA permit was reissued on August 21, 2007, under the authority of FDEP. The permit was modified under the provisions of Florida Statutes Section 403.722, and Chapters 62-4, 62-160, 62-730, 62-777, and 62-780, *Florida Administrative Code* (F.A.C.), to incorporate the Global Risk-Based Corrective Action (RBCA) regulations.

Administration of DOE activities at the facility is the responsibility of the DOE Office of Legacy Management (LM). The DOE Legacy Management Support (LMS) contractor 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 (RFI) (DOE 1991b), 11 of the 15 SWMUs were recommended by DOE and approved by EPA Region 4 and FDEP for no further action (DOE 1994a). A twelfth site, the Former Pistol Range Site, was remediated in 1993 and subsequently EPA Region 4 and FDEP approved DOE's recommendation for no further action.

Two additional SWMUs, the West Fenceline Site and the Wastewater Neutralization Area/Building 200 (WWNA), 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, after which DOE recommended, and EPA Region 4 and FDEP approved, no further action. A Corrective Measures Study (CMS)/Corrective Measures Implementation Plan (CMIP) (DOE 1997a) was prepared and submitted in 1997 to EPA Region 4 and FDEP to address the contamination at the WWNA/Building 200 Area.

In summary, there are currently four SWMUs that have contamination in the surficial aquifer groundwater at levels that exceed 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) (Figure 2). Two SWMUs, PIN06 and PIN12, have been combined and are collectively known as the Building 100 Area.

In addition to the four SWMUs, the 4.5 Acre Site is a former part of the Pinellas Plant. The 4.5 Acre Site is located to the northwest of the STAR Center (Figure 2). This parcel was owned by DOE from 1957 to 1972, at which time it was sold to a private landowner. During the period of DOE ownership, the property was used for disposal of drums of waste resins and solvents. The 4.5 Acre Site is being remediated as a voluntary cleanup under a consent agreement between DOE and FDEP. This agreement was signed in 2001 and allows DOE to lease the property from a private landowner until cleanup of contaminated groundwater in the surficial aquifer is complete. Administration of DOE activities at the 4.5 Acre Site, which is adjacent to the STAR Center, is the responsibility of LM.

2.0 Purpose and Scope

Remedial actions either have been or are being completed at the STAR Center and the 4.5 Acre Site. These remedial actions are protective of future land use; however, they do not allow for unlimited use and unrestricted exposure in all areas. This LTS&M Plan explains how DOE will fulfill its obligation to manage residual hazards at the site over the long term. As defined by the DOE guidance document *Long-Term Stewardship Planning Guidance for Closure Sites* (DOE 2002), long-term stewardship refers to all activities necessary to ensure protection of human health and the environment. These activities include, but are not limited to, "all engineered and institutional controls designed to contain or to prevent exposure to residual contamination and waste, such as surveillance activities, record-keeping activities, inspections, groundwater monitoring, ongoing pump and treat activities, cap repair, maintenance of entombed

buildings or facilities, maintenance of other barriers and contained structures, access control, and posting signs." The term "stewardship" has been superseded by the term "surveillance and maintenance" in this document and by DOE policy. The term "surveillance and maintenance" now includes the same activities formerly defined by the term "stewardship" and encompasses the activities of an Operations and Maintenance Plan under RCRA and the Comprehensive Environmental Response, Compensation, and Liability Act. This plan also serves as the ICs Plan to meet state regulatory requirements. ICs for the site are still being developed at the current time.

LTS&M tasks at the site include the following.

Tasks currently ongoing:

- Conducting long-term monitoring of any media necessary to demonstrate the performance, effectiveness, or protectiveness of the remedies.
- Identifying and implementing actions to optimize remedies and LTS&M activities.
- Identifying and meeting all regulatory requirements for the post-remedial-action site conditions.
- Ensuring that budgeting, funding, and personnel requirements are appropriate to sustain LTS&M needs.
- Ensuring that public involvement, including education, outreach, notice, and informational systems, are appropriate to sustain the long-term effectiveness of the remedies.
- Ensuring that information and records management requirements are appropriate and are designed to be sustained over the long term.
- Developing all plans, manuals, and reports, including revisions to these documents, that are either required or appropriate to conduct the LTS&M activities.

Tasks that will or may be conducted in the future:

- Conducting maintenance, inspection, and enforcement of the land and groundwater use restrictions and other ICs necessary for the protectiveness of the remedies.
- Conducting operation, inspection, and maintenance of the engineered controls, if engineering controls are implemented.

3.0 Background

This section discusses the background and remedial action history for each SWMU at the STAR Center and the 4.5 Acre Site.

3.1 Northeast Site

The Northeast Site is located in the northeast corner of the STAR Center (Figure 2). In the late 1960s, before construction of the East Pond in 1968, drums of waste and construction debris were disposed of in the swampy area in the northeast corner of the Pinellas Plant. In 1986, an expansion of the East Pond was initiated to create additional storm-water retention capacity, but

excavation activities ceased when contamination was detected directly west of the pond. EPA identified the Northeast Site as a SWMU (PIN15)(EPA 1992). An Interim Corrective Measures Study (DOE 1991a) was developed and submitted to EPA, and approval of this document was received in October 1991.

An interim groundwater recovery system for the Northeast Site was installed, and operation commenced in January 1992. The groundwater 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. Recovered groundwater was transferred to the 4.5 Acre Site for treatment. 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 a portion of the Northeast Site was excavated to remove debris, drums of waste, 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 1996e).

In 1996, DOE submitted the *Northeast Site Corrective Measures Implementation Plan* (DOE 1996d) to EPA Region 4 and FDEP, and 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. The pump-and-treat system included a pretreatment system for iron removal, an air stripper unit, and a tank for holding treated groundwater before discharge to the STAR Center Industrial Wastewater Neutralization Facility (IWNF) prior to transfer to the Publicly Owned Treatment Works (POTW). The treatment system was constructed in early 1997 and became operational by July 1997, processing groundwater from seven Northeast Site recovery wells and two Building 100 Area recovery wells. Subsequently, several additional recovery wells were installed at the Northeast Site, 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 the Innovative Treatment Remediation Demonstration group of regulatory and industry members to evaluate remedial options at the STAR Center. At the conclusion of the field tests in July 1997, pump-and-treat operations resumed at the Northeast Site.

Non-aqueous phase liquids (NAPLs) were identified in a few monitoring and recovery wells in 1998. An *Interim Measures Work Plan for Remediation of Non-Aqueous Phase Liquids at the Northeast Site* (DOE 2001) was submitted to FDEP in late November 2001. The purpose of this document was to present the plan to remediate NAPLs at two areas (NAPL Areas A and B) of the Northeast Site using a thermal remediation method. FDEP approved this document on January 10, 2002.

Construction of the NAPL Area A treatment system began in late May 2002, system startup occurred on September 26, 2002, and treatment was completed on February 28, 2003. The *Northeast Site Area A NAPL Remediation Final Report* (DOE 2003a) describes the thermal remediation of Area A.

Construction of the NAPL Area B treatment system began in July 2004 and was completed in early August 2005, and operations began on August 16, 2005. NAPL treatment was completed on August 29, 2006. The *Final Report Northeast Site Area B NAPL Remediation Project at the Young - Rainey STAR Center Largo, Pinellas County, Florida* (DOE 2007a) describes Area B remediation.

Monitoring wells were installed at the former NAPL areas to monitor the remaining dissolved-phase plumes. Groundwater samples from a few of the wells installed at the Northeast Site continued to show high concentrations of contaminants. Soil samples were collected from 12 soil borings in August 2007 to evaluate the potential for contaminant source remaining in the subsurface at these locations. Results indicated high contaminant concentrations in soil at most of these borings, so a second phase of sampling was conducted in March and April 2008, during which samples were collected from 45 soil borings. Ten additional borings were sampled in May and 11 more were sampled in June. These 78 soil borings defined two areas containing a source of contamination.

DOE prepared an interim remedial action plan for the soil excavation using a large-diameter auger (LDA) and off-site disposal of soil in accordance with the RBCA regulations and submitted the document to FDEP in August 2008. This plan was approved on August 22, 2008. The objective of this Interim Remedial Action was to remove the source of contamination at the site. An engineering design was developed and a source removal subcontract was awarded in 2008. Source removal in the form of LDA excavation began on January 14, 2009, and was completed on May 22, 2009. Two hundred forty-three large-diameter and 352 small-diameter borings were completed. Approximately 8,387 cubic yards of soil were excavated; of this total, 4,667 cubic yards were removed as clean overburden and 3,720 cubic yards of contaminated soils were removed, characterized for waste disposal, and disposed of as non-hazardous waste at a RCRA Subtitle D landfill.

As a follow up to the LDA work, emulsified soybean oil and the microorganism *Dehalococcoides ethenogenes* were injected into the subsurface at 75 points at the site in January and February 2010. The *Injection of Emulsified Soybean Oil at the Northeast Site and 4.5 Acre Site* (DOE 2010) was prepared to describe the work that went on for this task. This project should result in a significant decrease in contaminant mass and concentration around the former contaminant source areas and in the downgradient contaminant plume.

With the completion of the LDA project to remove the contaminant source material and the follow up enhanced bioremediation around the previous source areas to treat any residual contaminants located outside the excavation areas, DOE is proceeding to close the site under the FDEP's RBCA rules (Chapter 62-780.680 F.A.C.) The *Closure Monitoring Plan for the Northeast Site and 4.5 Acre Site* (DOE 2009a), describes the closure monitoring that is necessary under RBCA, according to the requirements for Post Active Remediation Monitoring (Chapter 62-780.750 F.A.C.). This document was approved by FDEP in December 2009.

3.2 Building 100 Area

The Building 100 Area is made up of two SWMUs: the Industrial Drain Leaks/Building 100 (PIN12) and the Old Drum Storage Site (PIN06). The Industrial Drain Leaks/Building 100 Area lies beneath and adjacent to the northwest corner of the main building that covers approximately 11 acres, located near the southeast corner of the STAR Center (Figure 2). Building 100 is the most notable feature of the STAR Center, having housed the majority of the laboratory and production facilities during DOE ownership of the facility. Building 100 contained individual drain systems used for health physics, chemical, sanitary, and storm-water wastes. Leaks from these drain systems caused some of the contamination at the Building 100 Area. The drain systems were flushed, grouted, and abandoned by 1997, and some of the chemical drain systems were replaced by an aboveground system that currently is in use (DOE 1997b).

The Old Drum Storage Site is located at the northwest corner of the Building 100 Area and is the former location of a concrete storage pad. This area was equipped with a drain and containment system and was used to store hazardous waste. The waste stored at this location included methylene chloride, ignitable liquids, arsenic, and calcium chromate solids. Empty drums containing residual waste solvents also were stored in this area.

An RFI was conducted in 1991 at the Pinellas Plant to fulfill the requirements of the HSWA permit, and an RFI report was produced in 1991. A subsequent RFI report addendum was completed in March 1992. Based on the findings in these two documents, in accordance with the HWSA permit, EPA notified DOE of the requirement for a CMS for the Old Drum Storage Site and the Industrial Drain Leaks-Building 100 SWMUs.

The CMS report for the Building 100 Industrial Drain Leaks and Old Drum Storage Site proposed remediation of these two SWMUs together (collectively referred to as the Building 100 Area). The report was submitted to EPA and was subsequently approved on June 9, 1994. FDEP approved the CMS report on January 18, 1995.

The CMS report concluded that pump-and-treat with the recovered groundwater sent to the Northeast Site treatment system was the preferred corrective measure for the Building 100 Area. This conclusion was based on shallow monitoring well data that suggested contamination was confined to shallow groundwater at the northwest corner of the building. The *Building 100 Corrective Measures Implementation Plan* (DOE 1996a) describes the installation and operations and monitoring of two recovery wells at the northwest corner of the building in 1995.

These recovery wells, PIN12-RW01 and -RW02, extracted groundwater and pumped the water through secondary containment piping to the Northeast Site treatment system for pretreatment, air stripping, and discharge to the STAR Center's IWNF prior to transfer to the POTW.

Subsequent to recovery well installation, additional investigations were conducted by installing monitoring wells at multiple depths both outside the building and through the floor of the building. In 1996, these investigations were summarized in the *Building 100 Subsurface Investigation Phases I, II, and III* (DOE 1996c) and the *Building 100 Area Data Report* (DOE 1996b). Results of these investigations indicated that significant contaminant concentrations were present at intermediate and deep depths under the building and that low

levels of contamination were present at the south and east sides of the building. The *Building 100 Area Data Report* made the following recommendations:

- Continue operating the two recovery wells installed under the CMS/CMIP,
- Conduct additional characterization under the building and east of the building,
- Perform additional contaminant transport modeling, and
- Evaluate the potential for occurrence of dense NAPLs.

The recommendations were addressed in the Building 100 Area CMIP Addendum (DOE1998). The Northeast Site treatment system was decommissioned in April 2004 prior to thermal NAPL remediation at NAPL Area B, so a smaller air-stripper treatment system was installed at the Northeast Site to treat the groundwater recovered via the two Building 100 Area recovery wells.

A pilot test study was conducted in 2003 to determine the effectiveness of biological enhancement for this site. Results of the pilot test, although positive, did not result in significant elimination of vinyl chloride in low-concentration areas.

The *Building 100 Area Corrective Measures Study Report Addendum* was finalized in July 2006. The document concluded that DOE's original remediation objective of meeting maximum contaminant levels (MCLs) throughout the contaminant plume does not appear to be reasonable given current knowledge of the site. At that time, it appeared that containment of the contaminant plume had been achieved and it was determined that human health and the environment were protected.

The document proposed that ICs be placed on the site property to prevent inappropriate groundwater use, and the MCLs for site-related contaminants of potential concern (COPCs) be applied as groundwater cleanup goals outside the IC boundary. Because the two existing groundwater recovery wells did not contribute significantly to either contaminant plume containment or mass removal, DOE also proposed shutting down these wells and associated treatment system. Operation of these recovery wells and treatment system was terminated on August 21, 2006, with the approval of FDEP.

Pinellas County Utilities and Pinellas County Public Works are planning major utility line and road construction efforts, respectively, along both Bryan Dairy and Belcher Roads that are scheduled to start in 2010 and 2011. DOE installed new monitoring wells in this area in October 2007 and in January and February 2008 to further define the plume, and this investigation confirmed that the plume was off site south of Bryan Dairy Road, on the county right-of-way. DOE performed the required notification regarding the off-site plume and is working with FDEP and off-site property owners to further delineate the off-site plume.

As part of the continuing Building 100 Area plume delineation, three continuous multi-channel tubing (CMT) monitoring wells were installed in May 2009 on the property at 10950 Belcher Road. Each of these three CMT wells have screened intervals from approximately 9−18, 20−29, and 31−40 ft below land surface (bls), making a total of nine wells. Analytical results from these wells show no contaminant detections above cleanup target levels (CTLs). Additional plume delineation was conducted on the property at 8040 Bryan Dairy Road by installation of three CMT wells in September 2009. Contaminant concentrations exceeded CTLs in one of the wells. DOE reported this off-site exceedance to FDEP in accordance with the FDEP notification

requirements in October 2009. Two additional CMT wells were installed in this property in March 2010. The concentration of one contaminant slightly exceeded its CTL in one of the wells.

DOE evaluated the effect that the Building 100 Area contaminant plume might have upon water line installation and road construction activities along the east and south sides of the STAR Center and has chosen to capture and treat groundwater that will be produced by the County's dewatering contractor during waterline replacement and road construction activities. Once brought to the surface through dewatering activities, groundwater will be transported to an onsite air stripper for treatment and the treated water will be discharged to the STAR Center's IWNF and subsequently discharged to the POTW.

An interim remedial action plan was submitted to FDEP in March 2009 and approved in July 2009 that details the use of groundwater pumping to collect hydraulic information for use in a feasibility study to identify the most appropriate groundwater plume management technology for the Building 100 Area. One recovery well was installed and became operational in July 2009. The contaminated groundwater captured by this well is transported to an onsite air stripper for treatment and subsequent discharge to the STAR Center's IWNF. This recovery well uses the water transmission line that will also be used for transporting water during the dewatering activities discussed previously. When the treatment system is accepting the dewatering effluent, the recovery well will be shut down due to potential volume limitations, and then restarted after dewatering activities are completed.

3.3 WWNA

The WWNA/Building 200 Area (PIN18) includes the STAR Center's IWNF, the area south of the facility (including the parking lot), and Building 200 (Figure 2). In April 1993, the WWNA and the Building 200 Area were identified as potential SWMUs, and an RFA was conducted (EPA 1994). The RFA recommended that the WWNA and Building 200 be considered one SWMU. RFI field activities began in September 1994 and included soil characterization, monitoring well installation, and groundwater sampling. Arsenic was identified as the major COPC. Trichloroethene and vinyl chloride were detected at low concentrations in groundwater and were subsequently dismissed as COPCs once their concentrations decreased below cleanup levels.

A CMS/CMIP report (DOE 1997a) was completed in 1997 for this SWMU. The recommended remediation alternative for the WWNA/Building 200 Area was groundwater recovery with the Building 100 Area wells and an additional recovery well located in the WWNA. The CMIP recommended that the recovery well in the WWNA/Building 200 Area withdraw surficial aquifer groundwater directly from the arsenic plume, thereby reducing contaminant mass and preventing contaminant migration; also, that the recovered water be discharged directly to the STAR Center's IWNF.

DOE conducted extensive sampling and analysis of soil in an effort to locate the source of arsenic contamination. Elevated levels of arsenic were identified at several locations and at various depths within the SWMU. A treatability study was conducted to determine the leachability of arsenic from the soil into the groundwater. The study concluded that arsenic leachability from the soil was very limited as demonstrated by a measured average soil/water

distribution coefficient of 63 liters per kilogram. DOE then conducted a statistical evaluation of arsenic soil data that resulted in the proposal to excavate two areas where the highest concentrations of arsenic were identified.

This proposal was approved by FDEP in September 1999. An excavation plan was developed to address logistics, sampling and analytical concerns, and waste management issues regarding the generation of contaminated media. This document and the statistical evaluation are included in the WWNA/Bldg 200 CMIP Addendum (DOE 2000). Excavation of the two areas was completed in early October 1999. Subsequently, the existing recovery well was abandoned and two recovery wells were installed to continue plume control in the area. In addition, a third recovery well was created in 2003 by converting the monitoring well with the highest arsenic concentration (PIN18-0501) to a recovery well.

On December 20, 2005, DOE received concurrence from FDEP to shut down the groundwater recovery system and begin monitoring to determine a closure approach through FDEP's RBCA regulations, promulgated by the Florida Legislature in 2003. The 1-year RBCA closure monitoring program specified by FDEP began in October 2005 and was completed in October 2006.

A No Further Action with Controls proposal was submitted to FDEP on March 14, 2007. FDEP approved the document on May 24, 2007, and requested that DOE submit an updated Statement of Basis for the WWNA. Submittal of this document is awaiting finalization of ICs.

After the No Further Action With Controls proposal was submitted, FDEP expressed concern about arsenic exceeding the residential standard in shallow soils (less than 2 ft deep). The goal of the 1999 soil excavation was to remove the areas containing the highest arsenic concentrations such that the remaining soils met the industrial cleanup target level of 12 milligrams per kilogram. Soils containing arsenic concentrations above the residential cleanup target level of 2.1 milligrams per kilogram were left in place because site use was solely industrial. In response to FDEP's concerns, DOE determined that one course of action was to identify the area where the residential arsenic standard is exceeded and apply an IC to this area that precludes future residential development in this area and also precludes movement of soil from this area to other parts of the STAR Center or to off-site locations. The area where this IC would apply is approximately 2.5 acres in size. Subsequently, the decision was made to apply the non-residential deed restriction to the entire STAR Center property. Negotiations with the STAR Center to apply the ICs are ongoing.

3.4 4.5 Acre Site

The 4.5 Acre Site (PIN20) is located adjacent to the northwest property boundary of the STAR Center (Figure 2). During a 1984 investigation of past waste disposal practices at the Pinellas Plant, DOE determined that drummed waste had been buried at the 4.5 Acre Site in about 1962 (DOE 1987). In 1985 the U.S. Geological Survey conducted an electromagnetometer survey to ascertain whether drums were present in the subsurface at the 4.5 Acre Site, and this survey identified two areas that could contain buried metallic objects. A more detailed survey conducted in 1985 by HAZTECH using a proton magnetometer confirmed the results of the U.S. Geological Survey study and also identified a few other small areas of potential buried metallic objects (HAZTECH 1985). A subsequent excavation by HAZTECH in June 1985

removed 83 drums from the subsurface; 34 drums were partially or completely full when removed, 16 drums were completely empty, and the remaining 33 drums were found crushed and empty (HAZTECH 1985).

Following drum removal, the first remedial action implemented at the 4.5 Acre Site was groundwater pumping, with extracted groundwater being discharged directly to the Pinellas Plant's IWNF. This system used seven recovery wells (R001 through R007) that were screened in the lower half of the surficial aquifer, starting at 15−18 ft bls and extending to near the bottom of the surficial aquifer at 25−28 ft bls. This system began operation in December 1988 but was shut down temporarily in January 1989 because contaminant concentrations in the discharged water exceeded permit limits. An air stripper was added to the system to treat the water prior to discharge, and this system operated from May 1990 to July 1997.

This groundwater recovery system effectively decreased the extent of the contaminant plume and significantly reduced contaminant concentrations in groundwater (by orders of magnitude at many locations). The air stripper treated approximately 11,125 pounds of volatile organic compounds (VOCs) during its operation, but this amount includes an unknown but likely significant amount of VOCs in groundwater recovered from another part of the Pinellas Plant, the Northeast Site. Operation of this system was discontinued because the rate of contaminant mass recovery had decreased, and it was believed that a more aggressive remediation system was necessary to remove the remaining contaminant mass.

The second remedial action, dual-phase extraction, operated from August 1997 to August 1999. This system consisted of 22 wells that extracted groundwater and vapor from the subsurface. These wells were screened over the entire saturated thickness of the surficial aquifer, starting at approximately 5 ft bls. Each well had a vacuum extraction tube installed to approximately 22 ft bls. The system removed approximately 185 pounds of VOCs from the subsurface during its 2 years of operation. Operation of this system was discontinued because contaminant removal rates were lower than expected.

The third remedial action, biosparging, operated from September 1999 to May 2003. The purpose of this action was to inject air into the subsurface to convert aquifer conditions from reducing and anaerobic to oxidizing and aerobic to facilitate contaminant biodegradation. The biosparge system consisted of three horizontal wells at 24 ft bls, one through the southwestern contaminated area and two through the eastern contaminated area, connected to blowers at the surface. Biosparge performance evaluations conducted in 2002 and 2003 indicated that the system had not been effective at reducing contaminant concentrations for two main reasons: (1) the small particle size of the aquifer matrix resulted in air channeling through preferential pathways, limiting air contact with most of the matrix, and (2) high oxygen demand in the subsurface prevented attainment of aerobic conditions within a realistic time frame. Biosparge operations were discontinued in May 2003. The three horizontal wells were abandoned in August 2005 by grouting the entire length of each well.

The fourth remedial action was a pump-and-treat system, started in April 2004, to control the contaminant plume located near the western site boundary until a decision on a final site remedy could be determined. The system consisted of three recovery wells, each with a 20-ft screened interval, located along the western side of the site. Recovered groundwater was sent to an on-site, shallow tray air stripper for treatment. In December 2005, FDEP approved the cessation of this

action and the initiation of a 2-year monitoring period to evaluate the potential for closing the site under RBCA.

Upon treatment system shutdown in December 2005, DOE began a 2-year closure monitoring program as required by FDEP to confirm the stability of the groundwater contaminant plume, in accordance with RBCA rules. Groundwater concentrations for the previous few years had shown a stable or declining trend at most monitoring locations. However, during the first year of closure monitoring, an increasing trend in levels of trichloroethene, dichloroethene, and vinyl chloride concentrations was observed in several wells, and in particular in two wells located approximately 60 ft from the southwest property boundary.

On the basis of these results, DOE decided to conduct a detailed characterization of soil in the area of high groundwater contaminant concentrations to determine if a contaminant source remained in the subsurface. During the summer of 2007, 1,172 soil samples were collected from 138 soil borings. Results from analysis of the soil samples indicated that a source of contamination remained at two areas of the site.

In April 2008, DOE completed a feasibility study that evaluated the available contaminant source removal technologies. The preferred option for source removal at the 4.5 Acre Site was determined to be soil excavation using a LDA and off-site disposal of soil (DOE 2008). In a letter dated May 17, 2008, FDEP stated "the report is acceptable for its intended purpose" and "the preferred option for source removal of soil excavation using large diameter auger and off-site disposal is acceptable to the Department." According to consultation with FDEP, the main regulatory program applicable to this remedial action (source removal) is Global RBCA promulgated under Chapter 62-780 F.A.C. DOE prepared an interim remedial action plan for the soil excavation in accordance with the RBCA regulations and submitted the document to FDEP in July 2008. This plan was approved on August 19, 2008. The objective of the interim remedial action was to remove the source of contamination at the site.

LDA operations commenced at the 4.5 Acre Site on March 31, 2009, and were completed on May 27, 2009. Two hundred twenty-one large-diameter and 325 small-diameter borings were completed. Approximately 7,035 cubic yards of soil were excavated; of this total 4,464 cubic yards were removed as clean overburden, and 2,571 cubic yards of contaminated soil were removed, characterized for waste disposal, and disposed of as non-hazardous waste at a RCRA Subtitle D landfill. Additional information regarding the 4.5 Acre Site LDA work can be found in the *Data Report for Overburden Soil at the Northeast Site and the 4.5 Acre Site* (DOE 2009b) and the *Interim Remedial Action for Source Removal at the 4.5 Acre Site Final Report* (DOE 2009c).

As a follow up to the LDA work, emulsified soybean oil and the microorganism *Dehalococcoides ethenogenes* were injected into the subsurface at 95 points at the site in February 2010. The *Injection of Emulsified Soybean Oil at the Northeast Site and the 4.5 Acre Site* (DOE 2010) was prepared to describe the work that went on for this task. This project should result in a significant decrease in contaminant mass and concentration around the former contaminant source areas and in the downgradient contaminant plume.

With the completion of the LDA project to remove the contaminant source material and the follow up enhanced bioremediation around the previous source areas to treat any residual

contaminants located outside the excavation areas, DOE is proceeding to close the site under the FDEP's RBCA rules (Chapter 62-780.680 F.A.C.) The *Closure Monitoring Plan for the Northeast Site and 4.5 Acre Site* (DOE 2009a), describes the closure monitoring that is necessary under RBCA, according to the requirements for Post Active Remediation Monitoring (Chapter 62-780.750 F.A.C.). This document was approved by FDEP in December 2009.

Routine monitoring at the site in March 2009 identified the presence of vinyl chloride off-site in monitoring well PIN20-M035. DOE reported this discovery to FDEP and to the property owner in accordance with FDEP notification requirements.

4.0 Regulatory Basis

4.1 Permits and Agreements

4.1.1 RCRA Hazardous and Solid Waste Amendments Permit

In February of 1990, EPA issued a HSWA permit to DOE enabling DOE to investigate and perform remediation activities in areas contaminated by hazardous materials resulting from DOE operations. In November 2000, the State of Florida received HSWA authorization from EPA. FDEP issued a new HSWA permit to DOE in January 2002. The HSWA permit was reissued on August 21, 2007, under the authority of FDEP. The permit was modified under the provisions of Section 403.722, Florida Statutes; and Chapters 62-4, 62-160, 62-730, 62-777, and 62-780, F.A.C.; to incorporate the Global RBCA regulations.

Four active SWMUs remain under the original HSWA Permit. The active SWMUs include the Northeast Site, the Building 100 Area (two SWMUs), and the WWNA/Building 200 Area. The Statement of Basis documents developed for the 13 inactive SWMUs serve as Class III permit modification requests to EPA Region 4. FDEP has modified the HSWA permit to reflect "no further action" status for the 13 inactive SWMUs. Activities under the permit are expected to continue into the next decade.

The RCRA HSWA permit requires investigation and, if necessary, remediation of any releases of any hazardous waste or hazardous constituents from any SWMU at the facility.

Specific conditions of the permit detail the duties of the permittee, including mitigating future releases to the environment, properly operating and maintaining facilities and treatment systems, providing information, records, and reports in a reasonable time and as specified in the permit, and allowing inspections by FDEP or an authorized representative of the agency.

Specific conditions also include the 24-hour reporting requirements for an imminent or existing hazard to human health or the environment, and identification of waste minimization certification requirements. The remaining portions of the permit describe various plans, implementation and reporting requirements, modifications, approvals, and dispute resolution processes. The permit also includes requirements for signage and DOE came to an agreement with FDEP for alternative language to be used for the signs required.

The permit is included as Appendix C.

4.1.2 Consent Agreement for the 4.5 Acre Site

A Remediation Agreement (Appendix D), approved by FDEP in January 2001, covers remedial actions conducted at the 4.5 Acre Site. The agreement describes the terms and conditions by which DOE will continue to conduct environmental restoration activities on private land.

According to consultation with FDEP, the main regulatory program applicable to the planned contaminated source removal action at the 4.5 Acre site was Global RBCA promulgated under Chapter 62-780 F.A.C. Therefore, DOE followed the RBCA requirements for this activity.

4.1.3 STAR Center Industrial Wastewater Discharge Permit

The Pinellas County Utilities Industrial Wastewater Discharge Permit for the STAR Center, Number IE-3002-09/12, allows the permittee to discharge treated wastewater through the STAR Center's wastewater neutralization facility into the Pinellas County POTW system. The permit establishes maximum constituent concentrations for discharges into the sewer system and lists the constituents that are sampled and reported on a regular basis. Monitoring frequencies, sampling methods, and analytical methods are specified in Section D of the permit. DOE submits effluent reports to the STAR Center for inclusion in their required reports to the Pinellas County Utilities.

One of the special conditions of the permit requires the permittee to submit an annual summary report documenting the generation and disposal of all wastes. LM must provide to the STAR Center copies of any waste manifests associated with the disposal of any hazardous wastes by January 1 of each year. DOE's report is then included in the STAR Center's annual submittal to the Pinellas County Utilities Director.

4.1.4 Well Construction/Abandonment Permits and Water Use Permits

Rules of Southwest Florida Water Management District, Chapter 40D–3, "Regulation of Wells," Appendix D requires permits for the construction and abandonment of wells. Wells requiring permits include monitoring wells, extraction wells, and water wells. Any well with an inside diameter of 1 inch or greater must have a well construction permit prior to construction. These permits are issued to licensed drillers registered with the Southwest Florida Water Management District and authorized by the landowner to conduct well development activities. Water use permits are issued to the owner for high-flow or continuous-use wells.

All wells must meet the construction requirements of Chapter 373 of Florida Statutes and F.A.C. Chapters 17–21 and 40D-3. Notable requirements under these chapters include (1) a completion report must be filed within 30 days of drilling or repair; (2) casing must extend from land surface to the uppermost consolidated unit from which the well will obtain water and to a sufficient depth below the water table of that formation; (3) well construction will prevent the interchange of water between different water-bearing zones that may result in the deterioration of water quality or loss of artesian pressure; and (4) all wells that are not driven must be grouted with minimum thickness for the corresponding diameters.

