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ADDENDUM #28
TO THE
WORK PLAN

FOR

PRELIMINARY GROUNDWATER AND CORRECTIVE ACTION PLAN–PART A/PART B INVESTIGATIONS AT FORMER UNDERGROUND STORAGE TANK SITES, HUNTER ARMY AIRFIELD AND FORT STEWART, GEORGIA

Prepared for

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

Contract No. W91278-10-D-0089
Delivery Order No. CV01

May 2011

SAIC
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SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

contributed to the preparation of this document and should not be considered an eligible contractor for its review.

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Prepared by

Science Applications International Corporation
301 Laboratory Rd
Oak Ridge, TN 37830

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APPROVALS

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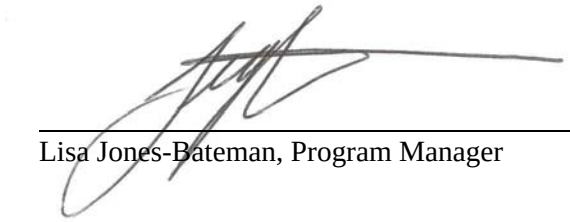
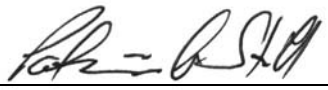


May 19, 2011

Lisa Jones-Bateman, Program Manager — Date



May 19, 2011

Patty Stoll, Project Manager — Date

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ABBREVIATIONS AND ACRONYMS

AST	aboveground storage tank
BFF	Bulk Fuel Facility
BGS	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Corrective Action Plan
DRO	diesel-range organics
EFR®	Enhanced Fluid Recovery®
GA EPD	Georgia Environmental Protection Division
gpm	gallons per minute
GRO	gasoline-range organics
HAAF	Hunter Army Airfield
IDW	investigation-derived waste
JP	jet propellant
MAE2	Mid-Atlantic Environmental Equipment, Inc.
MPE	multi-phase extraction
OWS	oil/water separator
SAIC	Science Applications International Corporation
TPH	total petroleum hydrocarbons
USACE	U. S. Army Corps of Engineers
UST	underground storage tank
USTMP	Underground Storage Tank Management Program
VOC	volatile organic compound
WP	work plan
WWTP	waste water treatment plant

1.0 INTRODUCTION

Science Applications International Corporation (SAIC) prepared this Work Plan (WP) Addendum #28 for the U. S. Army Corps of Engineers (USACE), Savannah District under Contract Number W91278-10-D-0089, Task Order Number CV01. This addendum supplements the *Work Plan for Preliminary Groundwater and Corrective Action Plan–Part A/Part B Investigations at Former Underground Storage Tank Sites, Fort Stewart, Georgia* (SAIC 1996) and the *Sampling and Analysis Plan for Corrective Action Plan–Part A and B Investigations for Former Underground Storage Tanks at Hunter Army Airfield, Georgia* (SAIC 1998). It presents changes and additions to these documents for a proposed product recovery system pilot study for the Bulk Fuel Facility (BFF; HAA-09), Former Underground Storage Tank (UST) 117, Building 7009 at Hunter Army Airfield (HAAF), Georgia.

1.1 BACKGROUND

The BFF is approximately 600 by 1,200 ft and covers an area of approximately 16.5 acres (Figure 1). Currently, the facility contains two active aboveground storage tanks (ASTs; AST 7007 and AST 7009) for the storage of jet propellant (JP)-8 with capacities of approximately 500,000 gal each, aboveground and underground piping, and off-loader and pump stations for the distribution of fuel to and from the tanks. In 2011, an AST was constructed at the location of former AST 7005. The capacity of this AST is 30,000 barrels or 1,260,000 gal. Previously, UST 117, a 550-gal JP-4 fuel tank, and three 500,000-gal ASTs (AST 7001, AST 7003, and AST 7005) were located at the BFF. Since the closure of UST 117 in 1996, three separate releases have been identified at the BFF under Georgia Environmental Protection Division (GA EPD) Underground Storage Tank Management Program (USTMP) regulations.

Release #1: UST 117, Building 7002. UST 117 was a 500-gal UST located near Building 7002 at the BFF. This tank was removed and the piping abandoned in place on September 30, 1996. A Corrective Action Plan (CAP)–Part A investigation was conducted by SAIC between December 1999 and January 2000 to identify areas of significant contamination concentrations (SAIC 2000). A CAP–Part B investigation was conducted by SAIC from November 2000 to March 2001 to determine the extent of petroleum contamination at the site (SAIC 2001). As part of these investigations, a groundwater plume was identified in the vicinity of AST 7003, which is located 100 to 150 ft south of UST 117. Semiannual monitoring of Release #1 was initiated in July 2002 and discontinued in January 2003. GA EPD USTMP granted no further action status for Release #1 in correspondence dated October 6, 2003 (Lewis 2003).