All well abandonments require a minimum 24-hour notice to the Southwest Florida Water Management District prior to abandonment. The district may choose to send a representative to the site to observe the abandonment.

F.A.C. Chapter 40D-3 specifies several exemptions and criteria applicable to wells at the STAR Center. For example, wells 2 inches in diameter or less and less than 15 ft in depth that are used for no more than 10 days do not require permitting. Variances for alternate or substitute methods or conditions may be obtained by written request. These include, but are not limited to, grouting, treating and sampling, natural barriers, well location, and gradient. F.A.C. rules governing construction methods include those for drilling, coring, boring, washing, jetting, driving, or digging. Casing standards, grouting, and sealing are some other important areas of detail. Well numbering requirements, dimensions, use, and other information required in the well construction permit are maintained in the district database.

4.2 Other Regulatory Requirements

4.2.1 Resource Conservation and Recovery Act

RCRA, as amended by the HSWA of 1984, provides cradle-to-grave controls by imposing management requirements on generators and transporters of hazardous wastes and on operators and owners of treatment, storage, and disposal facilities. RCRA Subtitle C establishes the national hazardous waste management program and encompasses federal regulations, Sections 3001 through 3020. Applicable regulatory requirements for purposes of the STAR Center Environmental Restoration Project include Title 40 *Code of Federal Regulations* (CFR), Parts 260 through 264, 266, 268, 270, and 124. The State of Florida received authorization from EPA for implementing the HSWA Corrective Action Program in November 2000, under the provisions of Section 403.722 Florida Statutes and F.A.C. Chapters 62-4, 62-160, 62-522, 62-532, 62-550, and 62-730.

LM at the STAR Center operates under EPA Generator ID Number FL6890090008. In 1998, DOE received approval for closure of a permitted hazardous waste storage facility at the STAR Center. Closure of the permitted storage facility allows DOE to change generator status according to monthly generation rates. Typically, however, regulated solid wastes generated as a result of environmental restoration activities are accumulated for less than 90 days. Shipment, treatment, and disposal are managed under a subcontract with a waste management company.

RCRA characteristic wastes are managed in accordance with 40 CFR 261, 262, Subparts C and D of 265, 265.16, and 40 CFR 268.7(a)(4). Land disposal restrictions (LDRs) in 40 CFR 268 may apply, depending on the types and concentrations of contaminants. Under LDRs, the operator/owner is required to meet specific treatment standards and/or use specific treatment technologies to treat the waste to certain criteria before it can be disposed of at a RCRA Subtitle C facility. If wastes generated at the site are known to be regulated or if they are verified to be contaminated with RCRA-regulated levels of characteristic contaminants from the groundwater, they will be managed as RCRA characteristic wastes. The site has not generated a RCRA hazardous waste since November 2006.

Provisions for compliantly managing wastes during the 90-day accumulation period are specified in 40 CFR 262. These provisions include record-keeping, routine reporting, and using manifests.

RCRA also requires compliance with the packaging, labeling, marking, and placarding regulations of 49 CFR 172, 173, 178, 179 (U.S. Department of Transportation [DOT] regulations).

4.2.2 Risk-Based Corrective Action Regulations

RBCA regulations, also known as Global RBCA, were codified by FDEP on April 17, 2005, under Chapter 62-780 F.A.C. The purpose of these regulations is to apply the default CTLs provided in Chapter 62-777, F.A.C. statewide at all contaminated sites resulting from a discharge of pollutants or hazardous substances at which site rehabilitation is being conducted unless a grandfathering option is elected or site-specific alternative cleanup target levels are established.

RBCA regulations provide a phased, RBCA process that is iterative and that tailors the site rehabilitation tasks to the site-specific conditions and risks. To facilitate such a phased, RBCA process, FDEP and the person responsible for site rehabilitation are encouraged to have discussions to establish decision points at which risk management decisions will be made. These various decision points include the scope and methodology of the site assessment, applicable exposure factors, the remedial strategy for the site, and risk management options based on the current and reasonable, ascertainable future land uses at the site. When applicable, this chapter shall be applied in conjunction with Chapter 62-777, F.A.C., to determine the appropriate CTLs for a contaminated site.

DOE is working with FDEP to close the SWMUs (Northeast Site and WWNA) and the 4.5 Acre Site under the RBCA regulations. FDEP has given a verbal approval for a No Further Action with Controls closure for the WWNA pending development of ICs. Long-term monitoring will be performed at Building 100 for the foreseeable future.

4.2.3 Clean Air Act

Clean Air Act regulations were developed to control new and existing sources of air pollution by implementing ambient air quality standards, source-specific emission limits, emission control technology and permitting requirements, and hazardous air pollution and visibility impairment requirements. Sections 107 and 110 of the Clean Air Act give each state primary responsibility for ensuring that air quality within its borders is consistent with the national ambient air quality standards. The State of Florida implements the requirements of the Clean Air Act, including permitting, under the provisions of Chapter 403 Florida Statutes, and F.A.C. Chapters 62-204 through 62-297 and 62-4.

The Northeast Site Area B air stripper was a permitted non–Title V emission source and operated in compliance with those provisions. Additionally, because of an interim source removal action, the State approved a generic unit exemption for the Northeast Site Area B NAPL treatment system. A steam generator for the same activity fell under a categorical exemption, which is implied (requires no documentation) for generators using less than 32,000 gallons of fuel annually. The Northeast Site Area B air stripper was permanently shut down in November 2006, and a letter to FDEP notifying them of the permanent shutdown and request to terminate the permit was submitted at that time. DOE received notice in June 2007 that the permit had been terminated.

Regarding the remedial actions that took place at the 4.5 Acre and Northeast Sites in fiscal year 2009, discussions with the State indicated that separate air permits would not be necessary because the planned actions, including excavating, stockpiling, sampling, and transporting the contaminated soil and operating an air stripper to treat runoff from stockpiles, would meet the generic unit exemption under 62-210.300 F.A.C. The State also confirmed that no ambient air monitoring was required for this project, and best management practices should be used to minimize fugitive dust emissions. The generic permit exemption also applies to the air strippers used to treat groundwater from the extraction well and future dewatering projects.

4.2.4 Clean Water Act

The Clean Water Act is a comprehensive program to protect waters of the United States. EPA and other agencies administer various regulations established under the Clean Water Act, including the POTW program provisions in 40 CFR 403. The Clean Water Act establishes a broad prohibition against the discharge of pollutants by any "person" except as in compliance with the Act's permit requirements, effluent limitations, and other provisions. The State of Florida is authorized to administer permitting requirements for EPA and does so under F.A.C. 62-621.300 through 625.880. The Pinellas County Utilities of Pinellas County, Florida, administers the Industrial Wastewater Discharge Permit at the STAR Center under the terms and conditions of the Pinellas County Sewer Use Ordinance 91–26 and Pinellas County Code Sections 126-276 through 126-413. Construction activities requiring storm water permits are regulated under F.A.C. 62-621.300(4)(a) and require a storm water management plan as well as periodic inspections. DOE obtained storm water permits for the remedial activities at the 4.5 Acre and Northeast Sites. This remediation required developing a storm water pollution prevention plan, controlling surface water runoff, and conducting inspections throughout the duration of remediation. Upon completion of the remedial actions, the areas were stabilized in accordance with the permit requirements and the stormwater permits were terminated through approval by FDEP in July 2009.

4.2.5 National Environmental Policy Act (NEPA)

NEPA requires federal agencies to assess the impacts that major federal actions may have on the quality of human health and the environment. DOE procedures for implementing NEPA are contained in 10 CFR 1021, 40 CFR 1500−1508, and DOE Order 451.1B. The purpose of DOE Order 451.1B is to establish requirements and responsibilities and to foster teamwork within DOE for cost-effective implementation of NEPA. LM Projects use the DOE-Idaho Draft Guidance Manual, *NEPA Planning and Compliance Program Manual,* M451.X-1, to implement the requirements of NEPA at sites under LM purview.

4.2.6 DOT and International Air Transport Association (IATA)

DOT regulations regarding transporting, packaging, placarding, and manifesting hazardous materials and wastes are found in 49 CFR 171 through 178. These regulations pertain to the transportation in commerce (e.g., on U.S. highways) of process waste, contaminated media, and investigation-derived waste that are contaminated with RCRA-regulated levels of constituents upon disposal. These regulations also pertain to samples and off-specification products meeting the definition of hazardous materials. A trained shipper must evaluate all DOE shipments involving these materials from the STAR Center to ensure compliance with hazardous materials transportation regulations.

IATA regulations are based on International Civil Aviation Organization Technical Instructions (Doc 9284-AN/905) pertaining to the transportation of dangerous goods by air. These regulations must be used when shipping samples or other materials by Federal Express or other common carrier aircraft. All DOE air shipments from the STAR Center must be evaluated for compliance with IATA by a shipper trained in IATA regulations.

4.3 Other Miscellaneous Reports

The Emergency Planning and Community Right to Know Act (EPCRA), also known as Title III of the Superfund Amendments and Reauthorization Act, was signed into law in October 1986. It was established to inform the public of hazardous chemicals that may affect their communities and to assist local emergency planners to prepare for possible emergencies involving hazardous chemicals.

40 CFR 355 requires that notification be made to state and local emergency planning organizations if a listed hazardous substance that exceeds a reportable quantity is released to the environment. Additionally, emergency officials are to be notified for planning purposes if any listed chemicals will be used or stored at the facility that may exceed a Threshold Planning Quantity.

40 CFR 370 requires that Material Safety Data Sheets be maintained for chemicals present at a facility. A list of chemicals maintained at the facility must be made available to local and state emergency response officials. This list would include chemicals that are used in maintenance, operation, or remediation activities at the site.

40 CFR 372 requires certain facilities to submit an annual Toxic Release Inventory or Form R report for chemicals routinely or accidentally released into the environment. Environmental restoration activities at the STAR Center do not involve use of chemicals in a large enough quantity to require Form R reporting under EPCRA.

Section 3016 of RCRA requires federal agencies to complete an inventory of all facilities that they currently own or operate, or have previously owned or operated at which hazardous waste is stored, treated or disposed of, or was disposed of at any time. The inventory was first conducted in 1986 with subsequent updates every 2 years. The next inventory is due to EPA and to RCRA authorized states in 2012. DOE Headquarters coordinates the reporting of the inventory.

EPA, in partnership with the states, biennially collects information (40 CFR 262.41) regarding the generation, management, and final disposition of hazardous wastes regulated under RCRA. The biennial report is due by March 1 of every even-numbered year. The reporting requirement is intended to provide EPA with reliable national data on hazardous waste management. The report includes: (1) EPA ID number, name and address of the generator, and every transporter, treatment, storage, and disposal facility and recycler used; (2) descriptions and quantities of waste; and (3) actions taken to reduce the volume and toxicity of the waste, and the results of those actions.

Waste Minimization Reporting, which is required under the RCRA HSWA permit, is completed in each Sitewide Semiannual Report.

5.0 Current Site Conditions

5.1 Site Hydrology

The STAR Center is located on the western coastal plain of the Florida Peninsula. The Florida Peninsula is a broad, partially submerged shelf of the Gulf of Mexico and is composed of alternating layers of sands and gravels, and carbonate deposits such as limestone. The subsurface at the STAR Center comprises three distinct hydrogeologic units. These hydrogeologic units, in descending order, are the undifferentiated surficial deposits (the surficial aquifer), an intermediate confining unit (the Hawthorn Group), and a lower limestone unit (the Upper Floridan aquifer).

The uppermost (i.e., most recent) deposits are known as the surficial sediments and are composed predominately of fine sand with varying amounts of silt and clay. At the STAR Center, the surficial sediments range in thickness from about 25 to 40 ft. In the northern half of the site (i.e., the 4.5 Acre and Northeast Sites), the surficial sediments range in thickness from about 25 to 30 ft. At the WWNA and Building 100, the surficial sediments have been observed up to 40 ft thick. At the base of the surficial aquifer, there is a discontinuous layer of clayey sand that represents the transition zone between the surficial sediments and the underlying Hawthorn Group (Hawthorn). The saturated portion of the surficial sediments is known as the surficial aquifer. At the STAR Center, no groundwater is obtained from the surficial aquifer for drinking or irrigation because of the poor yield of the aquifer and poor quality of the water.

The surficial aquifer at the STAR Center acts as a two-layer hydraulic system due to a fine, discontinuous, clayey sand lens, of variable thickness and shell content, that has been observed in the middle portion (vertically) of the surficial deposits. The tendency of water levels in wells screened in the shallow portion of the surficial aquifer to differ from those in wells screened in the underlying deep surficial aquifer (such as the differences observed when one zone is pumped and the other is not) indicates a horizontal-to-vertical anisotropy with regard to the aquifer's hydraulic conductivity. On the basis of such observations, a representative vertical hydraulic conductivity for the aquifer is expected to be about 0.1 to 0.01 of the horizontal value. Aquifer testing indicates that the horizontal hydraulic conductivity for the surficial aquifer ranges from 0.1 to 3 feet per day (ft/day) at the site and averages about 1 ft/day (DOE 1991b). Groundwater movement between the shallow and deep portions of the surficial aquifer is primarily controlled by the amount of recharge from rainfall.

The Hawthorn underlies the surficial sediments and is about 70 ft thick. It is an aquitard that separates the surficial aquifer from the underlying Upper Floridan aquifer. A weathered limestone and dense clay layer is often present at the top of the Hawthorn. This layer is less than 3 ft thick and is laterally discontinuous. Silty, sandy, phosphatic clay of variable thickness underlies the silty clay and limestone. Below that, dry clay with up to 50 percent carbonate inclusions and fissile layers is present. The hydraulic conductivity of the Hawthorn is several orders of magnitude lower than that of either the surficial or Floridan aquifers (DOE 1991b). Recent measurements (DOE 2007b) indicated a hydraulic conductivity of about 0.0002 ft/day. Studies have concluded that surficial aquifer contamination was very unlikely to affect the underlying Floridan aquifer (DOE 1991b). Three monitoring wells at the STAR Center are screened in the Upper Floridan aquifer, and they have shown no contamination.

Depth-to-water measurements are taken at all accessible wells, piezometers, and ponds at the STAR Center. The locations of the wells, piezometers, and ponds are shown on Plate 1. The five site ponds are artificial and exist for the purpose of collecting storm water runoff from parking lots and buildings.

The depth to groundwater typically ranges from about 3 to 6 ft bls but can be near land surface following significant rainfall events. Groundwater and surface water elevations are used to construct groundwater contour maps of the site. The contour maps of the shallow and deep portions of the surficial aquifer are provided as Plates 2 and 3.

Groundwater flow at the 4.5 Acre Site is generally to the northwest for the shallow and deep portions of the surficial aquifer (Plates 2 and 3). In the southeast portion of the 4.5 Acre Site, there is a component of flow toward the southeast. The hydraulic gradient at this site averages approximately 0.002 feet per foot (ft/ft), so calculations using Darcy's Law and approximations of 1 ft/day for hydraulic conductivity and 0.3 for effective porosity indicate that the groundwater flow velocity toward the northwest is about 2 to 3 ft per year (ft/yr).

At the Northeast Site, groundwater flow is primarily toward the east. Along the northern boundary of this site, there is a slurry wall that is a barrier to groundwater flow as evidenced by a significant difference in water levels between the downgradient and upgradient sides of the wall. The surface water elevation of the East Pond indicates that, like the West Pond and Pond 5, it acts as a discharge point for the shallow surficial aquifer. In the shallow surficial aquifer at the Northeast Site, the hydraulic gradient ranges from approximately 0.003 to 0.005 ft/ft, so calculations using Darcy's Law and approximations of 1 ft/day for hydraulic conductivity and 0.3 for effective porosity indicate that the groundwater flow velocity toward the east is about 3.5 to 6 ft/yr.

At Building 100, shallow groundwater has been observed to flow to the southeast under a very slight gradient. This flow pattern has remained consistent for the past several years. The estimated hydraulic gradient is approximately 0.001 ft/ft. Using the approximations mentioned above, groundwater flow beneath the building is estimated to be less than 2 ft/yr. However, a pump test conducted in 2009 near the southern property boundary at the Building 100 Area resulted in a hydraulic conductivity value of 7 ft/day; this higher value may indicate that significant preferential flow pathways exist in this area and that groundwater may flow faster than a few feet per year in this area. At the WWNA, there is a very slight mound in the surficial aquifer from which there is flow toward the west and southeast.

5.2 Site Contaminant Distribution

5.2.1 Contaminants of Potential Concern

Table 1 lists the current COPCs and their CTLs. The COPCs listed in Table 1 were determined from a review of site data and regulatory documents for the STAR Center and the 4.5 Acre Site as described in the *Historical Review and Evaluation of Contaminants of Potential Concern* (DOE 2003b). Arsenic was added as a COPC for the Northeast Site, Building 100 Area, and 4.5 Acre Site in 2005 (DOE 2005). A limited amount of radiological materials was used during operations at the Pinellas Plant. A comprehensive sitewide sampling for tritium during the RFI in

1990 and 1991 demonstrated that concentrations were below applicable standards, so tritium was eliminated as a contaminant of concern for all SWMUs.

While most of the previous site documents have compared groundwater contaminant concentrations to drinking water standards (i.e., MCLs), those standards are not the applicable default CTLs for the purposes of evaluating site remediation under RBCA. On the basis of a comprehensive review of background data for the site (DOE 2003b), it was determined that the shallow groundwater 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, F.A.C.). Specifically, the average background concentration of 1.1 milligrams/liter (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 groundwater in the area is therefore designated as "poor quality" as defined in 62-780.200 (35), F.A.C. Thus, the applicable groundwater CTLs are those for groundwater of "low yield/poor quality" provided in Table 1 of Chapter 62-777, F.A.C. (listed in Table 1 of this LTS&M Plan). These poor quality groundwater CTLs apply only on site; the regular CTLs apply to off-site locations.

5.2.2 Location of Contaminant Plumes

Figure 3 through Figure 7 show the contaminant plume maps for the four contaminated areas. The plume maps encompass the wells in which any individual COPC exceeded its CTL (Table 1). Following FDEP's May 2007 agreement to an RBCA closure at the WWNA, monitoring well sampling was discontinued; data from the last sampling event in March 2007 and the resulting arsenic plume are shown on Figure 7.

5.3 Current Site Controls

The following are the site controls at the 4.5 Acre Site and each of the SWMUs at the STAR Center.

5.3.1 Northeast Site (PIN15)

Access to the Northeast Site is limited by a 7-ft-tall chain link fence with three locked gates. The locks are controlled by the LMS contractor and the adjacent STAR Center tenant. Warning signs are posted along the fence and read "No Trespassing/Contaminated Area/Avoid Contact with Soil and Water" with a contact phone number. All of the wells at the Northeast Site, both inside and outside the fence, are secured with locks or bolt-down manhole covers.

5.3.2 4.5 Acre Site (PIN20)

Access to the 4.5 Acre Site was limited by a 7-ft-tall chain link fence with two locked gates, but most of the eastern fence was removed in 2008 during construction on the adjacent property. Currently temporary construction fencing controls site access along the eastern boundary. Warning signs are posted along the fence that read "No Trespassing/Contaminated Area/Avoid Contact with Soil and Water" with a contact phone number. All of the wells at the 4.5 Acre Site, both inside and outside the fence, are secured with locks or bolt-down manhole covers. The six monitoring wells along the CSX railroad tracks are secured with locks.

Table 1. Contaminants of Potential Concern and Cleanup Target Levels

Contaminants of Potential Concern	FDEP Cleanup Target Levels in Groundwater (µg/L)[a, b]
Northeast Site	
Trichloroethene	30
cis-1,2-Dichloroethene	700
Vinyl chloride	10
Benzene	10
Toluene	10,000
Methylene chloride	50
Arsenic	100
Building 100 Area	
Trichloroethene	30
1,1-Dichloroethene	70
cis-1,2-Dichloroethene	700
trans-1,2-Dichloroethene	1,000
Vinyl chloride	10
Arsenic	100
WWNA	
Vinyl chloride	10
Arsenic	100
4.5 Acre Site	
Trichloroethene	30
cis-1,2-Dichloroethene	700
trans-1,2-Dichloroethene	1,000
Vinyl chloride	10
Benzene	10
Arsenic	100

[a]µg/L = micrograms per liter
[b]The listed CTLs are on-site CTLs. Off-site CTLs are a factor of 10 lower.

5.3.3 Building 100 (PIN12)

All of the Building 100 wells are located either inside the building, outside the building but within a security fence, or outside the building with no security fence. The wells inside the building are within the secured area of the tenant, and access to these wells is limited by the tenant's security personnel. All personnel entering the secured tenant area must be on the tenant's clearance list or be escorted by a tenant's employee. These wells are also secured with bolt-down manhole covers. The wells outside the building but within the 7-ft-tall chain link security fence are secured with locks and can only be accessed with permission of the tenant and STAR Center guards. The remaining Building 100 wells are secured with either locks or bolt-down manhole covers.

5.3.4 Wastewater Neutralization Area (PIN18)

Most of the WWNA wells are located within the tenant/STAR Center security fence described above in Section 5.3.3. All of the WWNA wells, both inside and outside the fence, are secured with locks.

6.0 Long-Term Surveillance and Maintenance

6.1 Surveillance and Maintenance Implementation

This LTS&M Plan implements long-term components of remedies selected for the STAR Center. The purpose of LTS&M is to meet the general objectives listed in Section 2.0, "Purpose and Scope." This LTS&M Plan includes the requirements specified in the LTS&M Program Plan (DOE 1999).

DOE will maintain protection of human health and the environment at the STAR Center through a combination of activities, including conducting regular inspections; conducting environmental monitoring, sampling, and other site operation and maintenance activities; and maintaining ICs and regulatory compliance.

6.2 Routine Site Inspections

6.2.1 Frequency of Inspections

Currently, site ICs are still being developed. DOE will inspect the Pinellas Site at least annually once the first IC is in place to confirm that remedial action components, including associated ICs, remain in place and effective, and to determine if maintenance or additional monitoring is needed. DOE will notify FDEP and the STAR Center of the inspection at least 30 days before the scheduled inspection date. DOE may reassess the inspection process and frequency, based on experience, and propose modifications as appropriate. Proposed modifications will be submitted as a revision to the LTS&M Plan.

6.2.2 Inspection Procedure

Prior to the inspection, the inspectors will be familiar with the status of the site and each of the areas and ICs associated with the site. A safety briefing with the inspection participants will be held prior to each inspection.

The inspection will include a walkover of the four contaminated areas of the site: Northeast Site, 4.5 Acre Site, WWNA, and Building 100. The inspectors will gain access to the areas and, during the walkover, observe the condition of the area and document any maintenance needs.

6.2.3 Inspection Checklist and Map

Site inspections will be guided by checklists that address the performance of each inspection. The inspection checklist is included as Appendix E to this plan. A facility map that shows the location of the SWMUs and the monitoring wells, such as Figure 2, will be used for the site inspection.

6.2.4 Institutional Controls Inspection

Currently, the site ICs are still being developed. Once the ICs are in place, DOE will conduct a formal annual inspection of the physical locations addressed by ICs. DOE will also evaluate

whether the ICs remain effective in protecting human health and the environment and will take appropriate action if evidence indicates the controls are not effective.

6.2.5 Site-Specific Inspection Features

On an annual basis, all monitoring wells, recovery wells, piezometers, and staff gauges at the STAR Center will be inspected for damage. An example of the Well Inspection Report that is used to document the inspections is provided in Figure 8. In addition, site controls that control access to the wells (see Section 5.3) will be inspected as part of the well inspection process. The interior and exterior conditions of each well will be checked as detailed in the inspection form (Figure 8). The inspectors will check the well access, painted surface, identification tag, hinge, cover lock, above-grade protector or concrete pad, location, and other conditions that will describe any well damage or changes to the well that require maintenance or repair. All site wells will be inspected over a 2-week period. A repair list will be compiled within 30 days of completion of the inspections, and all repairs will be completed within 90 days of the inspections. The well repairs will be documented in the semiannual reports that are submitted to FDEP.

6.2.6 Personnel

Typically, two inspectors will perform annual inspections. Inspectors will be experienced technicians or scientists who have the required knowledge, skills, and abilities to evaluate site conditions and recognize potential or actual problems.

6.2.7 Annual Inspection Reports

Results of annual inspections will be reported to FDEP. DOE will post the final report on the DOE Pinellas website (http://www.lm.doe.gov/land/sites/fl/pinellas/pinellas.htm), will maintain copies at the site, and will send it to interested stakeholders. In the report, DOE also will address maintenance results for the previous 12 months.

6.3 5-Year Review

DOE will conduct 5-year reviews, including preparing a 5-year review report, to evaluate the remedies and to ensure that the selected remedies continue to remain protective of human health and the environment in accordance with EPA's guidance for 5-year reviews. DOE is not required to conduct 5-year reviews for the Pinellas Site under EPA's Comprehensive Environmental Response, Compensation, and Liability Act but intends to conduct the 5-year reviews as a best management practice.

The Pinellas 5-year review will serve as the principal mechanism for monitoring, evaluating, improving, and reporting on all long-term management activities, including operations and maintenance, long-term monitoring, ICs monitoring and enforcement, community involvement, information systems, and contingency actions. The 5-year review report will also include the results of the previous five annual inspections and environmental monitoring results.

In the 5-year review report, DOE will present an evaluation of remedy performance and make any appropriate recommendations for modifying the surveillance and maintenance program,

implementing corrective action, optimizing the selected remedies, or making changes to the selected remedies (if necessary).

The first 5-year review will be conducted 5 years from the date that the first closure order is issued by FDEP and will include an evaluation of all four areas to ensure consistency.

6.4 Routine Site Maintenance and Operations

Site maintenance will include activities such as repair of fencing, gates, signs, field office buildings, and monitoring equipment (e.g., wells, pumps, protective covers, vaults, locks, concrete pads, and labels).

6.5 Environmental Monitoring

Environmental monitoring at each site approved for conditional closure under Florida Global RBCA rules will be limited to the closure monitoring prescribed in F.A.C. Chapter 62-780.680. The details of the environmental monitoring at the STAR Center and the 4.5 Acre Site are included as Appendix A.

6.6 Emergencies, Contingency Planning, and Corrective Action

Emergency measures are the actions DOE will take in response to "unusual damage or disruption" that threatens or compromises site safety or security. Figure 9 shows the routes to the nearest emergency facility.

6.6.1 Severe Weather

Severe weather is often a threat to the Pinellas Site. If severe weather threatens or is within the Tampa Bay area, one of the procedures listed below will be followed. If there is advance warning of severe weather (such as hurricanes or other tropical disturbances), perform preparations 24 to 48 hours before the weather moves into the Tampa Bay area. This, of course, is not always possible during some of the typical Florida summer thunderstorms. With either scenario, refer to the items listed next for the course of action:

- *Communications during severe weather*

  It is essential that site personnel stay in contact with STAR Center personnel in Building 100 during this time to stay abreast of changing weather conditions and STAR Center emergency notifications. Site personnel should first attempt to contact the site manager (727-224-9893). If the site manager cannot be reached, then contact the STAR Center Communication Center at 727-541-8128.

- *Precautions for any immediate threatening weather conditions*

  If there is little-to-no advance warning of severe weather, take cover immediately. Some of the possible scenarios are:

— If the threat is in the form of lightning or heavy rain, seek shelter in a vehicle or a STAR Center building.

— If the threat is in the form of high winds or tornado, seek shelter in a STAR Center building if there is time to do so. At the discretion of the site safety supervisor and site manager, site activities should cease if sustained wind speeds reach 40 miles per hour. If there is no time to get to a STAR Center building, as in the case of a tornado in the immediate vicinity, seek shelter in vehicles, low areas, or ground depressions. Drainages are not suitable because of the potential for flooding.

- *Precautions for advance warning of high winds (i.e., hurricane)*

  — Notify the site safety supervisor of action to be taken.

  — Upon notification of a hurricane watch, inspect all equipment for items that are vulnerable to high winds and secure the items.

  — Upon notification of a hurricane warning, shut down all equipment. In general, the sites will be evacuated at least 24 hours prior to a predicted strike by a hurricane to allow for preparation of personal property and potential evacuations within the Tampa Bay area.

At all times, personnel safety shall take priority over any system or equipment preparation. If there is any doubt about personnel safety, cease the activity or preparation immediately and seek shelter or evacuate the site.

6.7 Budget and Funding

For surveillance and maintenance activities that will be performed in support of the Pinellas Environmental Restoration Project at the STAR Center and the 4.5 Acre Site, the authority to ensure long-term implementation of programs to protect human health and the environment originates with the U.S. Congress and is delegated to an appropriate federal agency, in this case DOE.

DOE recognizes the significance of maintaining adequate funding levels for LTS&M and also that funding is a main concern of the stakeholders. LM will request adequate funds to implement this LTS&M Plan through the annual appropriations process.

6.8 Records and Data Management

DOE maintains site surveillance and maintenance records in a central location. These records have been selected because they contain critical information needed to ensure the continued management and the follow-on actions and controls (including property management) required to protect public health and the environment and to demonstrate compliance with applicable legal requirements. This surveillance and maintenance record collection does not include information pertaining to employee or public health and safety issues with respect to former site operations. It is planned to review and revise records and data management procedures on a regular basis to ensure that current procedures and technologies are employed.

Through September 30, 2008, the National Nuclear Security Administration (NNSA) is responsible for all records pertaining to former Pinellas site employees and records for any health and safety issues associated with former site operations and maintenance. To obtain copies of

these records, please contact the NNSA Freedom of Information Act (FOIA) office at the following address: http://www.nv.doe.gov/outreach/foia/default.aspx.

On October 1, 2008, the custody of all Pinellas site records, including those discussed above, transferred to LM. Copies of these records can be obtained by contacting the LM FOIA office at the following address: http://www.management.energy.gov/foia_pa.htm.

LM will maintain Pinellas Environmental Restoration Project records in full compliance with all federal records management requirements, including:

- 36 CFR Parts 1220–1238, "National Archives and Records Administration."
- 44 U.S.C. Chapter 29, "Records Management by the Archivist of the United States and by the Administrator of General Services," Chapter 31, "Records Management by Federal Agencies," and Chapter 33, "Disposal of Records."

6.8.1 Access and Retrieval

In accordance with the provisions of FOIA, records retained by LM for the Pinellas Environmental Restoration Project activities will be available to stakeholders. A limited number of key documents will be made available electronically on the LM website. In addition, LM will place copies of selected site documents at local and regional Pinellas County libraries.

6.8.2 Pre-Surveillance and Maintenance Record Collection

The National Archives and Records Administration (NARA) Regional Records Center in Denver, Colorado, is currently the designated facility for archived LM closure site records. LM will retain custody of the records sent to the NARA facility and will be responsible for their destruction at the end of their approved retention periods. All records with permanent value will be transferred to and will be the responsibility of NARA, Rocky Mountain Region, Denver, Colorado. All records inherited or created by LM during work at the Pinellas Site will be managed in accordance with 36 CFR Parts 1220−1236, "Agency Records Management Program."

LM will maintain active records from this closure site at its office in Grand Junction, Colorado. Active records contain information essential to the long-term care and custody of the site pursuant to applicable laws and regulations. In general, these records include site characterization reports, remedial action plans, NEPA documents, engineering design and construction documents, as-built drawings, results of groundwater monitoring, and annual inspection reports. Selected key documents will be available on the LM website at http://www.lm.doe.gov/; the public can obtain other records through FOIA requests.

6.8.3 Site Drawings and Photographs

Pinellas Environmental Restoration Project actions were documented with as-built drawings and maps. Aerial photographs of the Pinellas Environmental Restoration Project are taken periodically. These drawings and photographs will be maintained in the permanent site record at the LM office in Grand Junction, Colorado.

6.8.4 Site Maps

Map data are maintained in a geographical information system database. The site map data will be used to generate maps for site inspections. After each inspection, new inspection maps will be prepared that show the locations of items of interest noted during previous inspections. Each site inspection map will indicate the year of the inspection and inspection purpose.

6.8.5 Site Record Drawings and Maps

Site record drawings and maps represent final site conditions and site features. These drawings and maps will be managed in the permanent Pinellas Environmental Restoration Project records file.

6.8.6 Site Baseline Photographs

Photographs taken during various phases of the Pinellas Environmental Restoration Project work will be posted on the website. These photographs provide a visual record to complement the as-built drawings and maps.

6.8.7 Site Inspection Photographs

Photographs will be taken during site inspections to document new or changed conditions at the site. Comparison of current photographs with the baseline set of photographs will be useful to document steady or changing conditions at the site over time.

6.9 Quality Assurance

The long-term custody of the Pinellas Environmental Restoration Project and all activities related to the surveillance and maintenance of the site will comply with the *Quality Assurance Manual* (LMS/POL/S04320), which is based on DOE Order 414.1C, *Quality Assurance*, and *Quality Systems for Environmental Data and Technology Programs, Requirements with Guidance for Use* (ANSI/ASQ 2004).

6.10 Health and Safety

The Health and Safety Program that applies to LTS&M activities is based on 10 CFR 851, "Worker Safety and Health Program," and 10 CFR 835, "Occupational Radiation Protection," and other requirements as specified in the LMS contract. The Health and Safety Program is described in the *Health and Safety Manual* (LMS/POL/S04321), which identifies the policies and requirements that apply to all work performed within the scope of the LMS contract. In addition to the requirements specified in these high-tier programmatic documents, LTS&M activities at the STAR Center will be conducted in accordance with the Pinellas Health and Safety Plan.

Personnel participating in LTS&M activities shall comply with all applicable health and safety requirements as specified by the LMS Health and Safety Program.

7.0 Institutional Controls Plan for the Pinellas Site

Currently, ICs for the site are still being developed. DOE has coordinated with personnel at the STAR Center and with FDEP to develop proposed ICs for the STAR Center. All parties have conceptually agreed to these proposed ICs. The STAR Center began dialogue with DOE to develop a Cooperative Agreement for development and implementation of ICs following receipt of a letter from FDEP to the STAR Center stating that FDEP is prepared to issue a conditional closure for the WWNA pending filing of a restrictive covenant. Once this agreement is complete, the STAR Center can take the matter before the Pinellas County Board of County Commissioners. The proposed ICs will restrict the depth of excavation, and restrict installation of water wells except for groundwater monitoring purposes.

8.0 References

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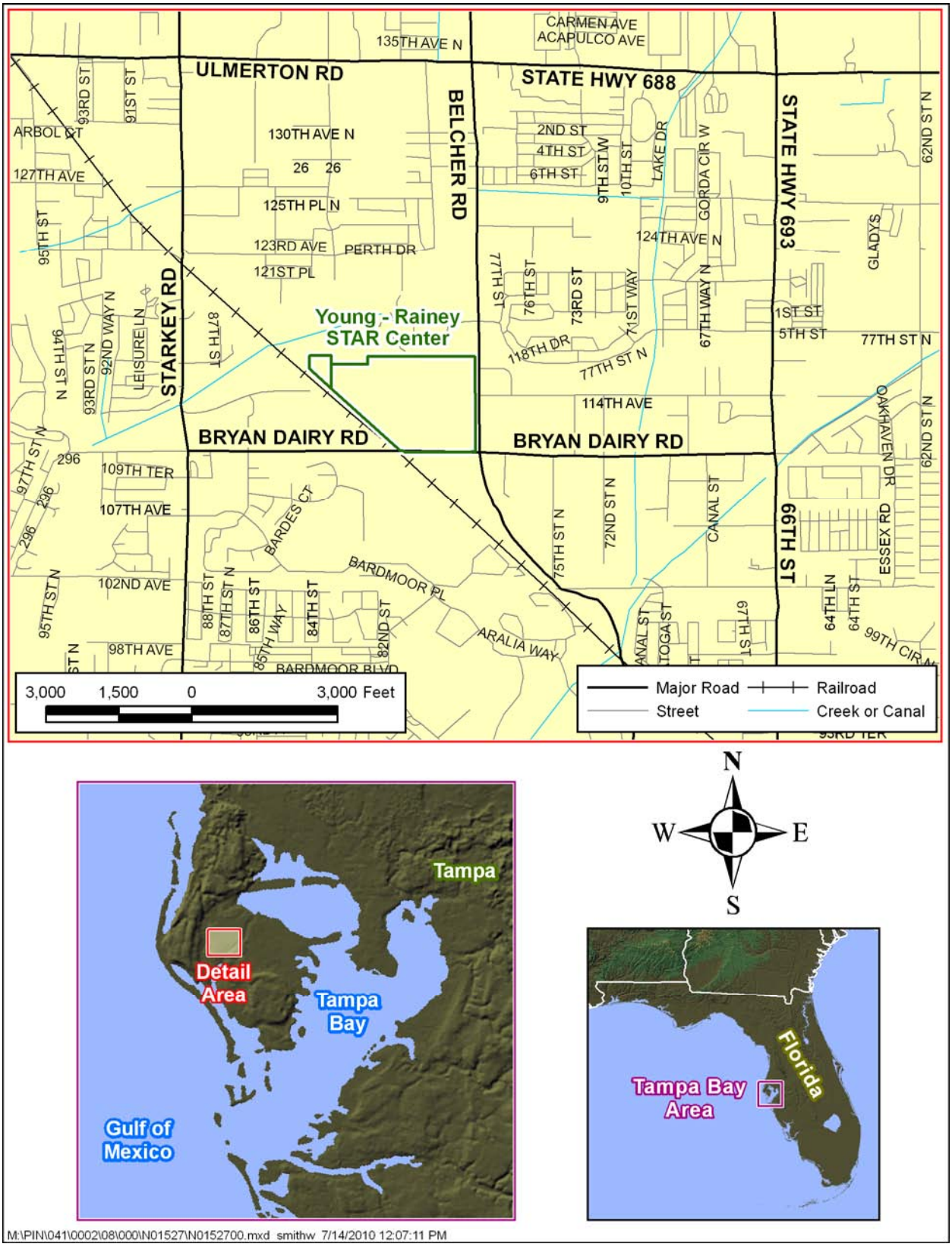

Figure 1. Young – Rainey STAR Center Location

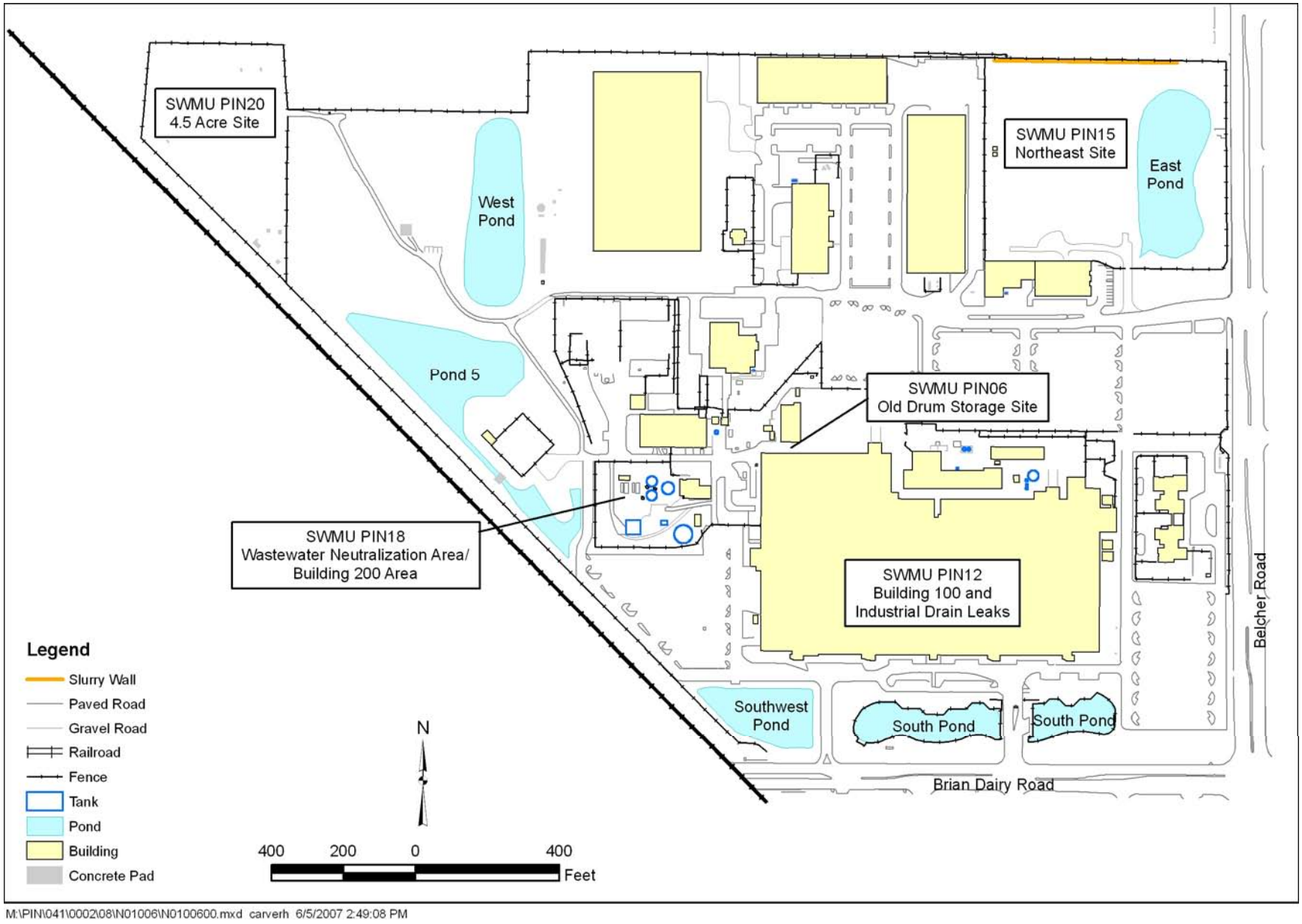

Figure 2. Location of STAR Center Solid Waste Management Units (SWMUs)

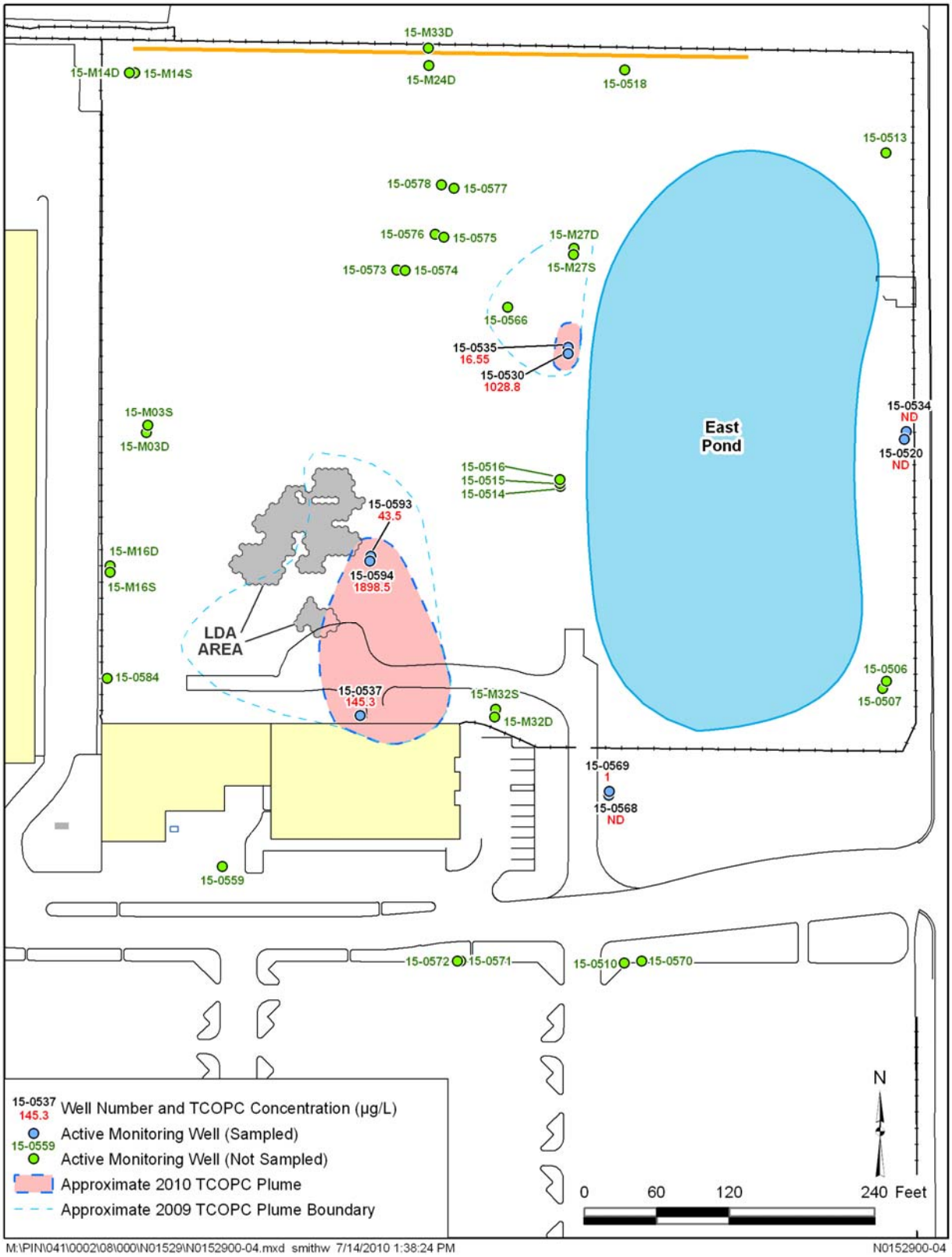

Figure 3. Northeast Site Total COPC Concentrations March 2010

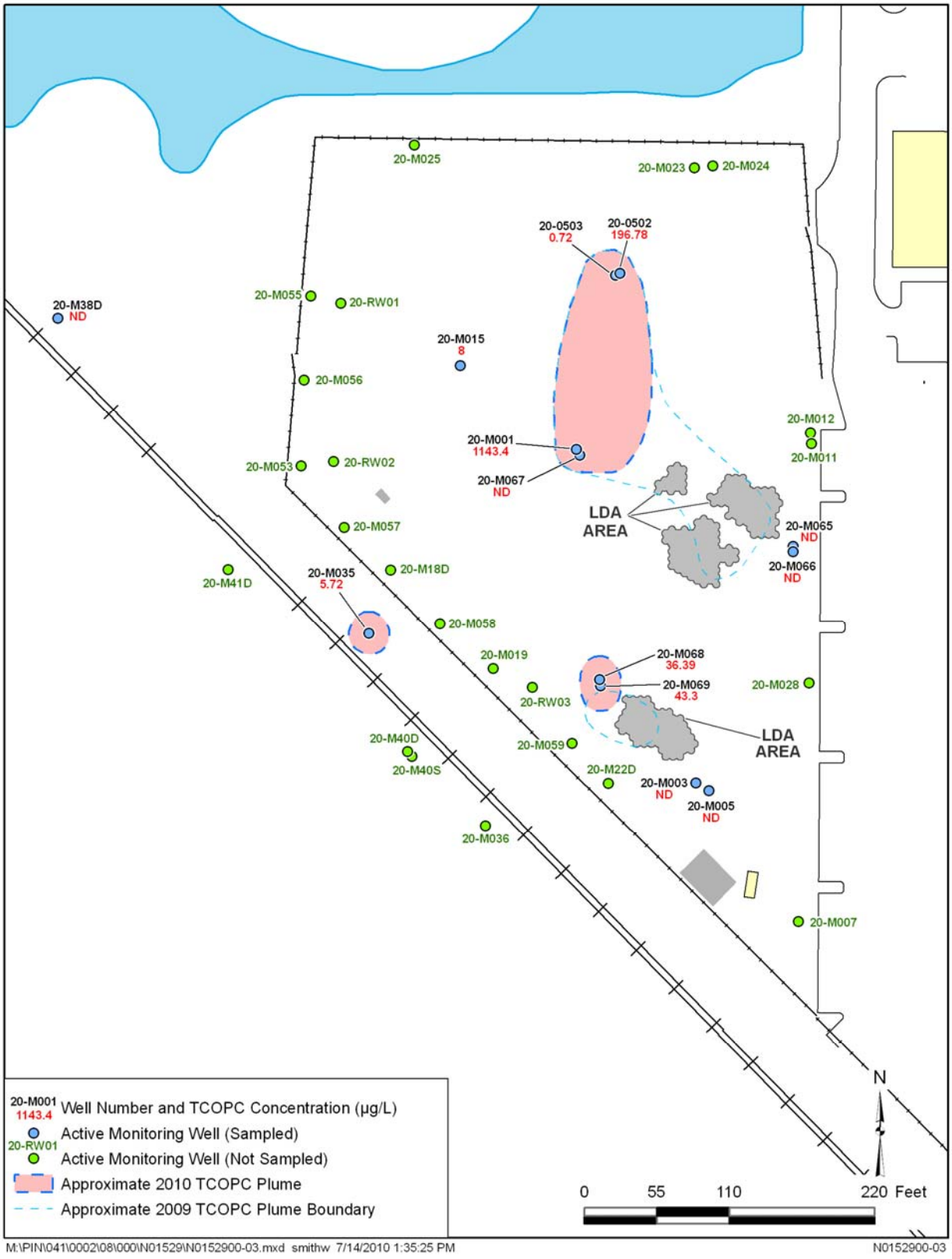

Figure 4. 4.5 Acre Site Total COPC Concentrations March 2010

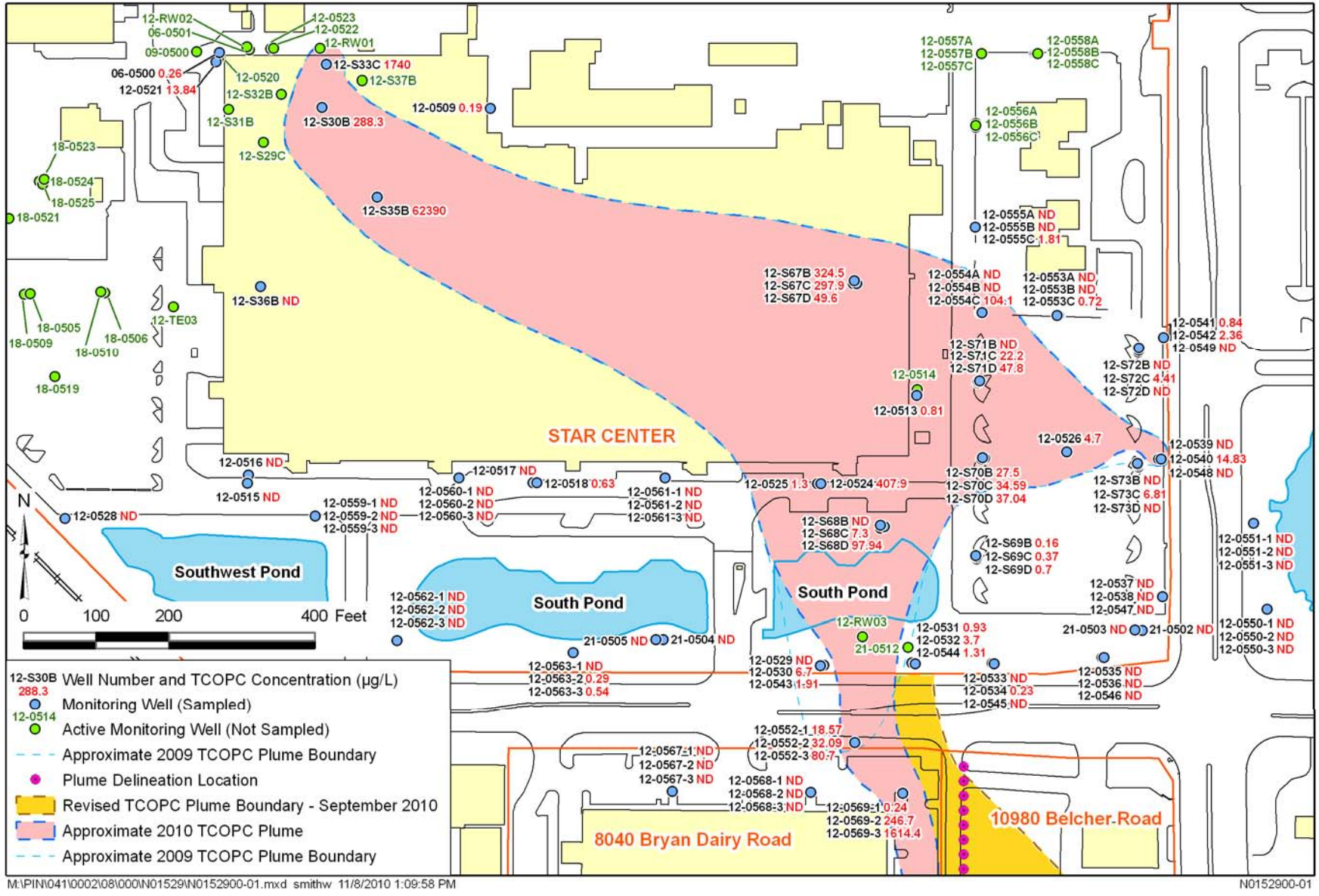

Figure 5. Building 100 Area Total COPC Concentrations March 2010

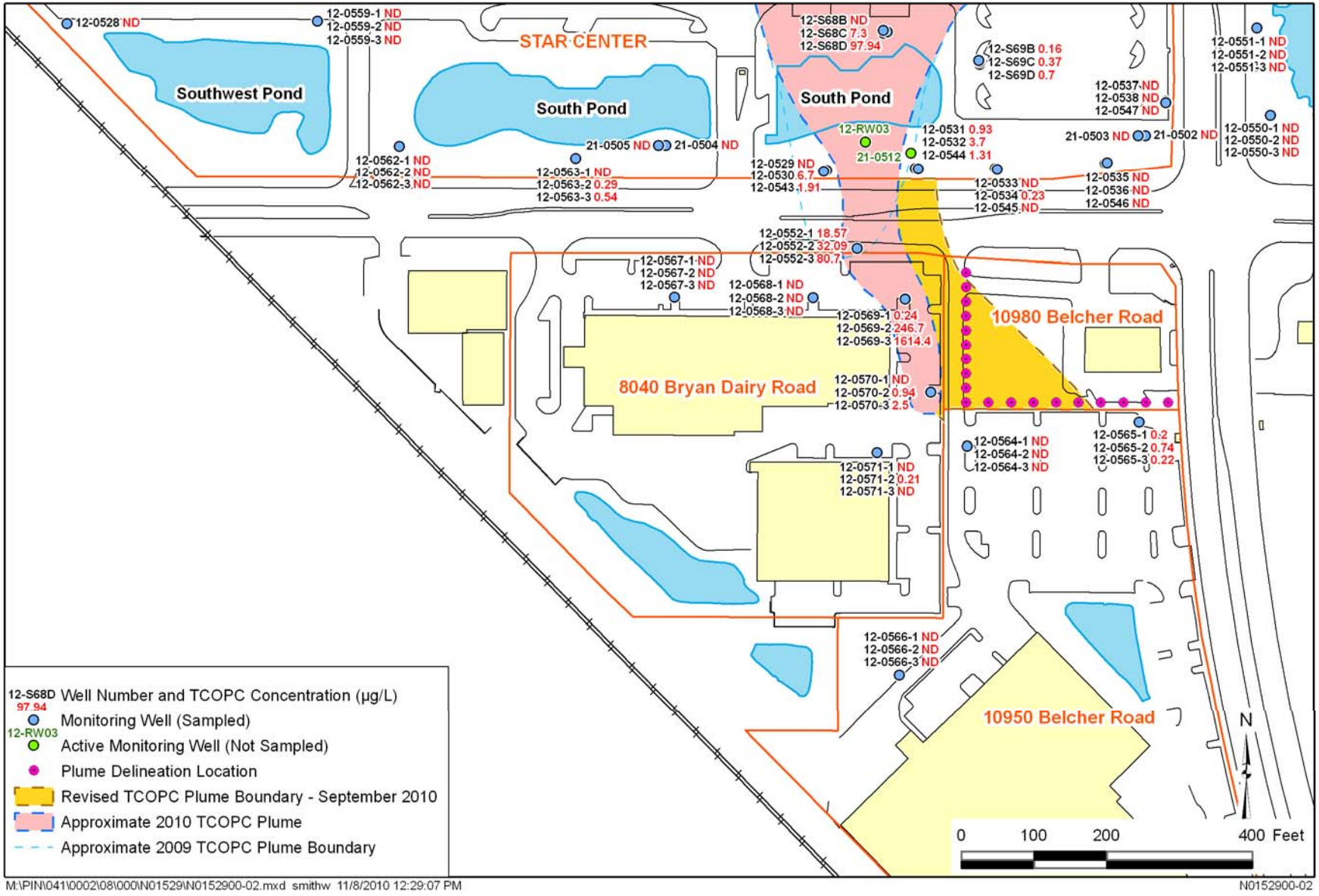

Figure 6. Building 100 Area South Total COPC Concentrations March 2010

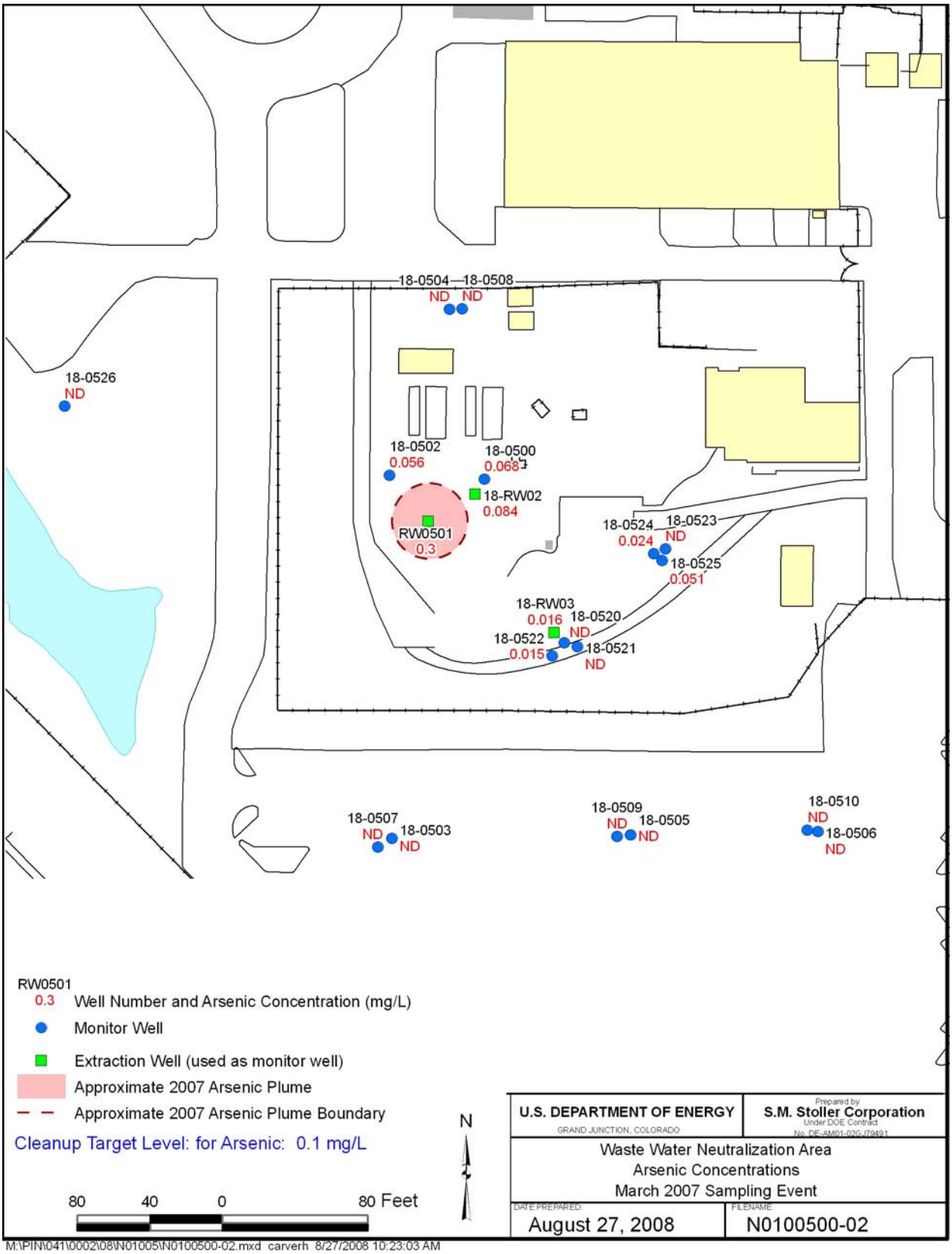

Figure 7. WWNA Arsenic Concentrations March 2007 Sampling Event

WELL INSPECTION REPORT **INSPECTED BY:**_____

YOUNG-RAINEY STAR CENTER, LARGO, FL **DATE:**_____

Well Number: **Type: Monitoring/Extraction**

WELL EXTERIOR CONDITIONS	Yes	No	N/A	Comment
Unimpeded Access / Entry / Exposure				
Surface Adequate for New Tag				
Painted Surface Adequate				
Hinge Condition Adequate				
Hasp / Cover Condition Adequate				
Lock Adequate				
Seal with Grade / Concrete Pad Adequate				
Free of Insects or Other Pests				
ID Tag Adequate				
Tag Number Clearly Visible				
Field Location = Map Location				

WELL INTERIOR CONDITIONS		
Casing Type (PVC, Stainless Steel, Carbon Steel, HDPE)	Inches	Feet
Inside Diameter		
TOC to Grade Height (Stickup, negative if recessed)		

	Yes	No	N/A	Comment
Plug/Cap Adequate				
Measuring Point Clearly Notched or Marked				
Casing Undamaged/Unmoved				
Clear of Obstruction for Water Levels (1)				
Bladder Pump Installed				