Release #3: AST 7003. In May 2006, the concrete foundation and berm for AST 7003 were removed by CAPE Environmental, and free product was discovered at a depth of 3 to 4 ft below ground surface (BGS). In August 2006, CAPE Environmental installed four, 2-ft-diameter sumps in the bermed area of former AST 7003. In November 2006, monitoring points were installed on 50-ft centers in the bermed area of the former AST. No water or free product was measured in any of the points; however, soil contamination was identified in the soil headspace readings. Griffin Services was contracted to remove the free product on a routine basis. In November 2009, Arcadis initiated remedial action in the vicinity of former AST 7003. Impacted soil exceeding alternate threshold levels was excavated, and an oxygen-releasing substance was placed in the excavated area to enhance bioremediation of contaminated groundwater. Quarterly groundwater monitoring events through October 2010 demonstrated that dissolved benzene in groundwater near former AST 7003 continues to exceed the alternate concentration limit but that attenuation is occurring. Semiannual monitoring of groundwater in this area has been recommended.

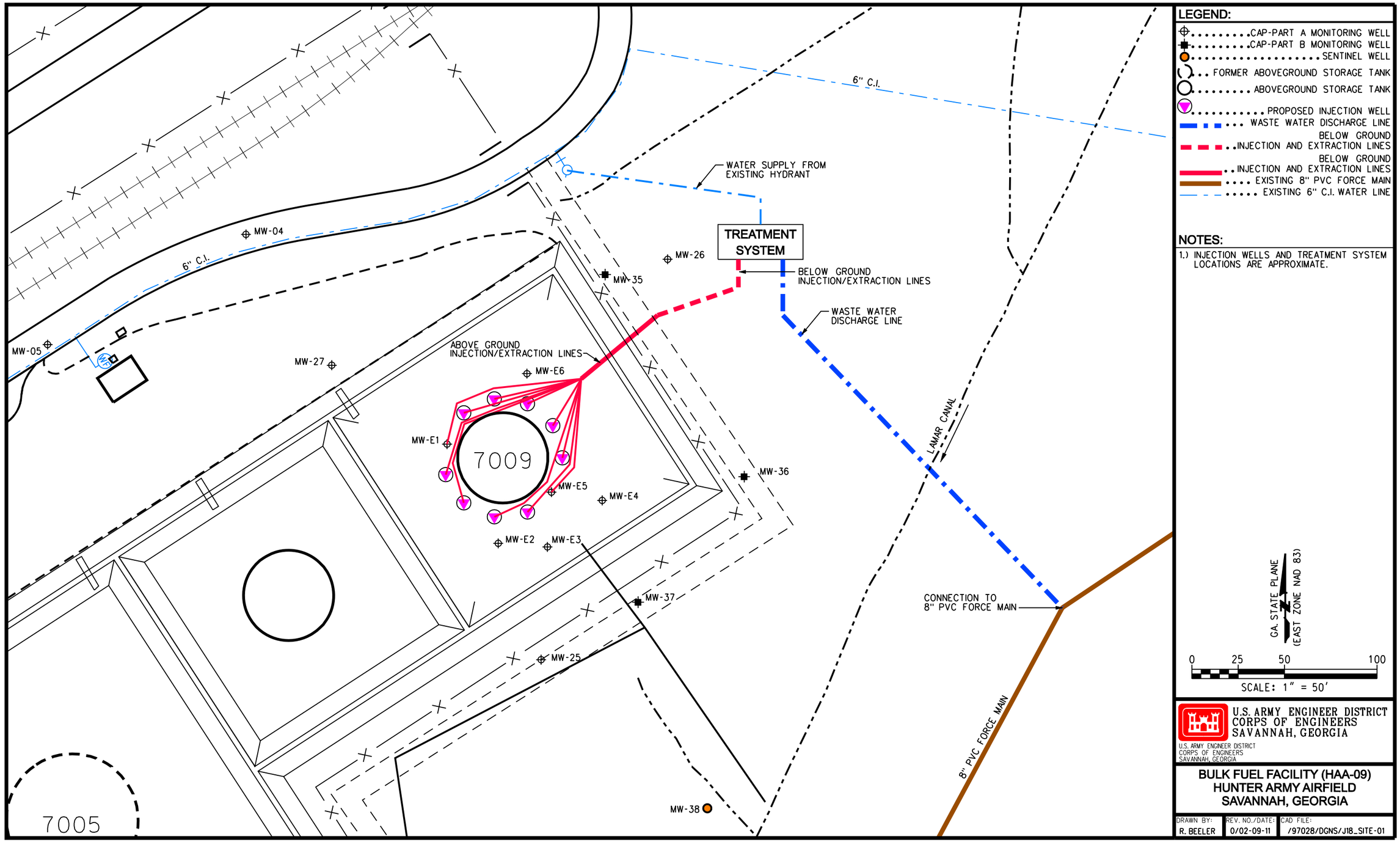


Figure 1. Former UST 117 Site Map

Release #2: AST 7009. In December 1999 and January 2000, the CAP–Part A investigation associated with Release #1 to identify areas of significant contamination concentrations involved collecting samples from the vicinity of AST 7009. A CAP–Part B investigation, which included the vicinity of AST 7009, was conducted by SAIC from November 2000 to March 2001 to determine the extent of petroleum contamination at the site (SAIC 2001). The nature and extent of contamination was determined during the CAP–Part B investigation. In July 2002, as part of the groundwater monitoring for Release #1, free product was observed in well BF-MW-E5, which is located within the bermed area of AST 7009. This tank is approximately 500 ft northeast of AST 7003 and is hydraulically sidegradient to AST 7003. Semiannual monitoring of Release #2 was initiated in July 2004 and discontinued in January 2005 because detected benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbon constituents were below the In-Stream Water Quality Standards. Free product removal activities were implemented in July 2004 consisting of absorbent socks in well BF-MW-E5 and bimonthly or quarterly pumping of the same well. In July 2007, an 8-hr Enhanced Fluid Recovery® (EFR®) event was initiated to vacuum extract the free product from well BF-MW-E5 on a quarterly basis. Free product has not been observed in the other wells located within the berm or those located around the perimeter of the berm for AST 7009. EFR® events were conducted on a quarterly basis through the spring of 2010 with biannual groundwater monitoring of sentinel well BF-MW-38. The results of the previous investigations conducted under the USTMP are documented in the reports listed below.

- *Soil Gas Survey Report for the Bulk Fuel Facility (HAA-09) at Hunter Army Airfield, Georgia* (SAIC 1999) documents the results of the 1999 soil gas survey that was performed to identify areas of significant contaminant concentrations.

- *Corrective Action Plan–Part A Report for the Former Underground Storage Tank 117, Building 7002 Site, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*1, Hunter Army Airfield, Georgia* (SAIC 2000) documents the results of the CAP–Part A investigation conducted in 1999 and 2000.

- *Corrective Action Plan–Part B Report for the Former Underground Storage Tank 117, Building 7002 Site, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*1, Hunter Army Airfield, Georgia* (SAIC 2001) documents the results of the CAP–Part B investigation conducted in 2000 and 2001.