Notes: (1) Other than pump or tubing

Figure 8. Well Inspection Report Form

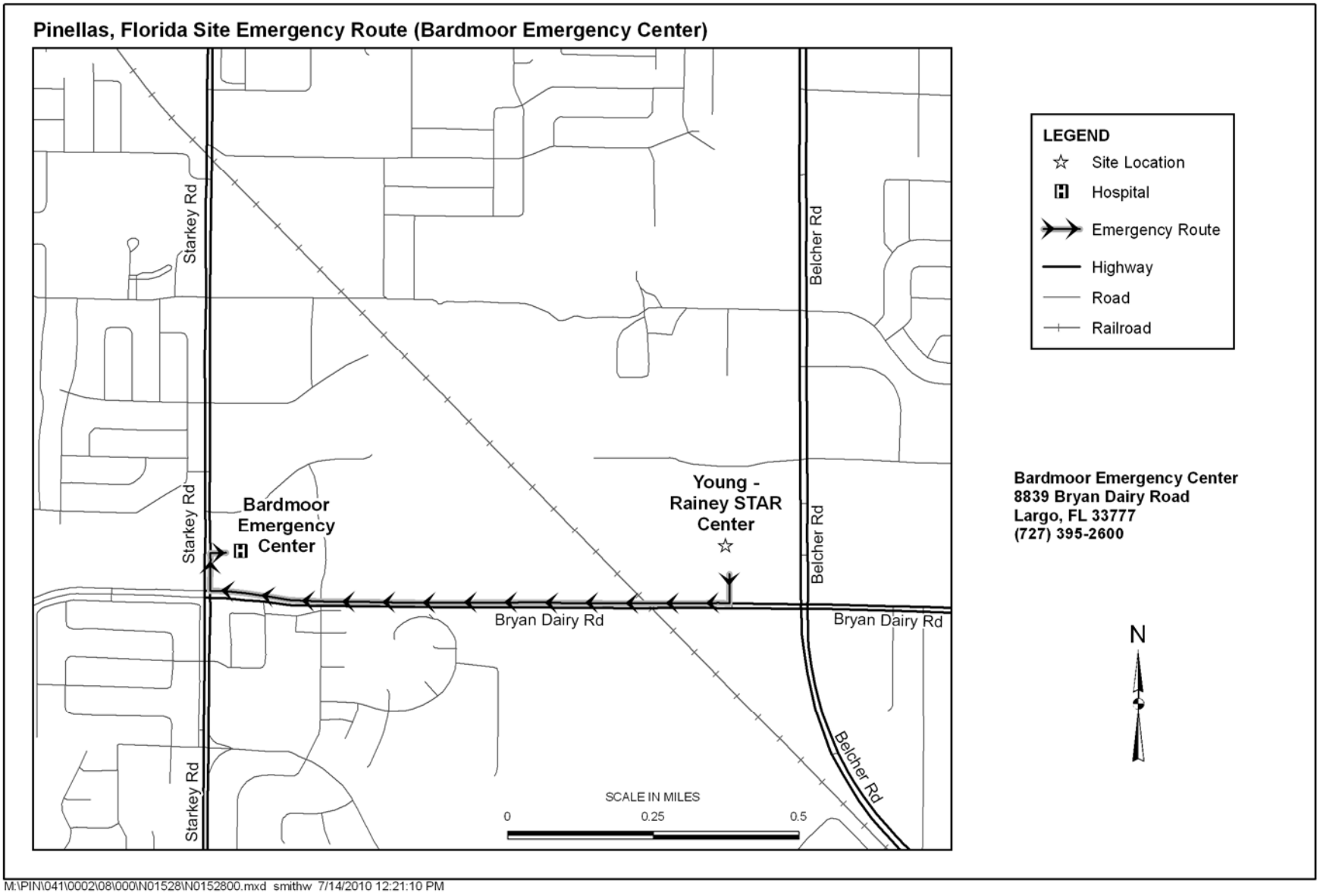

Figure 9. Emergency Route Map

West Pond

Pond 5

Southwest Pond

South Pond

South Pond

East Pond

YOUNG - RAINEY STAR CENTER

8040 BRYAN DAIRY ROAD

10980 BELCHER ROAD

10950 BELCHER ROAD

Bryan Dairy Road

Belcher Road

20-M025 20-M023 20-M024 20-M055 20-0503 20-0502 20-M38D 20-RW01 20-M015 20-M056 20-M001 20-M012 20-M011 20-M053 20-RW02 20-M067 20-M057 20-M065 20-M41D 20-M18D 20-M066 20-M035 20-M058 20-M019 20-M068 20-RW03 20-M069 20-M028 20-M40D 20-M059 20-M003 20-M40S 20-M22D 20-M005 20-M036 20-M007

02-PZ03 02-PZ04 02-PZ10 02-PZ11 02-PZ05 02-PZ08 02-PZ09

15-M33D 15-M24D 15-0518 15-M14D 15-M14S 15-0513 15-0578 15-0577 15-0576 15-0575 15-M27D 15-M27S 15-0573 15-0574 15-0566 15-0535 15-0530 15-M03S 15-M03D 15-0534 15-0520 15-0516 15-0515 15-0514 15-0593 15-0594 15-M16D 15-M16S 15-0584 15-0537 15-M32S 15-M32D 15-E001 15-0506 15-0507 15-0569 15-0568 15-0559 15-0572 15-0571 15-0570 15-0510

12-0527 10-0500 12-RW02 06-0501 06-0500 12-0523 12-0522 09-0500 12-RW01 12-0520 12-S33C 12-0521 12-S32B 12-S37B 12-S31B 12-S30B 12-0509 12-S29C 12-S35B 12-S36B 12-S67B 12-S67C 12-S67D 12-TE03

18-0526 18-0504 18-0508 18-0502 18-0500 18-RW02 18-RW0501 18-0524 18-0523 18-0525 18-RW03 18-0522 18-0520 18-0521 18-0503 18-0509 18-0505 18-0510 18-0506 18-0507 18-0519 12-0528

12-0516 12-0515 12-0559-1 12-0559-2 12-0559-3 12-0560-1 12-0560-2 12-0560-3 12-0517 12-0518 12-0561-1 12-0561-2 12-0561-3 12-0525 12-0524 12-S68B 12-S68C 12-S68D 12-0514 12-0513 12-0526 12-S70B 12-S70C 12-S70D 12-S71B 12-S71C 12-S71D 12-S72B 12-S72C 12-S72D 12-0541 12-0542 12-0549 12-0539 12-0540 12-0548 12-S73B 12-S73C 12-S73D 12-S69B 12-S69C 12-S69D 12-0537 12-0538 12-0547

12-0554A 12-0554B 12-0554C 12-0553A 12-0553B 12-0553C 12-0557A 12-0557B 12-0557C 12-0558A 12-0558B 12-0558C 12-0556A 12-0556B 12-0556C 12-0555A 12-0555B 12-0555C

12-0551-1 12-0551-2 12-0551-3 12-0550-1 12-0550-2 12-0550-3

23-SW01 12-0562-1 12-0562-2 12-0562-3 12-0563-1 12-0563-2 12-0563-3 21-0505 21-0504 12-RW03 21-0512 12-0529 12-0530 12-0543 12-0531 12-0532 12-0544 12-0533 12-0534 12-0545 21-0503 21-0502 12-0546 12-0535 12-0536

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12-0552-1 12-0552-2 12-0552-3 12-0567-1 12-0567-2 12-0567-3 12-0568-1 12-0568-2 12-0568-3 12-0569-1 12-0569-2 12-0569-3 12-0570-1 12-0570-2 12-0570-3 12-0564-1 12-0564-2 12-0564-3 12-0565-1 12-0565-2 12-0565-3 12-0571-1 12-0571-2 12-0571-3 12-0566-1 12-0566-2 12-0566-3

N

0 150 300 Feet

Legend

- Existing Surface Water Location
- Existing Piezometer
- Existing Extraction / Recovery Well
- Existing Monitoring Well

U.S. DEPARTMENT OF ENERGY OFFICE OF LEGACY MANAGEMENT GRAND JUNCTION, COLORADO	Prepared By S.M. Stoller Corporation Under DOE Contract No. DE-AC01-07-LM5000
Plate 1: Young - Rainey STAR Center and 4.5 Acre Site Existing Monitoring Locations	
DATE PREPARED July 19, 2010	DRAWING NO. N0153100

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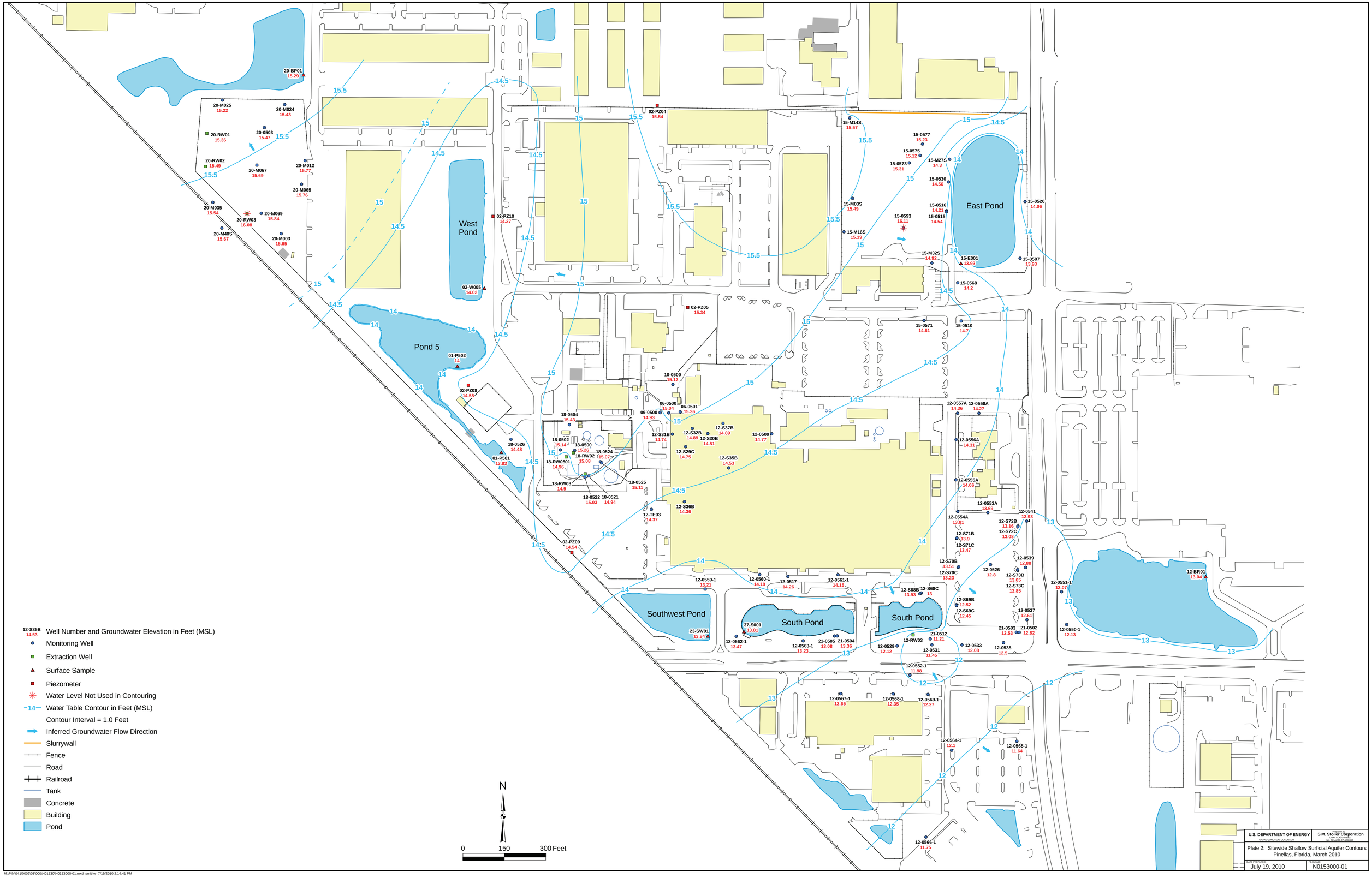
West Pond
East Pond
Pond 5
Southwest Pond
South Pond
South Pond
20-BP01 15.29
20-M025 15.22
20-M024 15.43
20-RW01 15.36
20-0503 15.47
20-RW02 15.49
20-M067 15.69
20-M012 15.77
20-M065 15.76
20-M035 15.54
20-RW03 16.08
20-M069 15.84
20-M40S 15.67
20-M003 15.65
02-PZ04 15.54
02-PZ10 14.27
02-W005 14.02
02-PZ05 15.34
01-P502 14
02-PZ08 14.58
01-P501 13.83
18-0526 14.48
18-0504 15.43
18-0502 15.14
18-0500 15.26
18-RW0501 14.96
18-RW02 15.08
18-0524 15.07
18-RW03 14.9
18-0525 15.11
18-0522 15.03
18-0521 14.94
02-PZ09 14.54
12-TE03 14.37
10-0500 15.12
06-0500 15.04
06-0501 15.36
09-0500 14.93
12-S31B 14.74
12-S32B 14.89
12-S30B 14.81
12-S37B 14.89
12-S29C 14.75
12-S35B 14.53
12-S36B 14.36
12-0509 14.77
15-M14S 15.57
15-0577 15.23
15-0575 15.12
15-0573 15.31
15-M27S 14.3
15-0530 14.56
15-M03S 15.49
15-0516 14.21
15-0515 14.54
15-0593 16.11
15-M16S 15.19
15-M32S 14.92
15-E001 13.93
15-0507 13.93
15-0520 14.06
15-0568 14.2
15-0571 14.61
15-0510 14.7
12-0557A 14.36
12-0558A 14.27
12-0556A 14.31
12-0555A 14.06
12-0553A 13.69
12-0554A 13.81
12-0541 12.93
12-S72B 13.16
12-S72C 13.08
12-S71B 13.9
12-S71C 13.47
12-S70B 13.51
12-S70C 13.23
12-0526 12.8
12-0539 12.88
12-S73B 13.05
12-S73C 12.85
12-0537 12.61
12-S69B 12.52
12-S69C 12.45
12-S68B 13.93
12-S68C 13
12-0559-1 13.21
12-0560-1 14.19
12-0517 14.26
12-0561-1 14.15
37-S001 13.81
23-SW01 13.84
12-0562-1 13.47
12-0563-1 13.23
21-0505 13.08
21-0504 13.36
12-0529 12.12
12-RW03 21-0512 11.21
12-0531 11.45
12-0533 12.08
12-0535 12.5
21-0503 12.53
21-0502 12.82
12-0551-1 12.07
12-0550-1 12.13
12-BR01 13.04
12-0552-1 11.98
12-0567-1 12.65
12-0568-1 12.35
12-0569-1 12.27
12-0564-1 12.1
12-0565-1 11.64
12-0566-1 11.75
12-0558A 14.27
12-0557A 14.36
15.5
15
14.5
14
13.5
13
12.5
12
N
0
150
300 Feet
12-S35B 14.53 Well Number and Groundwater Elevation in Feet (MSL)
Monitoring Well
Extraction Well
Surface Sample
Piezometer
Water Level Not Used in Contouring
14 Water Table Contour in Feet (MSL)
Contour Interval = 1.0 Feet
Inferred Groundwater Flow Direction
Slurrywall
Fence
Road
Railroad
Tank
Concrete
Building
Pond
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
S.M. Stoller Corporation
Under DOE Contract No. DE-AC01-07LM00060
Plate 2: Sitewide Shallow Surficial Aquifer Contours
Pinellas, Florida, March 2010
DATE PREPARED: July 19, 2010
PLOT NO.: N0153000-01
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West Pond

Pond 5

East Pond

Southwest Pond

South Pond

South Pond

20-M038D 14.59
20-M055 15.28
20-M023 15.28
20-0502 15.43
20-M056 15.33
20-M015 15.51
20-M053 15.34
20-M001 15.63
20-M011 15.67
20-M057 15.47
20-M18D 15.53
20-M066 15.74
20-M41D 15.3
20-M058 15.64
20-M019 15.65
20-M068 15.82
20-M028 15.61
20-M059 15.68
20-M005 15.66
20-M40D 15.62
20-M22D 15.68
20-M036 15.67
20-M007 15.46
02-PZ11 14.21
15-M33D 15.6
15-M14D 15.5
15-M24D 15.06
15-0518 14.82
15-0578 15.08
15-0576 15.03
15-M27D 14.63
15-0574 15.06
15-0566 14.82
15-0535 14.64
15-M03D 15.36
15-0534 14.08
15-0594 16.01
15-0514 14.58
15-M16D 15.2
15-0584 14.94
15-0537 15.09
15-M32D 14.81
15-0506 13.97
15-0569 14.25
15-0559 14.75
15-0572 14.56
15-0570 14.23
18-0508 15.38
12-0520 15.48
12-0558C 13.85
12-0557C 13.99
12-0556C 13.91
18-0523 15.1
18-0520 14.82
12-0555C 13.75
18-0507 14.69
12-0554C 13.57
12-0553C 13.34
12-S72D 13.04
12-0549 12.93
12-S71D 13.46
12-0516 14.08
12-S70D 13.21
12-0559-3 12.84
12-0560-3 14.39
12-0518 14.23
12-0561-3 14
12-0524 13.42
12-S68D 12.98
12-0551-3 12.34
12-S69D 12.78
12-0547 12.47
12-0562-3 13.55
12-0563-3 13.37
12-RW03
12-0543 10.76
12-0544 11.21
12-0545 12.5
12-0546 12.72
12-0550-3 12.23
12-0552-3 11.66
12-0567-3 12.54
12-0568-3 12.17
12-0569-3 12.04
12-0565-3 11.62
12-0564-3 11.97
12-0566-3 11.79

15 15.5 14.5 14 13.5 13 12.5 12 11.5

18-0507 14.69 Well Number and Groundwater Elevation in Feet (MSL)
Monitoring Well
Extraction Well
Surface Sample
Piezometer
Water Level Not Used in Contouring
14 Water Table Contour in Feet (MSL)
Contour Interval = 1.0 Feet
Inferred Groundwater Flow Direction
Slurrywall
Fence
Road
Railroad
Tank
Concrete
Building
Pond

N

0 150 300 Feet

U.S. DEPARTMENT OF ENERGY, GRAND JUNCTION, COLORADO	S.M. Stoller Corporation, Under DOE Contract No. DE-AC01-07LM00080
Plate 3: Sitewide Deep Surficial Aquifer Contours Pinellas, Florida, March 2010	
DATE PREPARED: July 19, 2010	PLOT NO.: N0153000-02

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Appendix A

Annual Monitoring Plan

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Pinellas Environmental Restoration Project

Young - Rainey STAR Center and 4.5 Acre Site

Annual Monitoring Plan for Fiscal Year 2011

September 2010

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Contents

Tables

Plates

Attachment

Abbreviations

COPC	contaminant of potential concern
CTL	cleanup target level
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
F.A.C.	*Florida Administrative Code*
FDEP	Florida Department of Environmental Protection
FY	fiscal year
mg/L	milligrams per liter
RBCA	Risk-Based Corrective Action
STAR	Young - Rainey Science, Technology, and Research (Center)
TRPH	total recoverable petroleum hydrocarbons
VOC	volatile organic compound

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A1.0 Introduction

This document is the Annual Monitoring Plan for all routine monitoring and sampling activities at the Young - Rainey Science, Technology, and Research Center (STAR Center) and the 4.5 Acre Site for fiscal year 2011 (FY 2011). This plan defines the sampling frequency for monitoring wells at the STAR Center and the 4.5 Acre Site and determines the types of analyses that will be conducted on the samples collected from these locations. The plan is based on a technical evaluation of recent analytical results, site-specific environmental factors, and regulatory requirements.

Monitoring wells have been sampled on a semiannual schedule in recent years, but quarterly closure monitoring began in FY 2010 at the Northeast Site and 4.5 Acre Site under the Florida Department of Environmental Protection's (FDEP) Global Risk-Based Corrective Action (RBCA) rules. However, the U.S. Department of Energy (DOE) determined that closure monitoring would be conducted semiannually after FDEP suggested that closure monitoring could be required for a few years. The annual sampling event will occur in March (dry season), and the semiannual event will occur in September (wet season).

Regulatory requirements relating to sampling frequency and analytical methods were reviewed in detail in the *Pinellas STAR Center Annual Well Evaluation* (DOE 2001). Most of these requirements were established during the investigations at the STAR Center in the early to mid-1990s. Since that time, site conditions have changed due to remediation activities, additional characterization has redefined plume boundaries, and monitoring and recovery wells have been abandoned or installed. Because site conditions and regulatory requirements have changed over time, the previously conducted analyses relating to sampling frequency and analysis need revision. Therefore, this Annual Monitoring Plan will be used to inform FDEP of proposed modifications to the required sampling frequencies and analytical methods. The proposed modifications are intended to reflect current site conditions and program requirements.

Sampling procedures used to implement the monitoring described in this plan are described in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PLN/S04351). All sampling activities are conducted using FDEP Standard Operating Procedures. Quality assurance requirements for sampling and analysis are defined in the *Pinellas Environmental Restoration Project Quality Assurance Project Plan for the Young - Rainey STAR Center and 4.5 Acre Site* (DOE 2006) and the Sampling and Analysis Plan.

A2.0 Contaminants of Potential Concern

The types of contaminants of potential concern (COPCs) determine the analytical methods that will be used to analyze samples. Table A–1 lists the current COPCs and their associated cleanup target levels (CTLs). The COPCs listed in Table A–1 were determined from a review of site data and regulatory documents for the STAR Center and the 4.5 Acre Site as described in the *Historical Review and Evaluation of Contaminants of Potential Concern* (DOE 2003).

The COPCs are specific to each of the three areas: the Northeast Site and Building 100 Area at the STAR Center, and the 4.5 Acre Site. Based on an evaluation of metals data, iron and aluminum were added as COPCs at the Northeast Site. As described in Section A4.1.3,

monitoring is no longer conducted at the Wastewater Neutralization Area due to the imminent regulatory closure of this area.

In July 2009, FDEP requested that sampling for 1,4-dioxane continue at the southern and eastern property boundaries at the Building 100 Area, at some of the off-site wells, and at any new off-site wells to evaluate concentration trends over time. Currently, 1,4-dioxane is not a COPC.

Most of the previous site documents, including the *Historical Review and Evaluation of Contaminants of Potential Concern* (DOE 2003) have compared groundwater contaminant concentrations to drinking water standards (i.e., maximum contaminant levels). However, those standards are not the applicable default CTLs for the purpose of evaluating site remediation under FDEP's Global RBCA rules. Based on a comprehensive review of background data for the site (DOE 2003), it was determined that the shallow groundwater 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 milligrams per liter (mg/L) for aluminum exceeds the 0.2 mg/L secondary standard by a factor of 5.5, and the average background concentration for iron of 9.3 mg/L exceeds the 0.3 mg/L secondary standard by a factor of 31. The ambient shallow groundwater in the area is therefore designated as "poor quality" as defined in 62-780.200 (35), F.A.C. Thus, the applicable groundwater CTLs are those for groundwater of "low yield/poor quality" provided in Table 1 of Chapter 62-777, F.A.C.

Use of these poor groundwater quality CTLs applies only on the STAR Center and the 4.5 Acre Site. Contaminant concentrations from off-site wells still must be compared to the regular groundwater CTLs. The poor groundwater quality CTLs are a factor of 10 higher than the regular groundwater CTLs.

A3.0 Well Abandonment and Installation

A3.1 Wells Abandoned

No wells were abandoned from September 2009 through August 2010.

A3.2 Wells Installed

Twenty-two monitoring wells were installed from September 2009 through August 2010 (Table A–2). Two wells at the Northeast Site and five wells at the 4.5 Acre Site were installed for use as closure monitoring wells. Fifteen wells were installed off site south of Bryan Dairy Road to further delineate the contaminant plume.

A4.0 Determination of Sampling Frequency and Analytical Methods

Two routine sampling events will be conducted in FY 2011.

1. An annual sampling event that consists of closure monitoring at the Northeast Site and 4.5 Acre Site and the annual sampling event at the Building 100 Area in March 2011.
2. A semiannual sampling event that consists of closure monitoring at the Northeast Site and 4.5 Acre Site and the semiannual sampling event at the Building 100 Area in September 2011.

Wells designated for annual sampling will be sampled in March (the dry season sampling event). Wells designated for semiannual sampling will be sampled in March and September (wet season sampling event). The closure sampling frequency for FY 2011 at the Northeast Site and 4.5 Acre Site follows the frequency determined in the *Closure Monitoring Plan for the Northeast Site and 4.5 Acre Site* (DOE 2009).

Determination of sampling frequency for FY 2010 at the Building 100 Area was based on a detailed review of the last two years of COPCs data, geochemical data, groundwater flow direction, site environmental factors, and well parameters such as screened interval. Also considered was the need for more-frequent sampling at off-site locations and at locations near and hydraulically upgradient from the property boundaries as part of the ongoing plume delineation effort.

Table A–3 is a list of existing monitoring wells, recovery wells, and piezometers, including their hydrogeologic completion zones, installation dates, diameters, and screened intervals. Plate A1 shows the location of wells, contaminant plumes, and groundwater flow direction for the STAR Center and the 4.5 Acre Site.

Section A4.1 describes the sampling frequency and analytical method recommendations for routine monitoring well sampling activities. Section A4.2 discusses the sampling/measurement frequency for field geochemical parameters and groundwater and surface water level measurements.

A4.1 Sampling Frequency and Analytical Methods

The FY 2011 sampling frequencies and analytes for monitoring wells are listed in Table A–4. The volatile organic compounds (VOCs) and bioremediation parameter sampling frequencies are shown on Plate A1, and metals and 1,4-dioxane sampling frequencies are shown on Plate A2.

A4.1.1 Northeast Site

The monitoring wells and sampling frequencies for closure monitoring at the Northeast Site were determined in the *Closure Monitoring Plan for the Northeast Site and 4.5 Acre Site* (DOE 2009). The nine closure monitoring wells remain the same, but the sampling frequency has been changed from quarterly to semiannually as discussed in Section A1.0 (Table A–4).

FDEP requested that the East Pond at the Northeast Site be sampled for VOCs, and each pond will be sampled annually (Table A–5; Plate A1).

All of the Northeast Site volatile organic COPCs (Table A–1) are on the analyte list for U.S. Environmental Protection Agency (EPA) Method 8260. Additionally, the EPA Method 8260 reporting limits are at or below the CTLs for these contaminants. Therefore, EPA Method 8260 will be used to analyze the VOCs in groundwater samples collected from the Northeast Site. Iron and aluminum will be analyzed using EPA Method 6010B.

Emulsified soybean oil was injected at the Northeast Site in January and February 2010 to enhance biodegradation of the COPCs. A suite of bioremediation parameters will be analyzed in five wells to evaluate the performance of the soybean oil injection (Table A–4). The bioremediation parameters are dissolved gases (hydrogen, methane, ethane, ethene, carbon dioxide, and oxygen), total and ferrous iron, sulfate and sulfide, nitrate and nitrite, nitrogen and phosphorous nutrients, volatile fatty acids, and *Dehalococcoides ethenogenes*.

When the emulsified soybean oil was injected, FDEP requested that groundwater samples be collected and analyzed for total recoverable petroleum hydrocarbons (TRPH) to ensure that the TRPH groundwater standard was met at the end of the enhanced bioremediation project. DOE does not plan to analyze for TRPH in FY 2011; TRPH analysis may be conducted in FY 2012.

A4.1.2 Building 100 Area

DOE is in the process of conducting detailed plume delineation along the southern and eastern property boundaries at the Building 100 Area and on private property south of Bryan Dairy Road. For this purpose, DOE installed 48 new monitoring wells in FY 2008, 24 new monitoring wells in FY 2009, and an additional 15 wells in FY 2010. All off-site wells will be sampled semiannually in FY 2011, and most of the on-site wells near the property boundaries will be sampled semiannually as well.

Additional plume delineation will occur in late FY 2010 and FY 2011. This will consist of an initial screening using direct-push groundwater samples followed by installation of permanent monitoring wells. These wells will be sampled immediately upon completion and semiannually thereafter.

The monitoring plan for the northwest part of the Building 100 Area is to collect samples for VOCs analysis from the highest-concentration wells annually to watch for changes in this likely contaminant source area, and to annually monitor four other wells with no detectable COPCs to provide a boundary to the plume (Table A–4). The wells with the highest COPC concentrations are PIN12-S35B, -S30B, and -S33C. The plume boundary wells are PIN06-0500, PIN12-0521, -S36B, and -0509. The remainder of the wells located at the northwest part of the area will not be sampled in FY 2011.

Operation of recovery well PIN12-RW03 at the Building 100 began in July 2009. The groundwater recovered by this well is piped to an air stripper located at the Wastewater Neutralization Area, and the effluent from the air stripper is discharged to the STAR Center's Industrial Wastewater Neutralization Facility. Both the influent and effluent from the treatment system will be sampled monthly to track contaminant mass recovery and to provide wastewater data to the STAR Center (Table A–6).

FDEP requested that sampling for 1,4-dioxane continue in a subset of wells at the southern and eastern property boundaries at the Building 100 Area and at some of the off-site wells. Therefore, six wells on site at the Building 100 Area and all wells off site south of Bryan Dairy Road will be sampled semiannually for 1,4-dioxane in FY 2011 (Table A–4; Plate A2).

FDEP requested that the South and Southwest Ponds at the Building 100 Area be sampled for VOCs, and each pond will be sampled annually (Table A–5; Plate A1).

All of the Building 100 Area volatile organic COPCs (Table A–1) are on the analyte list for EPA Method 8260. Additionally, the EPA Method 8260 reporting limits are at or below the CTLs for these contaminants. Therefore, EPA Method 8260 will be used to analyze VOCs in groundwater samples collected from monitoring wells at the Building 100 Area. One exception is 1,4-dioxane, which will be analyzed using a modified EPA Method 8260.

A4.1.3 Wastewater Neutralization Area

On May 24, 2007, FDEP provided verbal approval of the Wastewater Neutralization Area No Further Action with Controls proposal. That document proposed closure of the Wastewater Neutralization Area, noted that closure monitoring was complete, and stated that no additional monitoring would occur at the Wastewater Neutralization Area. Therefore, all sampling activities at the Wastewater Neutralization Area have been discontinued.

A4.1.4 4.5 Acre Site

The monitoring wells and sampling frequencies for the 4.5 Acre Site were determined in the *Closure Monitoring Plan for the Northeast Site and 4.5 Acre Site* (DOE 2009). The 13 closure monitoring wells remain the same, but the sampling frequency has been changed from quarterly to semiannually as discussed in Section A1.0 (Table A–4).

All of the 4.5 Acre Site volatile organic COPCs (Table A–1) are on the analyte list for EPA Method 8260. Additionally, the EPA Method 8260 reporting limits are at or below the CTLs for these contaminants. Therefore, EPA Method 8260 will be used to analyze the VOCs in groundwater samples collected from the 4.5 Acre Site.

Emulsified soybean oil was injected at the 4.5 Acre Site in February 2010 to enhance biodegradation of the COPCs. A suite of bioremediation parameters will be analyzed in four of the closure monitoring wells and in six additional wells located along the western and southwestern site boundaries to evaluate the performance of the soybean oil injection (Table A–4). The bioremediation parameters are dissolved gasses (hydrogen, methane, ethane, ethene, carbon dioxide, and oxygen), total and ferrous iron, sulfate and sulfide, nitrate and nitrite, nitrogen and phosphorous nutrients, volatile fatty acids, and *Dehalococcoides ethenogenes*.

When the emulsified soybean oil was injected, FDEP requested that groundwater samples be collected and analyzed for TRPH to ensure that the TRPH groundwater standard was met at the end of the enhanced bioremediation project. DOE does not plan to analyze for TRPH in FY 2011; TRPH analysis may be conducted in FY 2012.

A4.2 Sampling Frequency for Other Parameters

A4.2.1 Geochemical Parameters

In addition to the laboratory analyses discussed above, all groundwater samples are measured at the time of collection for temperature, pH, oxidation/reduction potential, dissolved oxygen, turbidity, and specific conductance. These parameters help define geochemical conditions in the groundwater and are also used to determine when well purging is complete. Analysis of these field parameters for each groundwater sample will continue.

A4.2.2 Subsurface Water Level Measurements

Water level measurements will be taken semiannually in all accessible monitoring wells and piezometers. Even though a limited set of wells is proposed for closure monitoring at the Northeast Site and 4.5 Acre Site, water levels will be measured quarterly in most or all existing wells at these two sites to provide a more detailed evaluation of groundwater flow. Water levels will also be measured in wells at the Wastewater Neutralization Area.

A4.2.3 Surface Water Level Measurements

Surface water level measurements will be taken during both the annual and the semiannual sampling events at PIN15-E001 on the East Pond, PIN 23-SW01 on the Southwest Pond, PIN37-S001 on the South Pond, PIN02-W005 on the West Pond, PIN01-P501 and -P502 on Pond 5, PIN12-BR01 on the pond east of Belcher Road, and PIN20-BP01 on the 118th Place Pond (the pond north of the 4.5 Acre Site) (Plate A1).

A5.0 Implementing Changes to the Plan

This plan will be reviewed and revised annually. Interim changes to the plan will be justified, documented, and approved through the use of a Program Directive. Program Directives are discussed in detail in the Quality Assurance Project Plan (DOE 2006). Program Directives will be appended to this document as they occur (Attachment A).

Special (nonroutine) sampling events that are outside the scope of the routine sampling activities described in this plan are documented using an ad hoc sampling checklist. The ad hoc procedure is provided as an appendix to the Quality Assurance Project Plan (DOE 2006).

A6.0 Recommendations for Well Abandonment and New Wells

Recommendations for well abandonment and installation of new wells cover the period of September 2010 through August 2011.

A6.1 Well Abandonment

Pinellas County Public Works plans a road construction project along Belcher and Bryan Dairy Roads in 2010 and 2011. New turn and acceleration lanes will be installed and the road right-of-

way will be expanded onto the southeast corner of the STAR Center. This work might affect as many as 23 of the monitoring wells in this area. Once the impacted wells are identified, they will be abandoned.

DOE is in the process of evaluating the monitoring well network at the STAR Center and the 4.5 Acre Site to determine if the wells are correctly located and screened at the correct intervals, if redundant wells exist, and if wells can be abandoned or if new wells need to be installed. Approximately 46 wells at the Northeast Site, Building 100 Area, the Wastewater Neutralization Area, and the 4.5 Acre Site have been identified for potential abandonment. None of these wells are scheduled for sampling in FY 2011.

A6.2 New Wells

New monitoring wells may be installed off site to the south of Bryan Dairy Road on private property for plume delineation. The exact number and locations of these wells will be determined following review of the results from the initial screening phase of plume delineation. In addition, new wells may be installed on site to replace those abandoned for road construction.

A7.0 Summary of Sampling Frequency

Table A–7 shows a summary of the number of samples that will be collected in FY 2011, based on the sampling frequencies recommended in this document. Table A–8 lists the number of existing wells at each site.

A8.0 References

DOE (U.S. Department of Energy), 2001. *Pinellas STAR Center Annual Well Evaluation*, GJO-2001-268-TAR, MAC-PIN 28.8-1, Grand Junction Office, Grand Junction, Colorado, November.

DOE (U.S. Department of Energy), 2003. Y*oung - Rainey STAR Center Pinellas Environmental Restoration Project Historical Review and Evaluation of Contaminants of Potential Concern*, GJO-2002-359-TAC, Grand Junction, Colorado, February.

DOE (U.S. Department of Energy), 2006. *Pinellas Environmental Restoration Project Quality Assurance Project Plan for the Young - Rainey STAR Center and 4.5 Acre Site*, Office of Legacy Management, Grand Junction, Colorado, August.

DOE (U.S. Department of Energy), 2009. *Closure Monitoring Plan for the Northeast Site and 4.5 Acre Site*, LMS/PIN/N01401, Office of Legacy Management, Grand Junction, Colorado, August.

Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites, LMS/PLN/S04351, continually updated, prepared by the S.M. Stoller Corporation for the U.S. Department of Energy Office of Legacy Management, Grand Junction, Colorado.

Table A−1. Contaminants of Potential Concern and Cleanup Target Levels

Contaminants of Potential Concern	FDEP Cleanup Target Levels[a] (µg/L)[b]
Northeast Site	
Trichloroethene	30
Total 1,2-dichloroethene	630
cis-1,2-Dichloroethene	700
Vinyl chloride	10
Benzene	10
Toluene	10,000
Methylene chloride	50
Arsenic	100
Aluminum	2,000
Iron	3,000
Building 100 Area	
Trichloroethene	30
1,1-Dichloroethene	70
Total 1,2-Dichloroethene	630
cis-1,2-Dichloroethene	700
trans-1,2-Dichloroethene	1,000
Vinyl chloride	10
Arsenic	100
4.5 Acre Site	
Trichloroethene	30
Total 1,2-dichloroethene	630
cis-1,2-Dichloroethene	700
trans-1,2-Dichloroethene	1,000
Vinyl chloride	10
Benzene	10
Arsenic	100

[a] The on-site CTLs are listed in this table. The off-site CTLs are a factor of 10 lower than the on-site CTLs as described in Section A2.0.
[b] µg/L = micrograms per liter.

Table A−2. Wells Installed From September 2009 Through August 2010

Site	Well ID	Well Type	Date of Installation	Comments
Building 100 Area				
PIN12	0567-1	Monitoring Well	9/23/09	Used for off-site plume delineation
	0567-2	Monitoring Well	9/23/09	Used for off-site plume delineation
	0567-3	Monitoring Well	9/23/09	Used for off-site plume delineation
	0568-1	Monitoring Well	9/23/09	Used for off-site plume delineation
	0568-2	Monitoring Well	9/23/09	Used for off-site plume delineation
	0568-3	Monitoring Well	9/23/09	Used for off-site plume delineation
	0569-1	Monitoring Well	9/22/09	Used for off-site plume delineation
	0569-2	Monitoring Well	9/22/09	Used for off-site plume delineation
	0569-3	Monitoring Well	9/22/09	Used for off-site plume delineation
	0570-1	Monitoring Well	3/22/10	Used for off-site plume delineation
	0570-2	Monitoring Well	3/22/10	Used for off-site plume delineation
	0570-3	Monitoring Well	3/22/10	Used for off-site plume delineation
	0571-1	Monitoring Well	3/23/10	Used for off-site plume delineation
	0571-2	Monitoring Well	3/23/10	Used for off-site plume delineation
	0571-3	Monitoring Well	3/23/10	Used for off-site plume delineation
Northeast Site				
PIN15	0593	Monitoring Well	10/20/09	Used for closure monitoring
	0594	Monitoring Well	10/20/09	Used for closure monitoring
4.5 Acre Site				
PIN20	M065	Monitoring Well	10/21/09	Used for closure monitoring
	M066	Monitoring Well	10/21/09	Used for closure monitoring
	M067	Monitoring Well	10/21/09	Used for closure monitoring
	M068	Monitoring Well	10/21/09	Used for closure monitoring
	M069	Monitoring Well	10/21/09	Used for closure monitoring

Table A−3. Well Completion Data

Well ID	Well Type	Screen Interval (ft below land surface)	Well Diameter (inches)	Installation Date
Building 100 Area				
PIN06-0500	Monitoring Well	3–13	2	4/23/89
PIN06-0501	Monitoring Well	3–13	2	4/23/89
PIN09-0500	Monitoring Well	3–13	2	4/23/90
PIN10-0500	Monitoring Well	3–13	2	4/27/90
PIN12-0509	Monitoring Well	3–13	2	4/25/90
PIN12-0513	Monitoring Well	15–25	2	5/9/95
PIN12-0514	Monitoring Well	30–40	2	5/9/95
PIN12-0515	Monitoring Well	15–25	2	5/10/95
PIN12-0516	Monitoring Well	30–40	2	5/10/95
PIN12-0517	Monitoring Well	15–25	2	5/11/95
PIN12-0518	Monitoring Well	30–40	2	5/11/95
PIN12-0520	Monitoring Well	36–46	2	5/2/95
PIN12-0521	Monitoring Well	19.5–29.5	2	5/5/95
PIN12-0522	Monitoring Well	32–42	2	5/3/95
PIN12-0523	Monitoring Well	18–28	2	5/5/95
PIN12-0524	Monitoring Well	27–37	2	5/12/95
PIN12-0525	Monitoring Well	12–22	2	5/12/95
PIN12-0526	Monitoring Well	19.5–29.5	2	10/14/98
PIN12-0527	Monitoring Well	118–137.9	2	8/25/99
PIN12-0528	Monitoring Well	127–146.9	2	5/1/00
PIN12-0529	Monitoring Well	10–20	1	10/8/07
PIN12-0530	Monitoring Well	19.5–29.5	1	10/8/07
PIN12-0531	Monitoring Well	10–20	1	10/9/07
PIN12-0532	Monitoring Well	20–30	1	10/9/07
PIN12-0533	Monitoring Well	10–20	1	10/9/07
PIN12-0534	Monitoring Well	20–30	1	10/9/07
PIN12-0535	Monitoring Well	10–20	1	10/9/07
PIN12-0536	Monitoring Well	20–30	1	10/9/07
PIN12-0537	Monitoring Well	10–20	1	10/10/07
PIN12-0538	Monitoring Well	20–30	1	10/10/07
PIN12-0539	Monitoring Well	9.5–19.5	1	10/10/07
PIN12-0540	Monitoring Well	20–30	1	10/10/07
PIN12-0541	Monitoring Well	10–20	1	10/10/07
PIN12-0542	Monitoring Well	20–30	1	10/10/07
PIN12-0543	Monitoring Well	28–38	1	12/10/07
PIN12-0544	Monitoring Well	30–40	1	12/11/07
PIN12-0545	Monitoring Well	29.5–39.5	1	12/11/07
PIN12-0546	Monitoring Well	29.5–39.5	1	12/11/07
PIN12-0547	Monitoring Well	29.5–39.5	1	12/12/07
PIN12-0548	Monitoring Well	30–40	1	12/12/07
PIN12-0549	Monitoring Well	30–40	1	12/11/07

Table A−3 (continued). Well Completion Data

Well ID	Well Type	Screen Interval (ft below land surface)	Well Diameter (inches)	Installation Date
PIN12-0550-1	Monitoring Well	9–18	1.1	2/14/08
PIN12-0550-2	Monitoring Well	20–29	1.1	2/14/08
PIN12-0550-3	Monitoring Well	31–40	1.1	2/14/08
PIN12-0551-1	Monitoring Well	9–18	1.1	2/14/08
PIN12-0551-2	Monitoring Well	20–29	1.1	2/14/08
PIN12-0551-3	Monitoring Well	31–40	1.1	2/14/08
PIN12-0552-1	Monitoring Well	9–18	1.1	2/15/08
PIN12-0552-2	Monitoring Well	20–29	1.1	2/15/08
PIN12-0552-3	Monitoring Well	31–40	1.1	2/15/08
PIN12-0553A	Monitoring Well	3–13	1	6/14/08
PIN12-0553B	Monitoring Well	13–23	1	6/14/08
PIN12-0553C	Monitoring Well	23–33	1	6/14/08
PIN12-0554A	Monitoring Well	3–13	1	5/31/08
PIN12-0554B	Monitoring Well	13–23	1	5/31/08
PIN12-0554C	Monitoring Well	23–33	1	5/31/08
PIN12-0555A	Monitoring Well	2.5–12.5	1	6/7/08
PIN12-0555B	Monitoring Well	13–23	1	6/7/08
PIN12-0555C	Monitoring Well	23–33	1	6/7/08
PIN12-0556A	Monitoring Well	3–13	1	6/22/08
PIN12-0556B	Monitoring Well	13–23	1	6/1/08
PIN12-0556C	Monitoring Well	23–33	1	6/7/08
PIN12-0557A	Monitoring Well	3–13	1	6/1/08
PIN12-0557B	Monitoring Well	13–23	1	6/1/08
PIN12-0557C	Monitoring Well	23–33	1	6/1/08
PIN12-0558A	Monitoring Well	3–13	1	6/8/08
PIN12-0558B	Monitoring Well	13–23	1	6/22/08
PIN12-0558C	Monitoring Well	23–33	1	6/8/08
PIN12-0559-1	Monitoring Well	9–18	1.1	11/23/08
PIN12-0559-2	Monitoring Well	20–29	1.1	11/23/08
PIN12-0559-3	Monitoring Well	31–40	1.1	11/23/08
PIN12-0560-1	Monitoring Well	9–18	1.1	11/22/08
PIN12-0560-2	Monitoring Well	20–29	1.1	11/22/08
PIN12-0560-3	Monitoring Well	31–40	1.1	11/22/08
PIN12-0561-1	Monitoring Well	9–18	1.1	11/22/08
PIN12-0561-2	Monitoring Well	20–29	1.1	11/22/08
PIN12-0561-3	Monitoring Well	31–40	1.1	11/22/08
PIN12-0562-1	Monitoring Well	9–18	1.1	11/24/08
PIN12-0562-2	Monitoring Well	20–29	1.1	11/24/08
PIN12-0562-3	Monitoring Well	31–40	1.1	11/24/08
PIN12-0563-1	Monitoring Well	9–18	1.1	11/21/08
PIN12-0563-2	Monitoring Well	20–29	1.1	11/21/08
PIN12-0563-3	Monitoring Well	31–40	1.1	11/21/08
PIN12-0564-1	Monitoring Well	9–18	1.1	5/5/09

Table A−3 (continued). Well Completion Data

Well ID	Well Type	Screen Interval (ft below land surface)	Well Diameter (inches)	Installation Date
PIN12-0564-2	Monitoring Well	20–29	1.1	5/5/09
PIN12-0564-3	Monitoring Well	31–40	1.1	5/5/09
PIN12-0565-1	Monitoring Well	9–18	1.1	5/5/09
PIN12-0565-2	Monitoring Well	20–29	1.1	5/5/09
PIN12-0565-3	Monitoring Well	31–40	1.1	5/5/09
PIN12-0566-1	Monitoring Well	10–19	1.1	5/6/09
PIN12-0566-2	Monitoring Well	21–30	1.1	5/6/09
PIN12-0566-3	Monitoring Well	32–41	1.1	5/6/09
PIN12-0567-1	Monitoring Well	9–18	1.1	9/23/09
PIN12-0567-2	Monitoring Well	20–29	1.1	9/23/09
PIN12-0567-3	Monitoring Well	31–40	1.1	9/23/09
PIN12-0568-1	Monitoring Well	9–18	1.1	9/23/09
PIN12-0568-2	Monitoring Well	20–29	1.1	9/23/09
PIN12-0568-3	Monitoring Well	31–40	1.1	9/23/09
PIN12-0569-1	Monitoring Well	9–18	1.1	9/22/09
PIN12-0569-2	Monitoring Well	20–29	1.1	9/22/09
PIN12-0569-3	Monitoring Well	31–40	1.1	9/22/09
PIN12-0570-1	Monitoring Well	9–18	1.1	3/22/10
PIN12-0570-2	Monitoring Well	20–29	1.1	3/22/10
PIN12-0570-3	Monitoring Well	31–40	1.1	3/22/10
PIN12-0571-1	Monitoring Well	9–18	1.1	3/23/10
PIN12-0571-2	Monitoring Well	20–29	1.1	3/23/10
PIN12-0571-3	Monitoring Well	31–40	1.1	3/23/10
PIN12-RW01	Recovery Well	19–29	6	7/6/95
PIN12-RW02	Recovery Well	25–35	6	7/7/95
PIN12-RW03	Recovery Well	3–38	4	9/25/08
PIN12-S29C	Monitoring Well	14–24	2	5/1/95
PIN12-S30B	Monitoring Well	5–15	2	5/1/95
PIN12-S31B	Monitoring Well	5–15	2	5/1/95
PIN12-S32B	Monitoring Well	5.5–15.5	2	5/1/95
PIN12-S33C	Monitoring Well	11–21	2	7/1/95
PIN12-S35B	Monitoring Well	5–15	2	7/1/95
PIN12-S36B	Monitoring Well	5–15	2	7/1/95
PIN12-S37B	Monitoring Well	5–15	2	7/1/95
PIN12-S67B	Monitoring Well	10–19.83	1	9/6/01
PIN12-S67C	Monitoring Well	20–29.83	1	9/6/01
PIN12-S67D	Monitoring Well	30–39.83	1	9/6/01
PIN12-S68B	Monitoring Well	10–20	1	3/19/02
PIN12-S68C	Monitoring Well	18–28	1	3/19/02
PIN12-S68D	Monitoring Well	30–40	1	3/19/02
PIN12-S69B	Monitoring Well	10–20	1	3/20/02
PIN12-S69C	Monitoring Well	20–30	1	3/20/02
PIN12-S69D	Monitoring Well	30–40	1	3/20/02

Table A−3 (continued). Well Completion Data

Well ID	Well Type	Screen Interval (ft below land surface)	Well Diameter (inches)	Installation Date
PIN12-S70B	Monitoring Well	10–20	1	3/19/02
PIN12-S70C	Monitoring Well	20–30	1	3/19/02
PIN12-S70D	Monitoring Well	30–40	1	3/19/02
PIN12-S71B	Monitoring Well	10–20	1	3/19/02
PIN12-S71C	Monitoring Well	20–30	1	3/19/02
PIN12-S71D	Monitoring Well	30–40	1	3/19/02
PIN12-S72B	Monitoring Well	10–20	1	3/19/02
PIN12-S72C	Monitoring Well	20–30	1	3/19/02
PIN12-S72D	Monitoring Well	30–40	1	3/19/02
PIN12-S73B	Monitoring Well	10–20	1	3/20/02
PIN12-S73C	Monitoring Well	20–30	1	3/20/02
PIN12-S73D	Monitoring Well	30–40	1	3/20/02
PIN12-TE03	Monitoring Well	unknown	2	11/1/85
PIN21-0502	Monitoring Well	7–17	2	8/12/91
PIN21-0503	Monitoring Well	20–28	2	8/13/91
PIN21-0504	Monitoring Well	7–17	2	8/13/91
PIN21-0505	Monitoring Well	20–28	2	8/13/91
PIN21-0512	Monitoring Well	20–29.5	2	10/13/98
Northeast Site				
PIN15-0506	Monitoring Well	12–21.5	2	1/8/87
PIN15-0507	Monitoring Well	5–14.5	2	1/8/87
PIN15-0510	Monitoring Well	4–13.5	2	4/7/87
PIN15-0513	Monitoring Well	135–149.6	4	6/9/88
PIN15-0514	Monitoring Well	15.5–25.5	2	3/26/91
PIN15-0515	Monitoring Well	7.6–17.6	2	4/11/91
PIN15-0516	Monitoring Well	0.3–10.3	2	3/26/91
PIN15-0518	Monitoring Well	23–28	2	9/1/84
PIN15-0520	Monitoring Well	5–14.5	2	4/13/87
PIN15-0530	Monitoring Well	5–14.5	2	4/13/87
PIN15-0534	Monitoring Well	19.5–29	2	9/29/98
PIN15-0535	Monitoring Well	20.5–30	2	9/29/98
PIN15-0537	Monitoring Well	17.5–30	2	9/30/98
PIN15-0559	Monitoring Well	22–31.5	2	8/6/99
PIN15-0566	Monitoring Well	19–28.5	2	9/25/01
PIN15-0568	Monitoring Well	10–20	1	1/30/03
PIN15-0569	Monitoring Well	20–30	1	1/30/03
PIN15-0570	Monitoring Well	20–30	1	1/30/03
PIN15-0571	Monitoring Well	10–20	1	1/30/03
PIN15-0572	Monitoring Well	20–30	1	1/30/03
PIN15-0573	Monitoring Well	5–15	1	5/17/04
PIN15-0574	Monitoring Well	18–28	2	6/7/04
PIN15-0575	Monitoring Well	5–15	1	5/17/04
PIN15-0576	Monitoring Well	20–30	2	6/7/04

Table A−3 (continued). Well Completion Data

Well ID	Well Type	Screen Interval (ft below land surface)	Well Diameter (inches)	Installation Date
PIN15-0577	Monitoring Well	5–15	1	5/17/04
PIN15-0578	Monitoring Well	20–30	2	6/8/04
PIN15-0584	Monitoring Well	20–30	1	2/21/07
PIN15-0593	Monitoring Well	10–20	1	10/20/09
PIN15-0594	Monitoring Well	20–30	1	10/20/09
PIN15-M03D	Monitoring Well	15–25	2	8/16/93
PIN15-M03S	Monitoring Well	2.5–12	2	1/12/87
PIN15-M14D	Monitoring Well	18.5–28.5	2	1/9/96
PIN15-M14S	Monitoring Well	4–14	2	1/9/96
PIN15-M16D	Monitoring Well	18.5–28.5	2	9/27/95
PIN15-M16S	Monitoring Well	5–14.5	2	4/10/87
PIN15-M24D	Monitoring Well	20–30	2	1/10/96
PIN15-M27D	Monitoring Well	21–31	2	9/29/95
PIN15-M27S	Monitoring Well	6–16	2	9/26/95
PIN15-M32D	Monitoring Well	14–24	2	9/27/95
PIN15-M32S	Monitoring Well	3–13	2	9/27/95
PIN15-M33D	Monitoring Well	20–30	2	1/10/96
Wastewater Neutralization Area				
PIN18-0500	Monitoring Well	11–16	2	11/19/90
PIN18-0502	Monitoring Well	11–16	2	11/19/90
PIN18-0503	Monitoring Well	10–20	2	7/23/93
PIN18-0504	Monitoring Well	13–22	2	7/24/93
PIN18-0505	Monitoring Well	10.5–20.5	2	7/25/93
PIN18-0506	Monitoring Well	12–22	2	7/25/93
PIN18-0507	Monitoring Well	27–37	2	7/26/93
PIN18-0508	Monitoring Well	31–41	2	7/20/93
PIN18-0509	Monitoring Well	27.5–37.5	2	7/20/93
PIN18-0510	Monitoring Well	27.5–37.5	2	7/31/93
PIN18-0519	Monitoring Well	12.5–22.5	2	10/1/94
PIN18-0520	Monitoring Well	32.5–42.5	2	10/3/94
PIN18-0521	Monitoring Well	20–30	2	10/4/94
PIN18-0522	Monitoring Well	5–15	2	10/4/94
PIN18-0523	Monitoring Well	32.5–42.5	2	10/5/94
PIN18-0524	Monitoring Well	20–30	2	10/5/94
PIN18-0525	Monitoring Well	5–15	2	10/5/94
PIN18-0526	Monitoring Well	19.5–29	2	10/4/94
PIN18-RW02	Recovery Well	10–20	4	9/7/00
PIN18-RW03	Recovery Well	9–24	4	9/7/00
PIN18-RW0501	Recovery Well	11–16	2	6/5/03
4.5 Acre Site Area				
PIN20-0502	Monitoring Well	21.2–31.2	2	3/22/91
PIN20-0503	Monitoring Well	13.2–23.2	2	3/22/91
PIN20-M001	Monitoring Well	20–25	2	5/17/85

Table A−3 (continued). Well Completion Data

Well ID	Well Type	Screen Interval (ft below land surface)	Well Diameter (inches)	Installation Date
PIN20-M003	Monitoring Well	9–14	2	5/20/85
PIN20-M005	Monitoring Well	25.8–30.7	2	5/19/85
PIN20-M007	Monitoring Well	25.3–30.3	2	8/15/85
PIN20-M011	Monitoring Well	23.7–28.7	2	8/16/85
PIN20-M012	Monitoring Well	8.6–13.6	2	8/17/85
PIN20-M015	Monitoring Well	20.8–25.8	2	8/20/85
PIN20-M019	Monitoring Well	22–27	2	10/18/85
PIN20-M023	Monitoring Well	19.8–24.8	2	10/20/85
PIN20-M024	Monitoring Well	8.7–13.7	2	10/20/85
PIN20-M025	Monitoring Well	8.6–13.6	2	10/20/85
PIN20-M028	Monitoring Well	22–27	2	2/13/86
PIN20-M035	Monitoring Well	9–14	2	2/17/86
PIN20-M036	Monitoring Well	25–30	2	2/18/86
PIN20-M053	Monitoring Well	20–30	2	6/22/01
PIN20-M055	Monitoring Well	21–31	2	1/23/04
PIN20-M056	Monitoring Well	19–29	2	1/23/04
PIN20-M057	Monitoring Well	20–30	2	1/23/04
PIN20-M058	Monitoring Well	18–28	2	1/23/04
PIN20-M059	Monitoring Well	19–29	2	1/22/04
PIN20-M065	Monitoring Well	10–20	1	10/21/09
PIN20-M066	Monitoring Well	20–30	1	10/21/09
PIN20-M067	Monitoring Well	10–20	1	10/21/09
PIN20-M068	Monitoring Well	20–30	1	10/21/09
PIN20-M069	Monitoring Well	10–20	1	10/21/09
PIN20-M18D	Monitoring Well	20–30	2	6/25/99
PIN20-M22D	Monitoring Well	20–30	2	6/25/99
PIN20-M38D	Monitoring Well	20–30	2	7/19/89
PIN20-M40D	Monitoring Well	18–28	2	7/20/89
PIN20-M40S	Monitoring Well	4–14	2	7/20/89
PIN20-M41D	Monitoring Well	16–26	2	1/15/93
PIN20-RW01	Recovery Well	10–30	4	1/21/04
PIN20-RW02	Recovery Well	8–28	4	1/21/04
PIN20-RW03	Recovery Well	8–28	4	1/22/04
Sitewide Piezometers				
PIN02-PZ03	Piezometer	2–12	1	2/22/07
PIN02-PZ04	Piezometer	2–12	1	2/21/07
PIN02-PZ05	Piezometer	2–12	1	2/21/07
PIN02-PZ08	Piezometer	2–12	1	2/21/07
PIN02-PZ09	Piezometer	2–12	1	2/21/07
PIN02-PZ10	Piezometer	5–15	1	11/24/08
PIN02-PZ11	Piezometer	20–30	1	11/24/08

Table A−4. FY 2011 Well Sampling Frequency

Well	FY 2011 VOCs	FY 2010 VOCs	FY 2011 1,4-dioxane	FY 2010 1,4-dioxane	FY 2011 Al and Fe	FY 2010 Al and Fe	FY 2011 Bioremediation Parameters
Building 100 Area							
PIN06-0500	A	A	F	F	F	F	F
PIN06-0501	F	F	F	F	F	F	F
PIN09-0500	F	F	F	F	F	F	F
PIN10-0500	F	F	F	F	F	F	F
PIN12-0509	A	A	F	F	F	F	F
PIN12-0513	A	A	F	F	F	F	F
PIN12-0514	F	F	F	F	F	F	F
PIN12-0515	A	A	F	F	F	F	F
PIN12-0516	A	A	F	F	F	F	F
PIN12-0517	A	A	F	F	F	F	F
PIN12-0518	A	A	F	F	F	F	F
PIN12-0520	F	F	F	F	F	F	F
PIN12-0521	A	A	F	F	F	F	F
PIN12-0522	F	F	F	F	F	F	F
PIN12-0523	F	F	F	F	F	F	F
PIN12-0524	S	S	F	F	F	F	F
PIN12-0525	S	S	F	F	F	F	F
PIN12-0526	F	A	F	F	F	F	F
PIN12-0527	A	A	F	F	F	F	F
PIN12-0528	A	A	F	F	F	F	F
PIN12-0529	S	S	S	S	F	F	F
PIN12-0530	S	S	S	S	F	F	F
PIN12-0531	S	S	F	F	F	F	F
PIN12-0532	S	S	F	F	F	F	F
PIN12-0533	S	S	F	F	F	F	F
PIN12-0534	S	S	F	F	F	F	F
PIN12-0535	S	S	F	F	F	F	F
PIN12-0536	S	S	F	F	F	F	F
PIN12-0537	S	S	F	F	F	F	F
PIN12-0538	S	S	F	F	F	F	F
PIN12-0539	S	S	S	S	F	F	F
PIN12-0540	S	S	S	S	F	F	F
PIN12-0541	S	S	F	F	F	F	F
PIN12-0542	S	S	F	F	F	F	F
PIN12-0543	S	S	S	S	F	F	F
PIN12-0544	S	S	F	F	F	F	F
PIN12-0545	S	S	F	F	F	F	F
PIN12-0546	S	S	F	F	F	F	F
PIN12-0547	S	S	F	F	F	F	F
PIN12-0548	S	S	S	S	F	F	F
PIN12-0549	S	S	F	F	F	F	F

Table A−4 (continued). FY 2011 Well Sampling Frequency

Well	FY 2011 VOCs	FY 2010 VOCs	FY 2011 1,4-dioxane	FY 2010 1,4-dioxane	FY 2011 Al and Fe	FY 2010 Al and Fe	FY 2011 Bioremediation Parameters
PIN12-0550-1	S	S	F	F	F	F	F
PIN12-0550-2	S	S	F	F	F	F	F
PIN12-0550-3	S	S	F	F	F	F	F
PIN12-0551-1	S	S	F	F	F	F	F
PIN12-0551-2	S	S	F	F	F	F	F
PIN12-0551-3	S	S	F	F	F	F	F
PIN12-0552-1	S	S	S	S	F	F	F
PIN12-0552-2	S	S	S	S	F	F	F
PIN12-0552-3	S	S	S	S	F	F	F
PIN12-0553A	S	S	F	F	F	F	F
PIN12-0553B	S	S	F	F	F	F	F
PIN12-0553C	S	S	F	F	F	F	F
PIN12-0554A	S	S	F	F	F	F	F
PIN12-0554B	S	S	F	F	F	F	F
PIN12-0554C	S	S	F	F	F	F	F
PIN12-0555A	S	S	F	F	F	F	F
PIN12-0555B	S	S	F	F	F	F	F
PIN12-0555C	S	S	F	F	F	F	F
PIN12-0556A	F	F	F	F	F	F	F
PIN12-0556B	F	F	F	F	F	F	F
PIN12-0556C	F	F	F	F	F	F	F
PIN12-0557A	F	F	F	F	F	F	F
PIN12-0557B	F	F	F	F	F	F	F
PIN12-0557C	F	F	F	F	F	F	F
PIN12-0558A	F	F	F	F	F	F	F
PIN12-0558B	F	F	F	F	F	F	F
PIN12-0558C	F	F	F	F	F	F	F
PIN12-0559-1	A	S	F	F	F	F	F
PIN12-0559-2	A	S	F	F	F	F	F
PIN12-0559-3	A	S	F	F	F	F	F
PIN12-0560-1	A	S	F	F	F	F	F
PIN12-0560-2	A	S	F	F	F	F	F
PIN12-0560-3	A	S	F	F	F	F	F
PIN12-0561-1	S	S	F	F	F	F	F
PIN12-0561-2	S	S	F	F	F	F	F
PIN12-0561-3	S	S	F	F	F	F	F
PIN12-0562-1	S	S	F	F	F	F	F
PIN12-0562-2	S	S	F	F	F	F	F
PIN12-0562-3	S	S	F	F	F	F	F
PIN12-0563-1	S	S	F	F	F	F	F
PIN12-0563-2	S	S	F	F	F	F	F
PIN12-0563-3	S	S	F	F	F	F	F

Table A−4 (continued). FY 2011 Well Sampling Frequency

Well	FY 2011 VOCs	FY 2010 VOCs	FY 2011 1,4-dioxane	FY 2010 1,4-dioxane	FY 2011 Al and Fe	FY 2010 Al and Fe	FY 2011 Bioremediation Parameters
PIN12-0564-1	S	S	S	S	F	F	F
PIN12-0564-2	S	S	S	S	F	F	F
PIN12-0564-3	S	S	S	S	F	F	F
PIN12-0565-1	S	S	S	S	F	F	F
PIN12-0565-2	S	S	S	S	F	F	F
PIN12-0565-3	S	S	S	S	F	F	F
PIN12-0566-1	S	S	S	S	F	F	F
PIN12-0566-2	S	S	S	S	F	F	F
PIN12-0566-3	S	S	S	S	F	F	F
PIN12-0567-1	S	–	S	–	F	–	F
PIN12-0567-2	S	–	S	–	F	–	F
PIN12-0567-3	S	–	S	–	F	–	F
PIN12-0568-1	S	–	S	–	F	–	F
PIN12-0568-2	S	–	S	–	F	–	F
PIN12-0568-3	S	–	S	–	F	–	F
PIN12-0569-1	S	–	S	–	F	–	F
PIN12-0569-2	S	–	S	–	F	–	F
PIN12-0569-3	S	–	S	–	F	–	F
PIN12-0570-1	S	–	S	–	F	–	F
PIN12-0570-2	S	–	S	–	F	–	F
PIN12-0570-3	S	–	S	–	F	–	F
PIN12-0571-1	S	–	S	–	F	–	F
PIN12-0571-2	S	–	S	–	F	–	F
PIN12-0571-3	S	–	S	–	F	–	F
PIN12-RW01	F	F	F	F	F	F	F
PIN12-RW02	F	F	F	F	F	F	F
PIN12-RW03	*	*	F	F	F	F	F
PIN12-S29C	F	F	F	F	F	F	F
PIN12-S30B	A	A	F	F	F	F	F
PIN12-S31B	F	F	F	F	F	F	F
PIN12-S32B	F	F	F	F	F	F	F
PIN12-S33C	A	A	F	F	F	F	F
PIN12-S35B	A	A	F	F	F	F	F
PIN12-S36B	A	A	F	F	F	F	F
PIN12-S37B	F	F	F	F	F	F	F
PIN12-S67B	A	A	F	F	F	F	F
PIN12-S67C	A	A	F	F	F	F	F
PIN12-S67D	A	A	F	F	F	F	F
PIN12-S68B	A	A	F	F	F	F	F
PIN12-S68C	A	A	F	F	F	F	F
PIN12-S68D	A	A	F	F	F	F	F
PIN12-S69B	A	A	F	F	F	F	F
PIN12-S69C	A	A	F	F	F	F	F

Table A−4 (continued). FY 2011 Well Sampling Frequency

Well	FY 2011 VOCs	FY 2010 VOCs	FY 2011 1,4-dioxane	FY 2010 1,4-dioxane	FY 2011 Al and Fe	FY 2010 Al and Fe	FY 2011 Bioremediation Parameters
PIN12-S69D	A	A	F	F	F	F	F
PIN12-S70B	A	A	F	F	F	F	F
PIN12-S70C	A	A	F	F	F	F	F
PIN12-S70D	A	A	F	F	F	F	F
PIN12-S71B	A	A	F	F	F	F	F
PIN12-S71C	A	A	F	F	F	F	F
PIN12-S71D	A	A	F	F	F	F	F
PIN12-S72B	A	A	F	F	F	F	F
PIN12-S72C	A	A	F	F	F	F	F
PIN12-S72D	A	A	F	F	F	F	F
PIN12-S73B	A	A	F	F	F	F	F
PIN12-S73C	A	A	F	F	F	F	F
PIN12-S73D	A	A	F	F	F	F	F
PIN12-TE03	F	F	F	F	F	F	F
PIN21-0502	S	S	F	F	F	F	F
PIN21-0503	S	S	F	F	F	F	F
PIN21-0504	S	S	F	F	F	F	F
PIN21-0505	S	S	F	F	F	F	F
PIN21-0512	F	F	F	F	F	F	F
Northeast Site							
PIN15-0506	F	F	F	F	F	F	F
PIN15-0507	F	F	F	F	F	F	F
PIN15-0513	F	F	F	F	F	F	F
PIN15-0514	F	F	F	F	F	F	F
PIN15-0515	F	F	F	F	F	F	F
PIN15-0516	F	F	F	F	F	F	F
PIN15-0518	F	F	F	F	F	F	F
PIN15-0520	S	Q	F	F	S	Q	F
PIN15-0530	S	Q	F	F	S	Q	S
PIN15-0534	S	Q	F	F	S	Q	F
PIN15-0535	S	Q	F	F	S	Q	S
PIN15-0537	S	Q	F	F	S	Q	S
PIN15-0559	F	F	F	F	F	F	F
PIN15-0566	F	F	F	F	F	F	F
PIN15-0567	F	F	F	F	F	F	F
PIN15-0568	S	Q	F	F	S	Q	F
PIN15-0569	S	Q	F	F	S	Q	F
PIN15-0570	F	F	F	F	F	F	F
PIN15-0571	F	F	F	F	F	F	F
PIN15-0572	F	F	F	F	F	F	F
PIN15-0573	F	F	F	F	F	F	F
PIN15-0574	F	F	F	F	F	F	F
PIN15-0575	F	F	F	F	F	F	F

Table A−4 (continued). FY 2011 Well Sampling Frequency

Well	FY 2011 VOCs	FY 2010 VOCs	FY 2011 1,4-dioxane	FY 2010 1,4-dioxane	FY 2011 Al and Fe	FY 2010 Al and Fe	FY 2011 Bioremediation Parameters
PIN15-0576	F	F	F	F	F	F	F
PIN15-0584	F	F	F	F	F	F	F
PIN15-0593	S	Q	F	F	S	Q	S
PIN15-0594	S	Q	F	F	S	Q	S
PIN15-M03D	F	F	F	F	F	F	F
PIN15-M03S	F	F	F	F	F	F	F
PIN15-M14D	F	F	F	F	F	F	F
PIN15-M14S	F	F	F	F	F	F	F
PIN15-M16D	F	F	F	F	F	F	F
PIN15-M16S	F	F	F	F	F	F	F
PIN15-M24D	F	F	F	F	F	F	F
PIN15-M27D	F	F	F	F	F	F	F
PIN15-M27S	F	F	F	F	F	F	F
PIN15-M32D	F	F	F	F	F	F	F
PIN15-M32S	F	F	F	F	F	F	F
PIN15-M33D	F	F	F	F	F	F	F
4.5 Acre Site							
PIN20-0502	S	Q	F	F	F	F	F
PIN20-0503	S	Q	F	F	F	F	F
PIN20-M001	S	Q	F	F	F	F	S
PIN20-M003	S	Q	F	F	F	F	F
PIN20-M005	S	Q	F	F	F	F	F
PIN20-M007	F	F	F	F	F	F	F
PIN20-M011	F	F	F	F	F	F	F
PIN20-M012	F	F	F	F	F	F	F
PIN20-M015	S	Q	F	F	F	F	F
PIN20-M019	F	F	F	F	F	F	F
PIN20-M023	F	F	F	F	F	F	F
PIN20-M024	F	F	F	F	F	F	F
PIN20-M025	F	F	F	F	F	F	F
PIN20-M028	F	F	F	F	F	F	F
PIN20-M035	S	Q	F	F	F	F	F
PIN20-M036	F	F	F	F	F	F	F
PIN20-M049	F	F	F	F	F	F	F
PIN20-M053	S	F	F	F	F	F	S
PIN20-M054	F	F	F	F	F	F	F
PIN20-M055	F	F	F	F	F	F	F
PIN20-M056	S	F	F	F	F	F	S
PIN20-M057	S	F	F	F	F	F	S
PIN20-M058	S	F	F	F	F	F	S
PIN20-M059	S	F	F	F	F	F	S
PIN20-M065	S	Q	F	F	F	F	F
PIN20-M066	S	Q	F	F	F	F	F

Table A−4 (continued). FY 2011 Well Sampling Frequency

Well	FY 2011 VOCs	FY 2010 VOCs	FY 2011 1,4-dioxane	FY 2010 1,4-dioxane	FY 2011 Al and Fe	FY 2010 Al and Fe	FY 2011 Bioremediation Parameters
PIN20-M067	S	Q	F	F	F	F	S
PIN20-M068	S	Q	F	F	F	F	S
PIN20-M069	S	Q	F	F	F	F	S
PIN20-M18D	S	F	F	F	F	F	S
PIN20-M22D	F	F	F	F	F	F	F
PIN20-M38D	S	Q	F	F	F	F	F
PIN20-M40D	F	F	F	F	F	F	F
PIN20-M40S	F	F	F	F	F	F	F
PIN20-M41D	F	F	F	F	F	F	F
PIN20−RW01	F	F	F	F	F	F	F
PIN20−RW02	F	F	F	F	F	F	F
PIN20−RW03	F	F	F	F	F	F	F

Q = Quarterly S = Semiannual A = Annual
F = Potential Future Use (no routine sampling)
Al = aluminum
Fe = iron
* = RW03 is sampled as part of the monthly treatment system sampling (Table A–6)

Table A−5. Surface Water VOCs Sampling Frequency

Location	FY 2011 Sampling Frequency	Pond Name and Site
PIN15-E001	Annual	East Pond—Northeast Site
PIN23-SW01	Annual	Southwest Pond—Building 100 Area
PIN37-S002	Annual	South Pond—Building 100 Area

Table A−6. Treatment System Sampling Frequency

Sampling Location	Sampling Frequency	Analytes
Treatment System Influent (PIN12-RW03 effluent)	Monthly	VOCs
Treatment System Effluent	Monthly	VOCs, arsenic, pH, total suspended solids

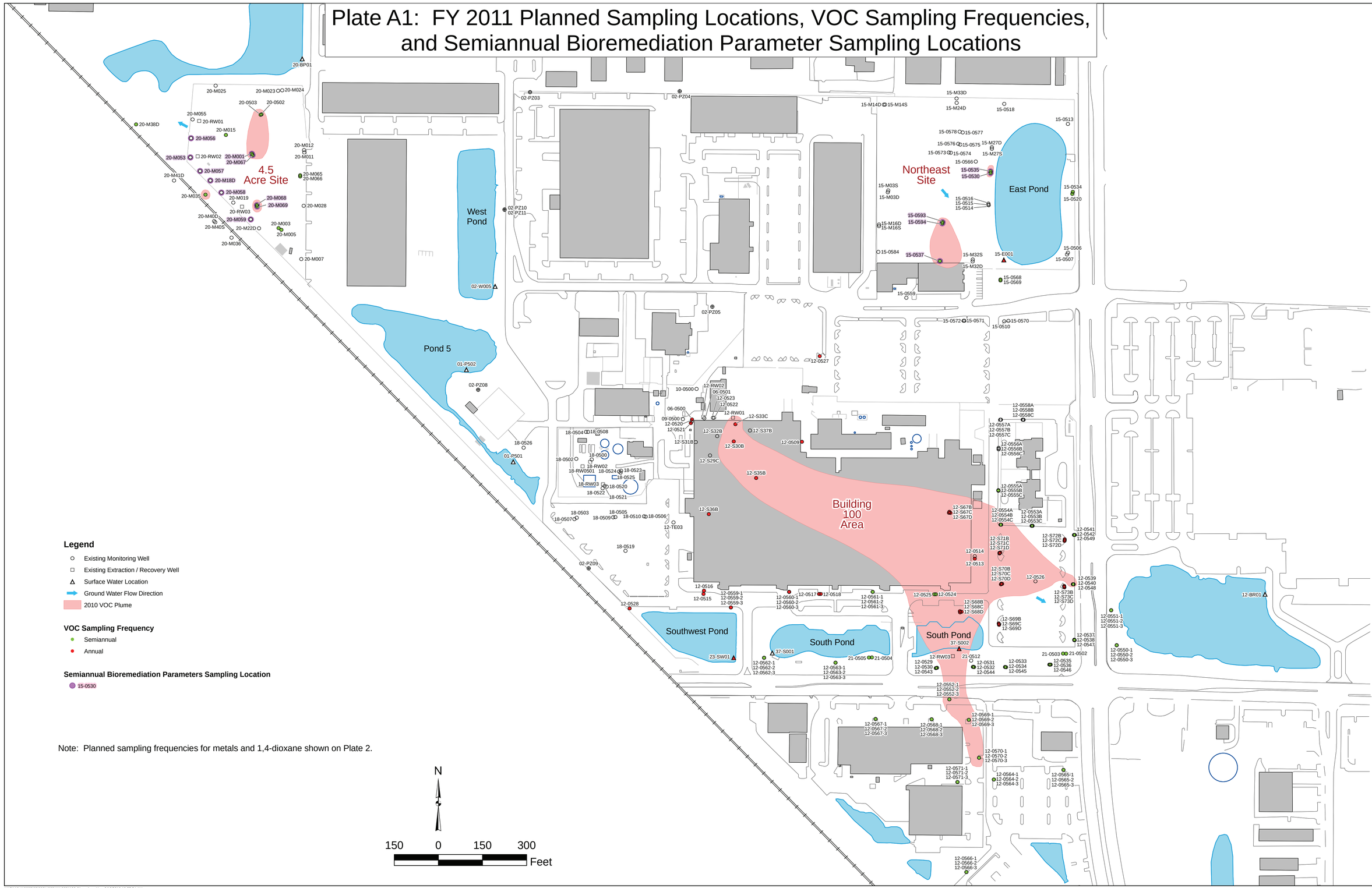
Table A−7. Summary of Number of Monitoring Well Samples for FY 2011

Analyte	March 2011	September 2011	FY 2011 Total
VOCs	145	101	246
Iron and Aluminum	9	9	18
1,4-Dioxane	33	33	66
Bioremediation Parameters	15	15	30
Total	202	158	360

Table A−8. Number of Existing Wells at Each Site

Site	Number of Monitoring and Recovery Wells
Building 100 Area	145
Northeast Site	41
4.5 Acre Site	36
Wastewater Neutralization Area	21
Total	243

Plate A1: FY 2011 Planned Sampling Locations, VOC Sampling Frequencies, and Semiannual Bioremediation Parameter Sampling Locations



Legend

- Existing Monitoring Well
- Existing Extraction / Recovery Well
- Surface Water Location
- Ground Water Flow Direction
- 2010 VOC Plume

VOC Sampling Frequency

- Semiannual
- Annual

Semiannual Bioremediation Parameters Sampling Location

- 15-0530

Note: Planned sampling frequencies for metals and 1,4-dioxane shown on Plate 2.

N

150 0 150 300

Feet

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Plate A2: FY 2011 Planned Sampling Locations, Metals Sampling Frequencies and 1,4-Dioxane Sampling Frequencies

4.5 Acre Site

Northeast Site

East Pond

West Pond

Pond 5

Southwest Pond

South Pond

South Pond

Building 100 Area

20-BP01 20-M025 20-M023 20-M024 20-0503 20-0502 20-M055 20-RW01 20-M038D 20-M015 20-M056 20-M053 20-RW02 20-M001 20-M067 20-M057 20-M041D 20-M18D 20-M058 20-M035 20-M019 20-RW03 20-M068 20-M069 20-M028 20-M040D 20-M059 20-M040S 20-M022D 20-M003 20-M005 20-M036 20-M012 20-M011 20-M065 20-M066 20-M007

02-PZ03 02-PZ04 15-M14D 15-M14S 15-M33D 15-M24D 15-0518 15-0513 15-0578 15-0577 15-0576 15-0575 15-M27D 15-0573 15-0574 15-M27S 15-0566 15-0535 15-0530 15-M03S 15-M03D 15-0516 15-0515 15-0514 15-0534 15-0520 15-0593 15-0594 15-M16D 15-M16S 15-0584 15-0537 15-M32S 15-E001 15-0506 15-0507 15-M32D 15-0568 15-0569 15-0559 15-0572 15-0571 15-0570 15-0510

02-PZ10 02-PZ11 02-W005 02-PZ05 12-0527 01-PS02 02-PZ08 10-0500 12-RW02 06-0501 12-0523 12-0522 06-0500 09-0500 12-0520 12-0521 12-RW01 12-S33C 12-S32B 12-S37B 12-S31B 12-S30B 12-0509 12-S29C 12-S35B 12-S36B 12-S67B 12-S67C 12-S67D 12-0514 12-0513 12-S71B 12-S71C 12-S71D 12-S70B 12-S70C 12-S70D 12-0526 12-S72B 12-S72C 12-S72D 12-0541 12-0542 12-0549 12-0539 12-0540 12-0548 12-S73B 12-S73C 12-S73D 12-0537 12-0538 12-0547 12-BR01 12-0551-1 12-0551-2 12-0551-3 12-0550-1 12-0550-2 12-0550-3

12-0558A 12-0558B 12-0558C 12-0557A 12-0557B 12-0557C 12-0556A 12-0556B 12-0556C 12-0555A 12-0555B 12-0555C 12-0554A 12-0554B 12-0554C 12-0553A 12-0553B 12-0553C

18-0504 18-0508 18-0526 01-P501 18-0502 18-0500 18-RW02 18-RW0501 18-0524 18-0523 18-0525 18-RW03 18-0520 18-0522 18-0521 18-0503 18-0507 18-0505 18-0509 18-0510 18-0506 12-TE03 18-0519 02-PZ09 12-0516 12-0515 12-0559-1 12-0559-2 12-0559-3 12-0528 12-0560-1 12-0560-2 12-0560-3 12-0517 12-0518 12-0561-1 12-0561-2 12-0561-3 12-0525 12-0524 12-S68B 12-S68C 12-S68D 12-S69B 12-S69C 12-S69D

37-S001 23-SW01 12-0562-1 12-0562-2 12-0562-3 12-0563-1 12-0563-2 12-0563-3 21-0505 21-0504 37-S002 12-RW03 12-0529 12-0530 12-0543 21-0512 12-0531 12-0532 12-0544 12-0533 12-0534 12-0545 21-0503 21-0502 12-0535 12-0536 12-0546

12-0552-1 12-0552-2 12-0552-3 12-0567-1 12-0567-2 12-0567-3 12-0568-1 12-0568-2 12-0568-3 12-0569-1 12-0569-2 12-0569-3 12-0570-1 12-0570-2 12-0570-3 12-0571-1 12-0571-2 12-0571-3 12-0564-1 12-0564-2 12-0564-3 12-0565-1 12-0565-2 12-0565-3 12-0566-1 12-0566-2 12-0566-3

Legend

- Existing Monitoring Well
- Existing Extraction / Recovery Well
- Surface Water Location
- Ground Water Flow Direction
- 2010 VOC Plume

Semiannual Aluminum and Iron Sampling

Semiannual 1-4,Dioxane Sampling

N

150 0 150 300 Feet

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Attachment A

FY 2011 Program Directives

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Appendix B

Institutional Control Documentation

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Appendix C

HSWA Permit

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Florida Department of Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

August 21, 2007

SENT VIA EMAIL
Jack.Craig@NETL.DOE.GOV

Mr. Jack Craig
U.S. Department of Energy
7887 Bryan Dairy Rd., Suite 120
Largo, Florida 33777

SUBJECT: Facility Name: U. S. Department of Energy
FL6 890 090 008
Corrective Action Permit 0034170/HH/003

Dear Mr. Craig:

Enclosed is Permit Number 0034170/HH/003 to HSWA Corrective Action. This permit is being issued pursuant to Section 403.722, Florida Statutes (F.S.), and Chapters 62-4, 62-160, 62-730, and 62-780, Florida Administrative Code (F.A.C.).

This permit modification is final and effective ("issued") on the date filed with the Clerk of the Department. When the permit is final, any party to the permit has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice to Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, Department of Environmental Protection, 3900 Commonwealth Boulevard, MS #35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal.

The Notice of Appeal must be filed within thirty (30) days from the date the final permit is issued. If you should have any questions, please contact John E. Griffin at (850) 245-8785 or john.griffin@dep.state.fl.us.

Sincerely,

Tim J. Bahr, Administrator
Hazardous Waste Regulation

TJB/jg

cc with enclosure:

Jeff Pallas, EPA/Region 4, pallas.jeff@epamail.epa.gov
Jim Dregne, DEP/Tampa, James.Dregne@dep.state.fl.us

Florida Department of
Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

FACT SHEET

August 21, 2007

Facility Name:	**U.S. Department of Energy, 7887 Bryan Dairy Rd., Largo, Florida**
EPA I.D. Number:	**FL6 890 090 008**
Permit #:	**Corrective Action Permit 0034170/HH/003**
Project:	**HWSA Corrective Action**

1. The permit is for facility-wide HSWA corrective action at Solid Waste Management Units and Areas of Concern.

2. Three SWMUs are undergoing remedial action to clean up groundwater contamination**.** All contamination exists within the facility property boundary.

3. There are no issues with this permit.

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Florida Department of Environmental Protection

Bob Martinez Center
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

PERMITTEE:
U.S. Department of Energy
7887 Bryan Dairy Rd., Suite 120
Largo, Florida 33777

ATTENTION: JACK CRAIG

I.D. NUMBER: FL6 890 090 008
PERMIT/CERTIFICATION NUMBER: 0034170/HH/003
DATE OF ISSUE: AUGUST 21, 2007
EXPIRATION DATE: JANUARY 10, 2012
COUNTY: Pinellas
LATITUDE /LONGITUDE: 27 °52'30"N/82°45'00"W
SECTION/TOWNSHIP/RANGE: 13/30 S/15 E
PROJECT: HSWA Corrective Action

U.S. Department of Energy, Owner/Operator
Pinellas County Board of Commissioners
"D.b.a." Pinellas County Industrial Development Authority, Landowner

Pursuant to authorization obtained by the Florida Department of Environmental Protection (FDEP) under the Resource Recovery and Conservation Act [42 United States Code (U.S.C.) 6901, *et seq*., commonly known as RCRA] and the Hazardous and Solid Waste Amendments of 1984 (HSWA), this permit is modified under the provisions of Section 403.722, Florida Statutes (F.S.) and Chapters 62-4, 62-160, 62-730, 62-777 and 62-780, Florida Administrative Code (F.A.C.) The above-named Permittee is hereby authorized to perform the work or operate the facility shown on the modification application of October 25, 2006, and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof.

The Permittee is required to investigate any releases of hazardous waste or hazardous constituents at the facility regardless of the time at which waste was placed in a unit and to take appropriate corrective action for any such releases. Solid Waste Management Unit(s) (SWMU) and Area(s) or Concern (AOC) identified to date are listed in Appendix A. Pursuant to 40 Code of Federal Regulations (CFR) 260.10 [as adopted by reference in Rule 62-730.020(1)], the corrective action requirements of this RCRA permit extend to all contiguous property under the control of the Permittee (see Attachment A, a map which demarks the property boundaries of land under the Permittee's control) and to all contamination that originated from discharges at the contiguous property under control of the Permittee.

This permit is based on the premise that information and reports submitted by the Permittee prior to issuance of this permit are accurate. Any inaccuracies found in this information or information submitted as required by this permit may be grounds for termination or modification of this permit in accordance with Rule 62-730.290, F.A.C and potential enforcement action.

Compliance with this RCRA permit constitutes compliance for purposes of enforcement with Subtitle C of RCRA, except for those requirements not included in the permit which become effective by statute; are promulgated under 40 CFR Part 268 restricting placement of hazardous waste in or on the land; or are promulgated under 40 CFR Part 264 regarding leak detection systems for new and replacement surface impoundments, waste piles, and landfill units, and lateral expansions of surface impoundments, waste piles, and landfill units, as specified in 40 CFR 270.4. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Section 3008(a), 3008(h), 3004(v), 3008(c), 3007, 3013 or Section 7003 of RCRA, Sections 104, 106(a), 106(e), or 107 of the

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 *et seq*., commonly known as CERCLA), or any other law providing for protection of public health or the environment.

The facility is located at 7887 Bryan Dairy Rd. Largo, Florida and is owned by Pinellas County Board of Commissioners "d.b.a." Pinellas County Industrial Development Authority.

The following documents were used in the preparation of this permit:

1. Application for RCRA Permit, dated May 17, 2001.

2. Application for Permit Modification, dated October 25, 2006

Table of Contents

Part I - General And Standard Conditions

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141 and 403.727, F.S. The Permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Sections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the Permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the Permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The Permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the Permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The Permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonable necessary to assure compliance with this permit or Department rules. Reasonable time may depend on the nature of the concern being investigated.

8. Permittee shall comply with the following notification and reporting requirements:

a. Reports of compliance or noncompliance with, or any progress reports on, requirements in any compliance schedule shall be submitted no later than 14 days after each schedule date.

b. If, for any reason, the Permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the Permittee shall immediately provide the Department with the following information:

(1). A description of and cause of noncompliance; and

(2). The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The Permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

c. Notification of any noncompliance which may endanger health or the environment, including the release of any hazardous waste that may endanger public drinking water supplies or the occurrence of a fire or explosion from the facility which could threaten the environment or human health outside the facility, shall be reported verbally to the Department within 24 hours, and a written report shall be provided within five days. The verbal report shall include the name, address, I.D. number, and telephone number of the facility, its owner or operator, the name and quantity of materials involved, the extent of any injuries, an assessment of actual or potential hazards, and the estimated quantity and disposition of recovered material. The written submission shall contain:

(1). A description and cause of the noncompliance.

(2). If not corrected, the expected time of correction, and the steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

d. Permittee shall comply with the “Notices” provisions of Rule 62-780.220, F.A.C.

e. The Permittee shall give written notice to the Department as soon as possible of any planned physical alterations or additions, including Permittee-initiated emergency response or interim source removal. The notice shall include at a minimum, a summary of the planned change, the reason for the planned change, a discussion of the impact(s) the planned change will have

on the ability to investigate contamination at or from the SWMU or AOC, and a discussion of the impact(s) the planned change will have on the known or suspected contamination.

f. The Permittee shall revise **"Part I - General" of the Application for a Hazardous Waste Facility Permit** [DEP Form 62-730.900(2)(a)] and submit the revised form to the Department within 30 days of any changes in the Part I information.

9. In accepting this permit, the Permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is proscribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The Permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the Permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.290(6) F.A.C., as applicable. The Permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department. Before transferring ownership or operation of this facility during the term of this permit, the Permittee must notify the new owner or operator in writing of the requirements of 40 CFR Part 264 and Chapter 62-730, F.A.C. [40 CFR 264.12(c)].

12. This permit or a copy thereof shall be kept at the work site of the permitted activity. In the event that there is no building or reasonable repository for such a copy at the work site, then the permit or a copy thereof shall be kept at an alternate location agreed to by the Department.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology (BACT);

    b. Determination of Prevention of Significant Deterioration (PSD);

    c. Certification of compliance with state Water Quality Standards (Section 401, PL 92-500); and

    d. Compliance with New Source Performance Standards.

14. The Permittee shall comply with the following recordkeeping requirements:

    a. Upon request, the Permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The Permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit; copies of all reports required by this permit; records of all data used to complete the application for this permit; and all monitoring data required by 40 CFR Part 264 Subparts F and G, and 40 CFR 264.228. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include at a minimum:

(1). The date, exact place, and time of sampling or measurements;

(2). The person responsible for performing the sampling or measurements;

(3). The dates analyses were performed;

(4). The person responsible for performing the analyses;

(5). The analytical techniques or methods used; and

(6). The results of such analyses.

d. As a generator of hazardous waste, the Permittee shall retain a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to 40 CFR Part 268 for at least three years from the date that the waste which is the subject of such documentation was last sent to on-property or off-property treatment, storage, or disposal, or until remedial activity is completed, whichever date is later. These periods may be extended by request of the Department at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

e. The Permittee shall keep a written operating record at the facility, which includes:

(1). The results of any waste analysis;

(2). Copies of manifests for three years (40 CFR 264.71, 264.72 and 264.76);

(3). The results of inspections;

(4). The corrective measures (remedial action) plan for each applicable SWMU; and

(5). Inspections of emergency and safety equipment (Specific Condition 26 of this Part).

15. When requested by the Department, the Permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the Permittee becomes aware the relevant facts were not submitted or were incorrect in the permit

application or in any report to the Department, such facts or information shall be corrected promptly.

16. Except as otherwise specifically provided in this permit, all submittals in response to permit conditions shall be as follows:

    a. One hard and one electronic copy shall be sent to:

    Environmental Administrator
    Hazardous Waste Regulation Section
    M.S. 4560
    Bureau of Solid and Hazardous Waste
    Department of Environmental Protection
    2600 Blair Stone Road
    Tallahassee, Florida 32399-2400

    b. One copy shall be sent to:

    Administrator, Federal Facilities Group
    M.S. 4535
    Bureau of Waste Cleanup
    Department of Environmental Protection
    2600 Blair Stone Road
    Tallahassee, Florida 32399-2400

17. All documents submitted pursuant to the conditions of this permit shall be accompanied by a cover letter stating the name and date of the document submitted, the number(s) of the Specific Condition(s) affected, and the permit number and project name of the permit involved.

18. All documents proposing modifications to the approved permit and involving the practice of engineering must be submitted to the Department for review and be signed, sealed, and certified by a Professional Engineer registered in the State of Florida, in accordance with Chapter 471, F.S. and Rule 62-730.220(9), F.A.C. All submittals incorporating interpretation of geological data shall be signed and sealed by a Professional Geologist registered in the State of Florida in accordance with Chapter 492, F.S. and Rule 62-730.220(10), F.A.C.

19. All reports or information required by the Department or provided by a hazardous waste Permittee shall be signed by a person authorized to sign a permit application.

20. The Department of Environmental Protection′s 24-hour emergency telephone number is (850) 413-9911 or (800) 320-0519. During normal business hours, the DEP District Office may be contacted at (813) 632-7600.

21. The following conditions apply to permit modification and revocation of this permit:

    a. The Department may modify, revoke, reissue or terminate for cause this permit in accordance with Chapters 62-4 and 62-730, F.A.C. The filing of a request for a permit modification, revocation, reissuance, or termination or the notification of planned changes or anticipated

noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. The Permittee may submit any subsequent modifications to the Department for approval. These revisions shall meet the requirements of Rule 62-730.290, F.A.C., and the fee requirements of Chapter 62-730 and Rule 62-4.050, F.A.C. The Permittee shall submit the revisions to the addresses in Condition 16 of this Part. The Permittee shall submit a copy of the cover letter accompanying the revisions and the fee to:

Florida Department of Environmental Protection
Post Office Box 3070
Tallahassee, Florida 32315-3070

The modification fee may also be submitted electronically. However, if Permittee intends to submit the modification fee electronically, Permittee shall obtain instructions from the Department on how to submit the renewal fee electronically PRIOR to attempting such submittal and shall follow such instructions in making the electronic fee submittal.

b. If at any time the Department or the Permittee determines that modification of to required time frames are necessary, the permit may be modified to reflect the change(s), with Department approval. If the Department determines that steps or dates in the permit may be changed, combined or streamlined without modification of the permit, it may do so with the concurrence of the Permittee following the guidance of the most recent RCRA reforms.

c. For any task included in the Department-approved Corrective Action Management Plan (CAMP) schedule, the schedule in the CAMP takes precedence over the schedule of compliance provided in this permit or Chapter 62-780, F.A.C. If at any time the Department determines that a requested update to the permit schedule of compliance is appropriate, the CAMP schedule shall be updated to reflect the approved changes. Once the Department has approved the update, the updated CAMP schedule shall replace the existing CAMP schedule and take precedence over the schedule of compliance provided in this permit or Chapter 62-780, F.A.C.

22. Prior to 180 calendar days before the expiration of this permit, the Permittee shall submit a complete application for the renewal of the permit on forms and in a manner prescribed by the Department unless postclosure care and all corrective action have been completed and accepted by the Department. If the Permittee allows this permit to expire prior to Department acceptance of the certification of postclosure and termination of all corrective action, the Permittee must reapply for a postclosure permit in accordance with DEP Form 62-730.900(2), F.A.C. The Permittee shall submit the renewal to the addresses in Specific Condition 16 of this Part. The Permittee shall submit one copy of the cover letter accompanying the renewal and the fee to:

Florida Department of Environmental Protection
Post Office Box 3070
Tallahassee, Florida 32315-3070

The renewal fee may also be submitted electronically. However, if Permittee intends to submit the renewal fee electronically, Permittee shall obtain instructions from the Department on how to submit the renewal fee electronically PRIOR to attempting such submittal and shall follow such instructions in making the electronic fee submittal.

23. The Permittee shall comply with those sections of 40 CFR Part 124 specified in Rule 62-730.200(3), F.A.C., 40 CFR Parts 260 through 268, and 40 CFR Part 270 as adopted in Chapter 62-730, F.A.C., as applicable, until released from requirements and all facility-wide corrective action requirements.

24. This facility is a suspected or confirmed contaminated facility where there may be a risk of exposure to the public, and therefore, the Permittee must comply with the warning sign requirements of Section 403.7255, F.S., and Rule 62-730.225(3), F.A.C. The Permittee is responsible for supplying, installing and maintaining the warning signs.

25. The conditions in this permit shall take precedence over the permit application documents where there are differences between these documents and the permit conditions.

26. The Permittee may claim confidential any information required to be submitted by this permit in accordance with Rule 62-730.100(3), F.A.C.

27. All work plans, reports and schedules and other documents ("submittals") required by this permit are subject to approval by the Department prior to implementation. The Department will review the submittals and respond in writing. Upon written approval by the Department, the Permittee shall implement all work plans, reports and schedules as provided in the approved submittal. If the Department disapproves a submittal, the Department may:

    a. Notify the Permittee in writing of the reason(s) why the submittal does not contain information adequate to support the conclusion, alternative, plan, proposal or recommendation, or why the conclusion, alternative, plan, proposal or recommendation is not supported by the applicable criteria. In this case the Permittee shall submit a revised submittal within 60 days of receipt of the Department's disapproval; or

    b. Revise the submittal, or approve the submittal with conditions, and notify the Permittee of the revisions or conditions. In the case of work plans, the Department may notify the Permittee of the start date of the schedule within the revised or conditionally approved work plan.

28. Any dispute resolution will be conducted in accordance with Chapter 120, F.S. (Administrative Procedures Act), Chapter 28-106, F.A.C. and the Department's existing rules and procedures.

29. The following conditions apply to land disposal (placement) of hazardous wastes:

    a. 40 CFR Part 268 identifies hazardous wastes that are restricted from land disposal and defines those limited circumstances under which an otherwise prohibited waste may continue to be placed on or in a land treatment, storage, or disposal unit. The Permittee shall maintain compliance with the requirements of 40 CFR Part 268. Where the Permittee has applied for an extension, waiver, or variance under 40 CFR Part 268, the Permittee shall comply with all restrictions on land disposal under this Part once the effective date for the waste has been reached pending final approval of such application.

b. A restricted waste identified in 40 CFR Part 268 Subpart C may not be placed in a land disposal unit without further treatment unless the requirements of 40 CFR Part 268 Subparts C and/or D are met.

c. The storage of hazardous wastes restricted from land disposal under 40 CFR Part 268 is prohibited unless the requirements of 40 CFR Part 268 Subpart E are met.

30. The Permittee shall implement remedial activities beyond the facility boundary where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Department that, despite the Permittee's best efforts, as determined by the Department, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee shall use all reasonable efforts, including but not limited to correspondence, telephone calls, personal contacts, drafting and redrafting agreements, and payment of a fee, to obtain any access to real property necessary for work to be performed in the implementation of this permit. If necessary access cannot be obtained by the Permittee, or if obtained, is revoked by owners or entities controlling access to the properties to which access is necessary, the Permittee shall notify the Department within five business days of such refusal or revocation. The Department may at any time thereafter seek to obtain such access as is necessary to implement the terms of this permit. The Permittee shall reimburse the Department for any damages, costs, or expenses, including expert and attorneys' fees, that the Department is ordered to pay, or that the Department incurs in connection with its efforts to obtain necessary access to said property. The Permittee shall pay these sums to the Department, or arrange a payment schedule with the Department, within 30 days of demand by the Department. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-property access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

31. The Permittee shall comply with 40 CFR 264.73(b)(9) and Section 3005(h) of RCRA, 42 U.S.C. 6925(h). The Permittee must certify, no less often than annually, that:

a. The Permittee has a program in place to reduce the volume and toxicity of hazardous waste generated to the degree determined by the Permittee to be economically practicable;

b. The proposed method of treatment, storage or disposal is the most practicable method available to the Permittee, which minimizes the present and future threat to human health and the environment; and

c. The Permittee shall maintain copies of certification in the facility operating record as required by 40 CFR 264.73(b)(9).

d. The Department of Energy Legacy Management Pollution Program will meet the requirement of a. and b. of this part.

32. In addition to the copies sent to the Hazardous Waste Regulation Section in Tallahassee, one copy of all submittals in response to permit conditions in this Part shall be sent to the district office at:

    Hazardous Waste Supervisor
    Department of Environmental Protection
    13051 North Telecom Parkway,
    Temple Terrace, Florida 33637-0926

PART II - GENERAL CORRECTIVE (REMEDIAL) ACTION CONDITIONS

1. The Conditions of this Part apply to:

    a. The SWMUs and AOCs identified in Appendix A;

    b. Any additional SWMUs or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means; as used in this Part of the permit, the terms “discover”, “discovery”, or “discovered” refer to the date on which the Permittee either:

        (1). Visually observes evidence of a new SWMU or AOC;

        (2). Visually observes evidence of a previously unidentified release of hazardous constituents to the environment; or

        (3). Receives information which suggests the presence of a new release of hazardous waste or hazardous constituents to the environment; and

    c. Contamination that has migrated beyond the facility boundary, if applicable.

2. Within 15 calendar days of discovery, the Permittee shall notify the Department in writing of any newly discovered release(s) of hazardous waste or hazardous constituents; any suspected new AOC(s); and any additional SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means. The notification shall include, at a minimum, the location of the release, AOC or SWMU (hereinafter referred to collectively as “site”), and all available information (*e.g.*, location of site(s) on a topographic map of appropriate scale; general dimensions of site; media affected; hazardous constituents released; and magnitude of release). The Department may conduct, or require that the Permittee conduct, confirmatory sampling in order to determine whether contamination is present. The Department will notify the Permittee in writing of the final determination as to the status of the newly discovered or suspected site.

3. Upon notification by the Department, the Permittee shall prepare and submit a Confirmatory Sampling (CS) Work Plan for known, suspected, or newly discovered sites. Unless the notification letter specifically establishes a different time frame for work plan submittal, the Work Plan shall be submitted within 60 calendar days of notification by the Department that a CS Work Plan is required. The CS Work Plan shall include schedules for implementation and completion of specific actions necessary to determine whether or not contamination has occurred in any potentially affected media. In order to partly or wholly satisfy the CS requirement, previously

existing data may be submitted with the work plan for the Department's consideration. In accordance with the schedule in the approved CS Work Plan, or no later than 60 calendar days after Department approval of a CS Work Plan if no schedule is included in the Work Plan, the Permittee shall submit a Confirmatory Sampling (CS) Report identifying those sites that are contaminated and those sites that are not contaminated. The CS Report shall include an analysis of the analytical data to support all determinations. Based on the results of the CS Report, the Department will determine the need for further investigation at sites covered in the CS Report and notify the Permittee in writing.

4. Upon notification by the Department, the Permittee shall commence site rehabilitation in accordance with Rule 62-730.225 and Chapter 62-780, F.A.C., for all SWMUs and/or AOCs identified in the notification. Unless the notification letter specifically establishes a different time frame to commence or complete site assessment, the Permittee shall commence and complete site assessment in the manner and within the time limits set forth in Rule 62-780.600, F.A.C.

5. If the Department or the Permittee at any time determines that any approved work plan no longer satisfies the requirements of 40 CFR 264.101 or this permit for prior or continuing releases of hazardous waste or hazardous constituents from SWMUs and/or AOCs, the Permittee shall submit an amended work plan to the Department within 90 calendar days of such determination.

PART III – REMEDY SELECTION AND IMPLEMENTATION

1. A remedy shall be selected from the remedial alternatives evaluated in accordance with Chapter 62-780, F.A.C.

2. Within 30 days of Department approval of the remedial alternative selected, the Permittee shall publish notice of a proposed permit modification in accordance with Rule 62-730.292(3)(c), F.A.C. This modification will serve to incorporate a final remedy, including a Corrective Action Management Unit (CAMU) if necessary, into this permit. Final approval of remedial action which is achieved through interim measures shall be in accordance with this condition.

3. When site rehabilitation is complete, the Permittee shall submit to the Department a Site Rehabilitation Completion Report in accordance with Chapter 62-780, F.A.C.

4. For site rehabilitation involving the cleanup of groundwater contaminated by a release from a regulated unit, the Permittee must demonstrate that the concentration of constituents of concern remain below cleanup goals for three consecutive years after active remediation has ceased.

Appendix A
Summary of Facility Sites (Solid Waste Management Units and Areas of Concern)

A.1. List of sites that are not undergoing Remedial Activities (closure, postclosure, and/or corrective action) at this time pursuant to this permit:

SITE No/Letter	SITE Name	SITE Comment and Basis for Determination	Dates of Operation

* Regulated Unit

There are no units identified as not undergoing remedial activities at this time pursuant to this permit.

A.2. List of sites requiring Confirmatory Sampling (CS):

SITE No/Letter	SITE Name	SITE Comment	Dates of Operation	Potentially Affected Media

* Regulated Unit

There are no units identified at this time as requiring confirmatory sampling.

A.3. List of sites requiring a Site Assessment [a/k/a RCRA Facility Investigation (RFI)] or Risk Assessment:

SITE No/Letter	SITE Name	Dates of Operation	Potentially Affected Media

* Regulated Unit

There are no units identified at this time as requiring a RCRA Facility Investigation.

A.4. List of sites requiring a Natural Attenuation with Monitoring Plan or Remedial Action Plan [a/k/a Corrective Measures Study (CMS)]

SITE No/Letter	SITE Name	Dates of Operation	Potentially Affected Media

* Regulated Unit

There are no units identified at this time as requiring a Remedial Action Plan.

A.5. List of sites undergoing Natural Attenuation or Remedial Activities:

SWMU/AOC No/Letter	SWMU/AOC Name	Unit Comment and Basis for CA	Dates of Operation	Potentially Affected Media
12 and 6	Industrial Drain Leaks, Building 100 and Old Drum Storage Site		1970-	Groundwater
15	Northeast Site		1968-1982	Groundwater
18	Wastewater Neutralization Area/ Building 200			Groundwater

A.6. List of sites at which Site Rehabilitation Completion Orders have been issued:

SITE No/Letter	SITE Name	Date of SRCO

* Regulated Unit

There are no units identified at this time at which SRCOs have been issued.

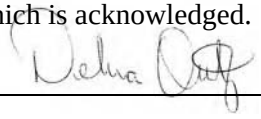
Issued August 21, 2007

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

CHARLES F. GODDARD, CHIEF
BUREAU OF SOLID AND HAZARDOUS WASTE

Filing and Acknowledgment

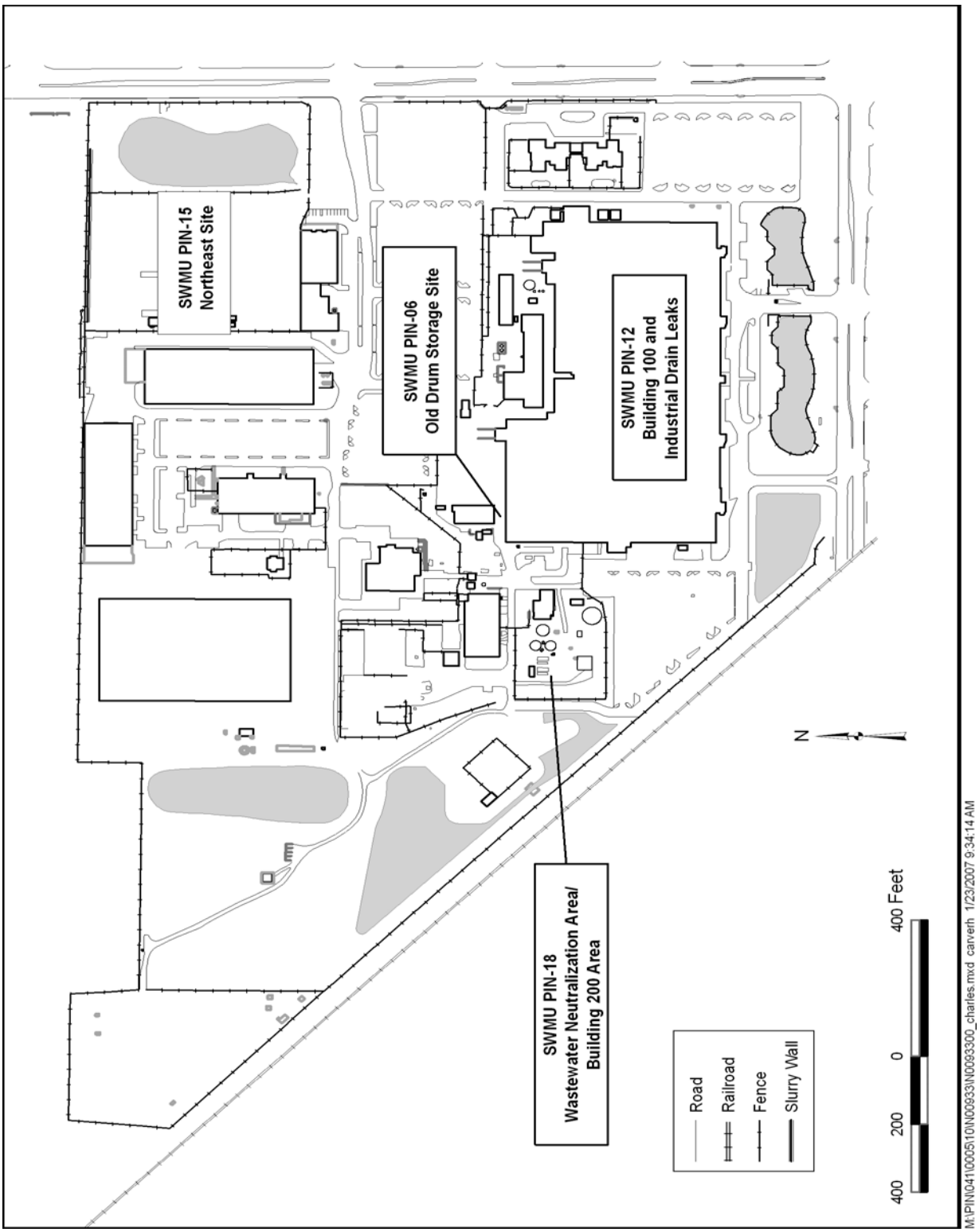
Filed on this date, pursuant to Section 120.52, Florida Statutes, with the designated Clerk, receipt of which is acknowledged.



CLERK

August 21, 2007
DATE

Attachment A - Depiction/Description of Facility



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Appendix D

4.5 Acre Site Consent Agreement

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Remediation Agreement

for the Four and One-Half Acre Site in Largo,

Pinellas County, Florida

Between:

State of Florida Department of Environmental Protection

and

U.S. Department of Energy Grand Junction Office

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Table of Contents

State of Florida

Department of Environmental Protection

In the Matter of:

The U.S. Department of Energy Albuquerque Operations Office, Grand Junction Office	) **Remediation Agreement**) **for the Four and One-Half Acre**) **Site in Largo, Pinellas County,**) **Florida**

and

The State of Florida, Florida Department of Environmental Protection

Based upon the information available to the Parties, as of the effective date of this Agreement, and without trial or adjudication of any issues of fact or law, the Parties agree as follows:

I. Parties

A. The U.S. Department of Energy (DOE) and the Florida Department of Environmental Protection (FDEP) are the Parties to this Agreement.

B. The Parties shall notify their authorized representatives of the existence of this Agreement and shall take all appropriate measures to ensure that their authorized representatives perform work in accordance with this Agreement.

C. Each signatory for a Party certifies that he or she is fully authorized to enter into the terms and conditions of this Agreement and to legally bind such Party to this Agreement.

D. The provisions of this Agreement are binding on each Party's heirs, executors, administrators, successors in interest, assignees, lessees, and purchasers with the same force and effect as if they were a Party to this Agreement.

E. The DOE shall provide a copy of this Agreement to the landowner and each contractor and subcontractor hired to perform the work required by this Agreement. All contracts to perform the work required by this Agreement shall contain provisions requiring compliance with the provisions of this Agreement. The DOE shall nonetheless be responsible for ensuring that its contractors or subcontractors perform the work required by this Agreement in accordance with the provisions of this Agreement.

II. Jurisdiction

The Parties enter into this Agreement pursuant to Section 120(a)(4) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. § 9620, and the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2011 et seq., and the Florida Air and Water Pollution Control Act, FLL 403, Florida Statutes.

III. Purpose

A. This Agreement is entered into by the Parties for the limited purpose of remediating the groundwater under a parcel of property adjacent to the DOE's former Pinellas Plant, known as the Four and One-Half Acre Site. The Site is more fully described in the legal description in Attachment A, attached to this Agreement.

B. The DOE intends to remediate groundwater on the Site to levels that are consistent with its use as an industrial area. The FDEP agrees this would be appropriate so long as state statutes and rules are met and appropriate deed restrictions are in place. The remediation will be in accordance with a Remedial Action Plan (RAP) to be prepared by the DOE and approved by the FDEP, and in accordance with the provisions of this Agreement.

C. All previous contaminant assessments, including the contamination assessment plan/contaminant assessment report/feasibility study, soil study and all interim remedial actions performed at the Site by the DOE prior to the effective date of this Agreement, are recognized by the FDEP as fully approved actions, and they shall be retained and utilized as elements of the final remedial action for the Site.

D. Nothing in this Agreement shall constitute any additional express or implied waiver of sovereign immunity than is provided for by Federal Statute as otherwise applicable to any Party or its authorized representatives.

IV. Definitions

A. Except as otherwise specifically defined herein, the terms used in this Agreement shall have the same meaning as those used in the CERCLA 42 U.S.C. Section 9601, et. seq.

B. Agreement means this document (Remediation Agreement for the Four and One-Half Acre Site in Largo, Pinellas County, Florida) and all its attachments.

C. Authorized Representatives are a Party's employees, agents, successors, and contractors.

D. Constituents of Potential Concern (COPC) are those contaminants that have existed at the Site, based on their frequency of detection, and that have a potential to adversely impact human health and the environment due to their concentration and/or toxicity.

E. Days mean calendar days, unless business days are specified. Any schedules, submittals, or written statements of dispute required by the provisions of this Agreement that would be due on a Saturday, Sunday, or holiday will be due on the following day. In computing any period of time prescribed or allowed by this Agreement, the first day shall be excluded and the final day counted.

F. DOE means the United States Department of Energy and its authorized representatives.

G. FAC means Florida Administrative Code.

H. FDEP means the Florida Department of Environmental Protection and its authorized representatives.

I. F.S. means Florida Statutes.

J. Maximum Contaminant Level (MCL) are those levels and criteria set forth in the applicable provisions of Chapters 62-550 and 62-520 of the FAC.

K. Pinellas Plant means the industrial Site located at 7887 Bryan Dairy Road, Largo, Florida, now known as the Pinellas Star Center.

L. Project Site Managers means the DOE employee or designated and duly authorized contractor and the FDEP employee responsible for direction, execution, and oversight of remediation operations at the Four and One-Half Acre Site.

M. Remedial Action means those actions required to remediate the surficial aquifer at the Four and One-Half Acre Site under the provisions of this Agreement.

N. Remedial Action Plan (RAP) is a plan that will be prepared by the DOE and approved by the FDEP, which will delineate the remedial actions at the Site.

O. Site means the Four and One-Half Acre parcel of undeveloped land, owned by Allen F. and Gretchen H. Gates, adjacent to the western portion of the former DOE Pinellas Plant, 7887 Bryan Dairy Road, Largo, Pinellas County, Florida, which is the subject of this Agreement and which is more specifically described in Attachment A, (legal description) to this Agreement.

P. Site Rehabilitation Completion Report (SRCR) means a report prepared by the DOE after conducting the remedial actions at the Site set forth in the RAP.

Q. Surficial Aquifer is the saturated water bearing strata at the Site located between the land surface and the underlying confining unit (Hawthorn Group).

V. Statement of Facts

The Parties stipulate to the facts stated herein solely for the purpose of this Agreement. Nothing in this Agreement shall be considered as admissions by any

Party, and these facts shall not be used by any person related or unrelated to the Agreement for purposes other than determining the basis of this Agreement.

A. From 1957 through 1972, the Site was owned by the DOE and was part of the DOE's Pinellas Plant. In 1972, James D. and Georgia Carabelas purchased the Site from the Federal Government and remained the owners until 1981. In 1981, Allen F. and Gretchen H. Gates bought the Site and have continued to own the Site until the present time.

B. The DOE and the Gates have had an access and land use agreement for the purpose of conducting remedial actions at the Site since 1985. The current agreement is effective until April 10, 2002. The DOE has negotiated an access agreement from April 11, 2000, until April 10, 2020. The DOE will continue to pursue a lease beyond April 10, 2020, and until the Site is completely remediated.

C. When DOE owned the Site, drums containing resinous materials and Volatile Organic Compounds (VOCs) were disposed of at the Site, which contaminated the soil and the surficial aquifer.

D. In June 1985, in coordination with the Florida Department of Environmental Regulation, now known as the FDEP, the DOE removed eighty-three (83) drums and approximately three-hundred-three (303) tons of contaminated soil from the Site. The soil was disposed of at an off-site U.S. Environmental Protection Agency (USEPA) authorized hazardous waste disposal facility.

E. In August 1986, the DOE submitted a Contamination Assessment Report (CAR) of the Site to the FDEP. The FDEP approved this CAR in March 1987.

F. In October 1987, the DOE submitted a Feasibility Study Report (FSR) on the Site to the FDEP. The FDEP approved the FSR in November 1987.

G. In November 1987, the DOE submitted to the FDEP an Interim Remedial Action Plan (IRAP) to conduct interim remedial actions at the Site. This IRAP was approved by the FDEP in September 1988.

H. In May 1990, the DOE initiated remedial actions at the Site in accordance with the provisions of the IRAP, as amended. The DOE's interim remedial actions at the Site have continued since May 1990, to the present time.

I. The DOE continues to submit quarterly reports to the FDEP on the progress of its interim remedial actions at the Site.

J. Although the groundwater in the shallow surficial aquifer under the Site has been classified as a Class G-II, DOE's position is that, because of the naturally occurring high levels of iron, calcium, magnesium, sulfides, and chlorides in the shallow surficial aquifer under the Site, it is unlikely that the aquifer could be used as a source for drinking water without extensive treatment at an exorbitant cost. It would be considerably cheaper and more practicable to obtain drinking water from the deeper aquifer under the Site, should it be necessary, than to attempt to treat the water from the surficial aquifer under the Site. Additionally, the source of most of the drinking water to facilities in and around the Site is from the local Municipal Water System.

Should the Site ever be developed for industrial use in the future, the source of drinking water would most likely be the Municipal Water System. The FDEP agrees that these statements may be true, but they will not necessarily affect the choice of remedial action.

VI. Scope of Agreement

A. This Agreement formalizes the DOE's remediation of the Site. The remedial actions at the Site will be done in accordance with a Remedial Action Plan (RAP) prepared by the DOE and approved by the FDEP. The RAP, and the remedial action goals contained therein, will be designed to meet the MCLs for Class G-II aquifer, potable water use. The DOE may, at any time during the implementation of the RAP, submit a RAP modification in accordance with Section XI. The RAP modification may include the adoption of alternative technology or seek modification of the groundwater Site Rehabilitation Levels (SRLs) in accordance with existing state regulations and regulatory guidance.

B. The DOE will continue to submit to the FDEP and the landowner quarterly reports of its interim remedial actions at the Site until the FDEP approves the RAP.

VII. Remedial Action Plan

A. The DOE will submit the RAP for the FDEP's approval within one hundred and eighty (180) days from the execution of the Agreement. The RAP will evaluate remedial action alternatives for the remediation of the groundwater in the surficial aquifer under the Site and shall include:

1. An analysis of remedial alternatives for the Site based on the following criteria:

   (a) The long- and short-term environmental impacts, if any.

   (b) The present feasibility of remediation technology to remediate the Site to MCLs for Class G-II aquifers, consistent with state-of-the-art technology.

   (c) The implementability of remedial alternative(s).

   (d) The operation and maintenance required to implement remedial alternatives.

   (e) The reliability of alternative(s)

   (f) The feasibility of the alternative(s).

   (g) The economic costs of the alternatives weighed against the benefits to be derived.

   (h) The protection of human health by the alternatives.

   (i) The long-term effectiveness of the alternatives.

   (j) The use of the Site as an industrial area.

2. The rationale for the remedial action(s) preferred and selected.

3. The design, specifications, and construction details for the remedial actions(s) selected.

4. The operational details of the remedial action(s), including the disposition of any effluent, expected contaminant concentrations in the effluent, an effluent sampling schedule, and the expected concentrations and quantities of any contaminants discharged into the air as a result of

remedial action(s).

5. The remedial action and post-remedial action groundwater (surficial aquifer) monitoring plan for the Site.

6. The milestones and deliverables associated with implementing the remedial action(s) selected.

7. The sampling and monitoring activities required to implement the remedial action(s) selected.

8. The identification of COPCs for the Site, based on the available Site specific analytical data.

9. The projected period of time in which remedial action(s) at the Site will be conducted. The remedial action selected will take into consideration the feasibility of available groundwater remediation technology to remediate the Site to MCL's for Class G-II aquifers.

10. A schedule for the remedial action(s) selected, the deliverables, if any, and the sampling and monitoring activities.

11. Prevention of, or mitigation of, off-site migration of the plume(s).

12. Manner in which access to the Site will be limited to protect public safety.

B. All sampling and analysis conducted for implementation of this RAP shall conform to approved quality control, quality assurance, and chain of custody requirements, as specified in the applicable FDEP regulations.

C. The FDEP shall approve the RAP within sixty (60) days of receipt and will advise the DOE in writing of its approval, unless it needs more time or

additional information to evaluate the RAP. If the FDEP needs more time or additional information, it will make that request in writing to the DOE within sixty (60) days from receipt of the RAP. The DOE will thereafter provide the requested information in writing to the FDEP within sixty (60) days from receipt of the FDEP's request, unless the DOE requires additional time to provide the requested information. If the DOE requires additional time to provide the requested information, the DOE shall within at least seven (7) days prior to the expiration of the sixty (60) day period, provide to the FDEP for its approval a written schedule for providing the requested information. If the FDEP does not agree to this schedule, either party may invoke the provisions in Section XVII (Resolution of Disputes) of this Agreement.

D. If, after receiving and incorporating the additional information requested, the FDEP still does not approve the RAP, the FDEP may modify the RAP. The FDEP shall provide the modified RAP to the DOE for its review and concurrence within ninety (90) days from the day it receives and incorporates the additional information provided by the DOE. The DOE shall then review and accept the modified RAP or invoke the provisions in Section XVII (Resolution of Disputes) of this Agreement. Any additional costs and requirements associated with the FDEP's modifications to the RAP are also subject to the provisions of Section XVII (Resolution of Disputes).

E. Upon conditional approval of the RAP, the DOE will announce the availability of the proposed RAP to the public for review and comment. The FDEP will address public comments and will modify the RAP, if appropriate.

Thereafter, the FDEP will provide the modified RAP to the DOE in accordance with the provisions of Paragraphs D. and E. of this Section.

F. Once the RAP is approved in final form by the FDEP, it shall become effective, and the DOE shall implement it in accordance with the schedule(s) set forth therein, subject to the provisions of Section XIV, (Funding) of this Agreement. The approved RAP shall incorporate all modifications to the RAP agreed to by the Parties or changes required by dispute resolution.

VIII. Reports

A. In addition to any other submittals required by this Agreement, the DOE shall submit to the FDEP written quarterly progress reports that, as appropriate:

1. Describe the progress on remedial actions that have been conducted pursuant to this Agreement and to the RAP.
2. Include a summary of all results of sampling and tests and all other data received or generated by the DOE or its contractor(s) during the previous quarter.
3. Identify any deliverables required by this Agreement that were completed and submitted during the previous quarter.
4. Describe all actions, including, but not limited to, data collection and implementation of the remedial actions scheduled for the next quarter. Provide other information relating to the progress of the remedial actions, such as critical path diagrams, Gantt charts, and Pert charts.

5. Include information regarding delays encountered or anticipated delays.

6. Describe any modifications to RAP schedules.

B. After conducting the remedial actions as set forth in the RAP, the DOE will submit to the FDEP an SRCR for the FDEP's approval. The SRCR will specify any needed institutional controls or uses. Within sixty (60) days of receipt of the SRCR, the FDEP shall approve the SRCR, or make a determination that the SRCR does not adequately reflect that the remedial actions required by the RAP have been conducted. If the FDEP determines that the SRCR is not adequate, the FDEP shall so notify the DOE in writing. This notice from the FDEP shall include the rationale as to why the SRCR is not adequate. Within thirty (30) days of receipt of the FDEP's notice, the DOE shall either respond or invoke the provisions of Section XVII (Resolution of Disputes) of this Agreement.

C. The remediation of the Site shall be deemed to be complete at such time as the FDEP provides the DOE with written notice that the SRCR has been approved. The DOE will provide the FDEP with a schedule for the restoration of the Site to include proper closure of wells, removal of treatment systems and associated piping and utilities, and necessary repairs to the Site.

IX. Notification

Whenever, under the terms of this Agreement, written notice is required to be given or a report is required to be sent by one Party to the other Party, it shall be directed

to the individuals at the addresses specified below via U.S. Mail or similar means of delivery, unless those individuals or their successors give notice of a change to the other Party in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice, as specified herein, shall constitute complete satisfaction of any written notice required by this Agreement.

For DOE:
Mr. David Ingle, Program Manager
c/o MACTEC-ERS
7887 Bryan Dairy Rd.
Suite 260
Largo, Florida 33777

For FDEP:
Mr. John Armstrong
Project Site Manager
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

X. Extensions

A. All matters subject to Section IX (Notification) of this Agreement shall be extended by the FDEP upon receipt of a timely request for extension and when good cause exists for the required extension. Any DOE request for an extension shall be submitted in writing and shall specify the following:

1. The schedule that is sought to be extended.
2. The length of the extension sought.
3. The good cause(s) for the extension.
4. Any related schedule(s) that would be affected if the extension was or was not granted.

B. Good cause for an extension shall be deemed to exist when sought in regard to:

1. An event of Force Majeure.

2. A delay caused by the other Party's failure to meet any requirement of this Agreement.

3. A delay caused by the good faith invocation of Section XVII (Resolution of Disputes) or the initiation of judicial action.

4. A delay caused, or which is likely to be caused, by the grant of an extension in regard to another timetable, deadline, or a schedule.

5. A delay caused by additional work mutually agreed to in writing by the Parties.

6. Any other event or series of events mutually agreed to by the Parties as constituting good cause.

7. Insufficient availability of appropriated funds.

8. Any other reasons beyond the control of the Parties.

C. If the Parties cannot agree as to whether good cause exists for an extension, either Party may seek and obtain a determination through the provisions of Section XVII (Resolution of Disputes) of this Agreement.

D. Within fourteen (14) days of receipt of a request for an extension of a timetable, deadline, or a schedule, the FDEP shall notify the DOE in writing as to whether it will grant or deny the extension. If the FDEP denies the extension, it shall provide to the DOE a written explanation for its denial. If the FDEP fails to respond within the fourteen- (14-) day period to a request for an extension, the FDEP shall be deemed to have denied the request, and DOE may then invoke the provisions of Section XVII (Resolution of Disputes)

of this Agreement within fourteen (14) days from this date.

E. The DOE may invoke the provisions of Section XVII (Resolution of Disputes) of this Agreement within fourteen (14) days from receipt of the FDEP's notice of denial. If the DOE fails to invoke the Resolution of Disputes provision of this Agreement within the fourteen-day (14-day) period, it will be presumed that the DOE has accepted the FDEP's denial of the request for an extension.

F. If the FDEP determines that a DOE request for an extension is warranted, the affected schedule shall be extended accordingly, and the new schedule shall automatically become part of the RAP. If the FDEP determines that all or part of the requested extension is not warranted, the schedule shall not be extended except as set forth in Paragraph B of this section, or in accordance with a determination resulting under the procedures in Section XVII (Resolution of Disputes) of this Agreement.

G. When a timely request for an extension is made, the FDEP shall not initiate an administrative, judicial, or any other enforcement action against the DOE or its authorized representatives to comply with the affected schedule until a decision is reached on whether the requested extension is granted, consistent with the provisions of this Agreement.

H. For requests for extension by the FDEP, if the DOE does not object in writing within fourteen (14) days of receipt of a written request for an extension from the FDEP, it will be presumed that the DOE has accepted the request for the extension. If the DOE provides the FDEP with written notice that its request

for extension is not acceptable, within fourteen (14) days of receipt of the request, the FDEP may invoke the provisions of Section XVII (Resolution of Disputes) of this Agreement.

XI. Additional Work or Modification to Work Performed

A. In the event that the FDEP determines that additional work, or a modification of work performed, is necessary to accomplish the objectives of this Agreement, it shall notify the DOE, in writing, of what additional work or modifications the FDEP is requesting. The DOE shall have thirty (30) days from the day of receipt of such notice in which to respond to such requests from the FDEP. Any additional work or a modification to work performed, determined to be necessary by the FDEP, shall be subject to the dispute resolution provisions set forth in Section XVII (Resolution of Disputes) of this Agreement.

B. In the event that the DOE determines that additional work or a modification to work performed, or to be performed, is necessary to accomplish the objectives of this Agreement, the DOE shall notify the FDEP, in writing, of its determination. The FDEP shall have thirty (30) days in which to respond to the DOE's determination. Any additional work, or a modification to work performed, determined to be necessary by the DOE, may be subject to approval by the FDEP prior to the DOE initiating any additional work, or modification to work performed, and shall be subject to Section XVII (Resolution of Disputes) of this Agreement.

C. Any additional work, or a modification to work performed, approved pursuant to this section, shall be completed in accordance with the standards, specifications, and schedule determined and approved by the FDEP. If any additional work, or modification to work performed, will adversely affect work scheduled, or will require significant revisions to the approved RAP, the DOE shall notify the FDEP, in writing, within seven (7) days from the time that it becomes aware of such an adverse effect. Extensions shall be subject to the provisions of Section X, (Extensions) of this Agreement. The provisions of this paragraph shall also be subject to Section XVII (Resolution of Disputes) of this Agreement.

D. Any additional work, or a modification to work performed, which would require additional funding, shall be subject to the availability of appropriated funds. The provisions of this paragraph shall also be subject to Section XVII (Resolution of Disputes) of this Agreement.

XII. Site Access

A. The United States Department of Energy has executed a lease with Allen F. Gates, Trustee of Allen F. Gates Trust, and Gretchen H. Gates, Trustee of Gretchen H. Gates Trust, for the express purpose of site access. This lease is structured with an initial ten-year (10-year) term with provision for extension to two (2) five-year (5-year) terms. This lease provides for long-term access to enable the Department of Energy and the Florida Department of Environmental Protection to inspect, monitor, and complete, as appropriate, necessary site remediation. If additional time is required to complete the RAP, terms will be

negotiated.

B. The FDEP, pursuant to this Agreement and its inherent State authority over the remedial actions being conducted on the Site, may, at reasonable times, observe the work being performed by the DOE or its contractors.

C. Individuals who enter the Site must comply with the DOE's site access, safety and health requirements.

XIII. Force Majeure

A Force Majeure shall mean any event arising from causes beyond the control of DOE that causes a delay in or prevents the performance of any provision of this Agreement, including, but not limited to, access to the Site; acts of God; fire; war; insurrection; civil disturbance or disobedience; strike or labor dispute that affects compliance with the provisions of this Agreement; explosion; unanticipated breakage or accident to machinery, equipment, or lines of pipe despite reasonably diligent maintenance; adverse weather conditions that could not be reasonably anticipated or overcome; unusual delay in transportation; restraint by court order or order by a public authority; inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits, or licenses due to action or inaction of any governmental agency or authority other than the DOE; delays caused by compliance with applicable statutes or regulations governing contracting, procurement, or acquisition procedures despite the exercise of reasonable diligence by the DOE; and insufficient availability of appropriated funds; and any other reasons outside the control of DOE. If a Force Majeure

situation or condition occurs, the DOE will be excused from any delay in performance that may result therefrom.

XIV. Funding

A. The Parties to this Agreement expect that all obligations of the DOE arising under this Agreement will be fully funded. The DOE will request through its budgetary process the funds necessary to comply with the provisions of this Agreement. However, it is expressly understood by the Parties that the ability and authority of DOE to perform any of its obligations under this Agreement is subject to annual Federal authorization and appropriation, including requisite lease payments tied to site access.

B. No provision in this Agreement shall be interpreted to require the obligation or payment of funds by the DOE in violation of the Anti-Deficiency Act, as amended, 31 U.S.C. § 1341 *et seq*. In cases where funding is insufficient to meet the requirements of this Agreement or the payment or obligation of funds would constitute a violation of the above Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds shall be appropriately adjusted to avoid any such violation. The Parties agree to meet, as needed, to review milestones and deliverables required by this Agreement, to ascertain whether any adjustments are warranted because of the provisions of this Section to the Agreement.

C. If appropriated funds are not available to fulfill DOE's obligation under this Agreement, FDEP reserves the right to initiate an action against DOE or any other person which would be appropriate absent this Agreement.

XV. Sampling and Data Sharing

A. The DOE will give the FDEP at least ten (10) days notice, prior to installing any monitoring or recovery well(s) and will allow the FDEP to observe the location and installation of the wells. The DOE will obtain all approvals and permits necessary under applicable law before it installs any well.

B. Upon request, the DOE will allow the FDEP to observe the DOE or its contractors taking samples from a well and will also allow the FDEP to take split samples from said well, if desired.

XVI. Limitation of Liability

Nothing in this Agreement shall make any Party liable for any injuries or damages to persons or property resulting from any acts or omissions of the other Party, or the authorized representatives of the other Party, while carrying out remedial actions required by this Agreement.

The FDEP will not be considered to be a Party to any contract entered into by the DOE to carry out the remedial actions required by this Agreement.

XVII. Resolution of Disputes

A. Except as specifically set forth in this Agreement, if a dispute arises between the Parties with regard to matters covered by and subject to this Agreement, the procedures of this section shall apply.

B. The DOE and the FDEP agree to make a diligent effort to informally resolve any dispute without exercising the formal dispute provisions of this section. In the event of a dispute, the Parties shall engage in informal dialogue between the project managers to resolve the dispute. Efforts to resolve a

dispute will begin with the project managers for the DOE and the FDEP. The period for informally resolving the dispute shall run for thirty (30) days from initial notification of a dispute. During this informal dispute period, the DOE and the FDEP project site managers shall meet or confer by telephone, as many times as necessary, but not less than weekly, to discuss and attempt to resolve the dispute. If the dispute is resolved through the informal dispute process, a written summary of the dispute and its resolution will be prepared by the DOE and signed by the FDEP.

C. If the dispute cannot be resolved through informal discussions and negotiations, not to exceed thirty (30) days, then the parties agree to elevate the dispute to a higher level to attempt resolution. The FDEP's Division Director for Waste Management will attempt to resolve the dispute with DOE's Grand Junction Office Manager. If a resolution is not reached within twenty-one (21) days from elevation of the dispute, the FDEP Secretary and the Manager of DOE's Albuquerque Operations Office shall consult with each other and arrive at a compromised resolution. Upon resolution, the Secretary shall provide DOE with a written final decision setting forth the resolution of the dispute.

D. Any work not affected by the dispute shall continue forward. Any work affected by the dispute shall be stopped if FDEP believes such work is inadequate or defective and such inadequacy or defect is likely to adversely affect human health, welfare or the environment. The FDEP's decision to stop work is subject to immediate dispute resolution.

E. Resolution of a dispute pursuant to this section of the Agreement constitutes a final resolution of the dispute and final agency action arising under this Agreement. All parties shall abide by all terms and conditions of any final resolution except to the extent that any final resolution may be submitted by DOE to a court of competent jurisdiction for judicial review.

XVIII. Termination and Release

The DOE's compliance with the provisions of this Agreement shall be deemed to have been satisfied and terminated upon written concurrence by the FDEP with the DOE's written notice that it has complied with the provisions of this Agreement. The FDEP's written concurrence with the DOE's notice shall state that the FDEP releases the DOE from any and all obligations required by the provisions of this Agreement. Any disagreement between the Parties concerning the DOE's compliance with the provisions of this Agreement and the DOE's release from this Agreement shall be subject to Section XVII (Resolution of Disputes) of this Agreement.

XIX. Covenant Not to Sue and Reservation of Rights

In consideration of the DOE entering into this Agreement and based on the information known to the Parties on the effective date of this Agreement, the FDEP agrees that compliance with this Agreement shall stand in lieu of any administrative, legal, and equitable remedies available to the FDEP against the DOE regarding the remediation of the Site.

The FDEP and DOE expressly agree to exhaust any remedies for resolving disputes as provided in this Agreement before pursuing any remedies it may have under statutes which provide the jurisdictional basis for this Agreement. The Parties reserve all rights

to judicial review that they may have including the right to seek review of issues which were addressed in a final resolution or a dispute under Section XVII of this Agreement. The Parties agree to exhaust their rights under Section XVII prior to exercising any rights to judicial review they may have. The Parties agree that all Parties shall have the right to enforce the terms of this Agreement subject to the limitations stated in this Section.

XX. Amendment of Agreement

This Agreement may be modified only by written agreement of the Parties. Any modification to this Agreement shall be effective on the date of execution by the Parties. Based upon ample opportunity of the Parties to negotiate changes, modifications, or amendments to this Agreement, the Parties will simultaneously become signatories upon execution and signing of this Agreement.

XXI. Public Comment

Within twenty-one (21) days after the Parties sign this Agreement, the DOE will announce the availability of this Agreement to the public for review and comment. The FDEP will accept comments from the public for a period of twenty-one (21) days after such announcement. Copies of all comments received by the FDEP shall be forwarded to the DOE. At the end of the comment period, the FDEP will review all such comments and will either:

1. Determine that the Agreement should be executed in its present form, in which case the FDEP will file the Agreement with the Clerk of the FDEP, and it shall become effective on that date. Thereafter, the FDEP will sign the Agreement without any change, and it shall become effective on that date, or

2. Determine that modification of the Agreement is necessary, in which case the FDEP, after consultation with the DOE, will send to the DOE a redline/strike-out version of the Agreement, which includes all proposed changes to the Agreement, for its review and comment. The modified Agreement will become effective twenty-one (21) days after receipt by the DOE, unless the DOE notifies the FDEP, in writing, within fourteen (14) days of receipt of the modified Agreement, that the proposed Agreement is not acceptable to the DOE. The DOE's notice shall specify the areas of disagreement with the proposed modification and shall suggest alternatives for the consideration of the FDEP. If the Parties still can not agree on the proposed modification, the DOE may, within fourteen (14) days, invoke the provisions of Section XVII (Resolution of Disputes) of this Agreement with regard to the modifications proposed by the FDEP. If the DOE fails to invoke Dispute Resolution procedures within the required fourteen (14) days, it will be presumed that the DOE accepts the Agreement as modified by the FDEP. The FDEP will file the revised Agreement with the Clerk of the FDEP, and the Agreement will become final as of that date.

XXII. Effective Date

This agreement is a final order of the FDEP pursuant to Section 120.52(7), Florida Statutes, and it is final and effective on the date filed with the Clerk of the FDEP unless a Petition for Administrative Hearing is filed in accordance with Chapter 120, Florida Statutes. Upon the timely filing of a petition, this Agreement will not be effective until further order of the FDEP or such other judicial order.

XXIII. Signatories

Each undersigned representative of a Party to this Agreement certifies that he or she is fully authorized to enter into the terms and conditions of this Agreement and to execute and legally bind such Party to this Agreement:

By: Donna Bergman-Tabbert Date: December 14, 2000

Donna Bergman-Tabbert, Manager
U.S. Department of Energy
Grand Junction Office

By: John M. Ruddell Date: 18 January 2001

John M. Ruddell
Director, Division of Waste Management
Florida Department of Environmental Protection

Attachment A

Legal Description of the Site

Surveyor's report, including legal description, follows.

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LEGAL DESCRIPTION:
(SEE DATA SOURCE 3)

(A portion of that certain property described in Deed Book 1602, page 391, Public Records of Pinellas County, Florida)

That part of Lot 1 in the NW 1/4 of Section 13, Township 30 South, Range 15 East, lying South of the South line of Lot 6 in NE 1/4 of said Section 13, extended Westerly to the West boundary line of said Lot 1 in NW 1/4; all according to Plat of Pinellas Groves, Inc., recorded in Plat Book 1, page 55, Public Records of Pinellas County, Florida:

Together with:

That certain 15.00 feet of street allowance, lying East of and adjacent to that part of Lot 1 in the NW 1/4 of Section 13, Township 30 South, Range 15 East, lying South of the South line of Lot 6 in NE 1/4 of said Section 13, extended Westerly to the West boundary of said Lot 1 in NW 1/4; all according to Plat of Pinellas Groves, Inc., recorded in Plat Book 1, Page 55, Public Records of Pinellas County, Florida, vacated by Deed Book 1611, page 573 of the Public Records of Pinellas County, Florida:

ALL BEING MORE PARTICULARLY DESCRIBED IN THIS SURVEY PREPARED BY FLORIDA DESIGN CONSULTANTS, INC. AS FOLLOWS:

A parcel of land lying within Section 13, Township 30 South, Range 15 East, Pinellas County, Florida, more particularly described as follows:

Commence at the Northeast boundary corner of the Northeast 1/4 of Section 13, Township 30 South, Range 15 East, Pinellas County, Florida; Thence S 00°31'35" W, along the North/South center line of said Section 13 (being the basis of bearings for this description), for 677.84 feet to the Northeast boundary corner of the Southeast 1/4 of the Northeast 1/4 of the Northwest 1/4 of said Section 13, same also being the point of intersection with Westerly extension of the South boundary line of Lot 6, lying in the Northeast 1/4 of said Section 13, Pinellas Groves, Inc., as recorded in Plat Book 1, page 55 of the Public Records of Pinellas County, Florida, same also being the Point of Beginning; Thence leaving said North/South center line of Section 13, N 89°10'44" W, along said Westerly extension of the South boundary line of Lot 6, and along the North boundary line of that certain property described in Deed Book 1602, page 391 of the Public Records of Pinellas County, Florida, same also being the South boundary line of that certain property described in Official Records Book 8516, page 1708 of the Public Records of Pinellas County, Florida, respectively, for 398.25 feet to a Northwest boundary corner of said certain property described in Deed Book 1602, page 391, same also being the Southeast boundary corner of said certain property described in Official Records Book 8516, page 1708, same also being the point of intersection with the East boundary line of that certain property described in Official Records Book 4137, page 924 of the Public Records of Pinellas County, Florida, same also being the point of intersection with the East boundary line of Lot 2, lying in the Northeast 1/4 of aforesaid Section 13, aforesaid Pinellas Groves, Inc.; Thence S 00°33'47" W, along a West boundary line of said certain property described in Deed Book 1602, page 391, same also being said East boundary line of that certain property described in Official Records Book 4137, page 924, same also being said East boundary line of Lot 2, for 270.32 feet to a Southwest boundary corner of said certain property described in Deed Book 1602, page 391, same also being the Southeast boundary corner of said certain property described in Official Records Book 4137, page 924, same also being the point of intersection with the Northerly line of a C.S.X. Transportation Inc., Railroad Right-of-Way; Thence S 44°26'42" E, along a Southerly boundary line of said certain property described in Deed Book 1602, page 391, and its Southeasterly extension, respectively, same also being said Northerly line of a C S X. Transportation Inc., Railroad Right-of-Way, for 563.72 feet to the point of intersection with aforesaid North/South center line of Section 13; Thence leaving said Northerly line of a C S X Transportation Inc., Railroad Right-of-Way, N 00°31'35" E, along said North/South center line of Section 13, for 667.09 feet to the Point of Beginning and containing 186,712 square feet or 4.286 acres, more or less

Closure 0.01' sho

(The Title to said certain property described in Deed Book 1602, page 391, was transferred through several owners with the first transfer being described in Official Records Book 123, page 483 of the Public Records of Pinellas County, Florida, wherein "An accurate legal description based upon a physical survey prepared by Duval and Day, Engineers" caused boundary discrepancies. These discrepancies were then transmitted through subsequent Deeds to the most recent Deed described in Official Records Book 5421, page 524 of the Public Records of Pinellas County, Florida.

Official Records Book 5421
Page 524 of
Public Records of Pinellas
County, FL

The following text is a transcription of the difficult-to-read legal description in Attachment A, which is a direct copy of the original page in the Consent Agreement. PLEASE BE AWARE THAT THIS TRANSCRIPTION IS NOT THE ORIGINAL DOCUMENT.

Legal Description:
(See data source 3)

(A portion of that certain property described in Deed Book 1602, page 391, Public Records of Pinellas County, Florida.)

That part of Lot 1 in the NW ¼ of Section 13, Township 30 South, Range 15 East, lying South of the South line of Lot 6 in NE ¼ of said Section 13, extended Westerly to the West boundary line of said Lot 1 in NW ¼: all according to Plot at Pinellas Groves, Inc., recorded in Plot Book 1, page 55, Public Records of Pinellas County, Florida:

Together with:

That certain 15 00 feet of street allowance, lying East of and adjacent to that part of Lot 1 in the NW ¼ of Section 13, Township 30 South, Range 15 East, lying South of the South line of Lot 6 in NE ¼ of said Section 13, extended Westerly to the West boundary of said Lot 1 in NW ¼: all according to Plot of Pinellas Groves, Inc. recorded in Plot Book 1, Page 55, Public Records of Pinellas County, Florida, vacated by Deed Book 1611, page 573 of the Public Records of Pinellas County, Florida:

ALL BEING MORE PARTICULARLY DESCRIBED IN THIS SURVEY PREPARED BY FLORIDA DESIGN CONSULTANTS, INC. AS FOLLOWS:

A parcel of land lying within Section 13, Township 30 South, Range 15 East, Pinellas County, Florida, more particularly described as follows:

Commence at the Northeast boundary corner of the Northeast ¼ of Section 13, Township 30 South, Range 15 East, Pinellas County, Florida: Thence S 00° 51’ 55” w. along the North/South center line of said Section 13 (being the basis of bearings for this description). Lot 677.84 feet is the Northeast boundary corner of the Southeast ¼ of the Northeast ¼ of the Northwest ¼ of said Section 13, Pinellas Groves, Inc, same also being the point of intersection with Westerly extension of the South boundary line of Lot 6, lying in the Northeast ¼ of said Section 13, Pinellas Groves, Inc, as recorded in Plat Book 1, page 55 of the Public Records of Pinellas County, Florida same also being the Point of Beginning: Thence leaving said North/South center line of Section 13, N 89º10’ 44” w, along said Westerly extension of the South boundary line of Lot 6, and along the North boundary line of that certain property described in Deed Book 1602, page 391 of the Public Records of Pinellas County, Florida, same also being the South boundary line of that certain property described in Official Records Book 8516, page 1708 of the Public Records of Pinellas County, Florida, respectively. Lot 398.25 feet is a Northwest boundary corner of said certain property described in Deed Book 1602, page 391, same

also being the Southwest boundary corner of said certain property described in Official Records Book 8516, page 1708, same also being the point of intersection with the East boundary line of that certain property described in Official Records Book 4137, page 924 of the Public Records of Pinellas County, Florida, same also being the point of intersection with the East boundary line of Lot 2, lying in the Northwest ¼ of aforesaid Section 13, aforesaid Pinellas Groves, Inc.: Thence S 00º 33' 47" w. along a West boundary line of said certain property described in Deed Book 1602, page 391, same also being said East boundary line of that certain property described in Official Records Book 4137, page 924, same also being said East boundary line of Lot 2, for 270.32 feet is a Southwest boundary corner of said certain property described in Deed Book 1602, page 391, same also being the Southwest boundary corner of said certain property described in Official Records Book 4137, page 924, same also being the point of intersection with the Northerly line of a C.S.X. Transportation Inc. Railroad Right-of-way: Thence S 44º 26' 42" E along a Southerly boundary line of said certain property described in Deed Book1602, page 391, and its Southwesterly extension, respectively, same also being said Northerly line of a C.S.X. Transportation Inc. Railroad Right-of-way, for 563.72 feet to the point of intersection with aforesaid North/South center line of Section 13: Thence leaving said Northerly line of a C.S.X. Transportation Inc. Railroad Right-of-way, N 00 º 31' 35" E. along said North/South center line of Section 13, for 667.09 feet to the Point of Beginning and containing 186.712 Square feet or 4.286 acres, more or less.

Closure 0 01' aka

[The Title to said certain property described in Deed Book 1602, page 391, was transferred through several owners with the first transfer being described in Official Records Book 123, page 483 of the Public Records of Pinellas County, Florida, wherein "An accurate legal description based upon a physical survey prepared by Duval and Day Engineers" caused boundary discrepancies. These discrepancies were then transmitted through subsequent Deeds in the most recent Deed described in Official Records Book 5421, page 524 of the Public Records of Pinellas County, Florida.

Attachment B

Authorized Representatives

For the United States Department of Energy:

Mr. David S. Ingle
Project Manager
c/o MACTEC-ERS
7887 Bryan Dairy Road, Suite 260
Largo, Florida 33777
(727) 541-8943

For the Florida Department of Environmental Protection:

Mr. John Armstrong
Remedial Projects Manager
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

Attachment C

State of Florida Department of Environmental Protection
Notice of Agreement

The Department of Environmental Protection gives notice of agency action of entering into an Agreement with the Department of Energy pursuant to Section 120.57(4), Florida Statutes. The Agreement addresses the limited purpose of remediating the groundwater under a parcel of property adjacent to the United States Department of Energy's former Pinellas Plant, known as the 4.5-Acre Site. The Agreement is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 32399.

Persons whose substantial interests are affected by this Agreement have a right to petition for an administrative hearing on the Agreement. The Petition must contain the information set forth below and must be filed (received) in the Department's Office of General Counsel, 3900 Commonwealth Boulevard, MS-35, Tallahassee, Florida 32399-3000, within twenty-one (21) days of receipt of this notice. A copy of the Petition must also be mailed at the time of filing to the District Office named above at the address indicated. Failure to file a petition within the twenty-one (21) days constitutes a waiver of any right such person has to an administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes.

The petition shall contain the following information: (a) the name, address, and telephone number of each petitioner; the Department's identification number for the Agreement and the county in which the subject matter or activity is located; (b) a statement of how and when each petitioner received notice of the Agreement; (c) a statement of how each petitioner's substantial interests are affected by the Agreement; (d) a statement of the material facts disputed by petitioner, if any; (e) a statement of facts which petitioner contends warrant reversal or modification of the Agreement; (f) a statement of which rules or statutes petitioner contends require reversal or modification of the Agreement; (g) a statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Agreement.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the subject Agreement have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within twenty-one (21) days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed timeframe constitutes a waiver of any

right such person has to request a hearing under Sections 120.569 and 120.57, Florida Statutes, and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-106.205, Florida Administrative Code.

Appendix E

Inspection Checklist

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Annual Site Inspection Checklist

Purpose of the Checklist

This checklist has been developed from the EPA guidance document Comprehensive Five Year Review Guidance *dated June 2001 (OSWER No. 9355.7-03B-P) and from Section 6.2 of the* Long-Term Surveillance and Maintenance Plan for the Pinellas, Site. *The checklist was modified to site-specific conditions as recommended by the guidance document. The checklist will be completed annually during Pinellas site annual surveillance and maintenance inspection. The checklist will also be used to assist in compiling information for the five-year review.*

I. SITE INFORMATION	
Site name: DOE Pinellas Environmental Restoration Project	**Date(s) of inspection:**
Location: Largo, FL	**EPA ID:**
Agencies accompanying DOE for portions of the annual inspection: FDEP Other (list)_____	**Weather:**
Remedy Includes: Institutional controls Monitored Natural Attenuation Long Term Monitoring Other_____	
Inspectors _____ **Participants** _____	
Attachments: Inspection team roster attached Site map attached	

II. INTERVIEWS (Check all that apply)

1. Local Site Manager _____ _____ _____
Name Title Date
Interviewed at site at office by phone Phone no. _____
Problems, suggestions; Report attached _____
_____

2. Environmental Data Manager _____ _____ _____
Name Title Date
Interviewed at site at office by phone Phone no. _____
Check to ensure that environmental data is reviewed and trended.
Problems, suggestions; Report attached _____
_____

3. Other Staff (as applicable) _____ _____ _____
Name Title Date
Interviewed at site at office by phone Phone no. _____
Problems, suggestions; Report attached _____
_____

4. Stakeholders and Institutional Control Contacts: Contact to notify of annual inspection and to determine if there are any concerns or issues.

Agency: **Contact Name:**

Phone Number _____

Problems; suggestions; Report attached _____

_____

Agency: **Contact Name:**

Phone Number _____

.

Problems; suggestions; Report attached _____

_____

Agency: **Contact Name:**

Phone Number _____

.

Problems; suggestions; Report attached _____

_____

5. Other interviews: Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. Documents

Surveillance and Maintenance Plan	Readily available	Up to date	N/A
As-built drawings	Readily available	Up to date	N/A
Maintenance logs	Readily available	Up to date	N/A

Remarks_____

_____

2. Site-Specific Health and Safety Plan Readily available Up to date N/A

Contingency plan/emergency response plan Readily available Up to date N/A

Remarks_____

_____

3.	**Permits and Service Agreements**			
	NPDES Permits	Readily available	Up to date	N/A
	HSWA Permit and Records	Readily available	Up to date	N/A
	Other permits_____	Readily available	Up to date	N/A
	Remarks_____			
	_____			
4.	**Groundwater Monitoring Records**	Readily available	Up to date	N/A
	Remarks_____			
	_____			
5.	**Waste Shipment Records and Manifests**	Readily available	Up to date	N/A
	Remarks_____			
	_____			
6.	**Training Records**	Readily available	Up to date	N/A
	Remarks_____			
	_____			

V. INSTITUTIONAL CONTROLS

Institutional Control (IC) Inspections

To Be Completed when ICs are attained.

Note any observations: _____

_____

_____

_____

_____

To Be Completed When ICs are attained.

Note any observations: _____

_____

_____

_____

_____

_____

To Be Completed When ICs are attained.

Note any observations: _____

_____

_____

_____

_____

_____

General

1.	**Land Use Changes On Site**	Yes	No
	Remarks_____		
	_____		
	_____		
	_____		
	_____		

2. **Land Use Changes Off Site** Yes No

Remarks_____

_____

_____

_____

_____

VI. GENERAL SITE CONDITIONS

1. **Roads** Location shown on site map Roads adequate

Remarks_____

_____

_____

_____

_____

2. **Vandalism** Location shown on site map No vandalism noted

Remarks_____

_____

_____

_____

_____

3. **Personal Injury Risks** Housekeeping maintained

Remarks_____

_____

_____

_____

4. **Signs**

Location shown on site map Legible and Secure

Remarks_____

_____

_____

5. **Fences** Location shown on site map

Secure

Remarks_____

_____

_____

7. **Other Site Conditions:**

Remarks _____

_____

_____

_____

_____

_____

IX. GROUNDWATER MONITORING

1. **Northeast Site Well Network**

Properly secured/locked Functioning Sampled in accordance with LTS&M Plan
Good condition Evidence of surface water infiltration at casing Needs maintenance
Proper ID on each well Acceptable quality of data
Any issues with data trends (See Section II.2)

Remarks_____

_____

_____

_____

2. **Building 100 Groundwater Monitor Well Network**

Properly secured/locked Functioning Sampled in accordance with LTS&M Plan
Good condition Evidence of surface water infiltration at casing Needs maintenance
Acceptable quality of data Any issues with data trends (see Section II.2)

List wells checked by number _____

_____

_____

Remarks_____

_____

3. **4.5 Acre Well Network**

Properly secured/locked Functioning Sampled in accordance with LTS&M Plan
Good condition Evidence of surface water infiltration at casing Needs maintenance
Acceptable quality of data Any issues with data trends (see Section II.2)

List wells checked by number _____

_____

_____

Remarks_____

_____

_____

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Appendix F

Contact List

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Table F–1. Emergency Phone Numbers and Contacts

Agency or Contractor Position/Contact	Phone Number
EMT/Ambulance (Pinellas County Emergency Response System)	911, and then dial 541-8128/541-8129
Fire Department	911 and then 541-8128/541-8129
STAR Center Utility Operator	541-8176
STAR Center Communications Center	541-8128 541-8129
Bardmoor Emergency Center	(727) 395-2600
Site Manager Joe Daniel	(727) 549-1563, ext. 202; cell: (727) 224-9893
Site Personnel Julian Caballero	(727) 549-1563, ext. 204; cell: (727) 224-5195

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