- *First Annual Monitoring Only Report for Former Underground Storage Tank 117, Building 7002, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*1, Hunter Army Airfield, Georgia* (SAIC 2003) documents the results of the July 2002 and January 2003 monitoring events for Release #1.

- *Second Annual Monitoring and Free Product Removal Report for Former Underground Storage Tank 117, Building 7009, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*2, Hunter Army Airfield, Georgia* (SAIC 2005) documents the results of the July 2004 and January 2005 monitoring events and the free product removal activities conducted between June 2004 and March 2005 for Release #2.

- *Completion Report for Former Underground Storage Tank 117, Building 7002, Release #1, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*1, Hunter Army Airfield, Georgia* (SAIC 2006) documents the well abandonment activities for wells installed as part of the CAP–Parts A and B investigations for UST 117. Wells associated with Release #2 were not abandoned.

- *Third Annual Monitoring and Free Product Removal Report for Former Underground Storage Tank 117, Building 7009, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*2, Hunter Army Airfield, Georgia* (SAIC 2007) documents the results of the free product removal activities between

April 2005 and December 2006 for Release #2 and the 2006 free product removal activities for Release #3.

- *Fourth Annual Monitoring and Free Product Removal Report for Former Underground Storage Tank 117, Building 7009, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*2, Hunter Army Airfield, Georgia* (SAIC 2008) documents the results of the 2007 free product removal activities for events for Release #2.

- *2008 Free Product Removal Report for the Bulk Fuel Facility (HAA-09), Building 7009, Hunter Army Airfield, Georgia* (SAIC 2009) documents the results of the 2008 free product removal activities for events for Release #2.

- *2009 Free Product Removal Report for the Bulk Fuel Facility (HAA-09), Building 7009, Hunter Army Airfield, Georgia* (SAIC 2010) documents the results of the 2009 free product removal activities for events for Release #2.

Bulk Fuel Tank 7009 (Release #2) is the focus of this pilot study.

1.2 REGULATORY REQUIREMENTS

Following submittal of the Third Annual Monitoring and Free Product Removal Report (SAIC 2007), in correspondence dated February 28, 2008 (Logan 2008), GA EPD USTMP recommended that the site be transferred to the GA EPD Solid Waste Program because the contamination was the result of a release from an AST; therefore, the site is being remediated under the GA EPD Solid Waste Program.

2.0 PROJECT ORGANIZATION

This chapter presents changes to the project management plan, which is included as Attachment 1 of the WP for Preliminary Groundwater and CAP–Part A/Part B Investigations (SAIC 1996).

Subcontractors for the pilot study at Bulk Fuel Tank 7009 are as follows:

- Mid-Atlantic Environmental Equipment, Inc. (MAE2) – to provide the multi-phase extraction (MPE) and injection system;

- General Engineering Laboratories, Inc. – to perform analytical services;

- ProLectric Electrical Contractors, Inc. – to provide electrical services;

- CHEMTECH – to perform gas sampling;

- The Environmental Quality Company – to provide investigation-derived waste (IDW) transport and disposal; and

- D&C Directional Boring, LLC – to provide horizontal utility installation service.

The organizational chart for the pilot study at Bulk Fuel Tank 7009 is presented as Figure 2.

The schedule for the pilot study is shown in Figure 3.

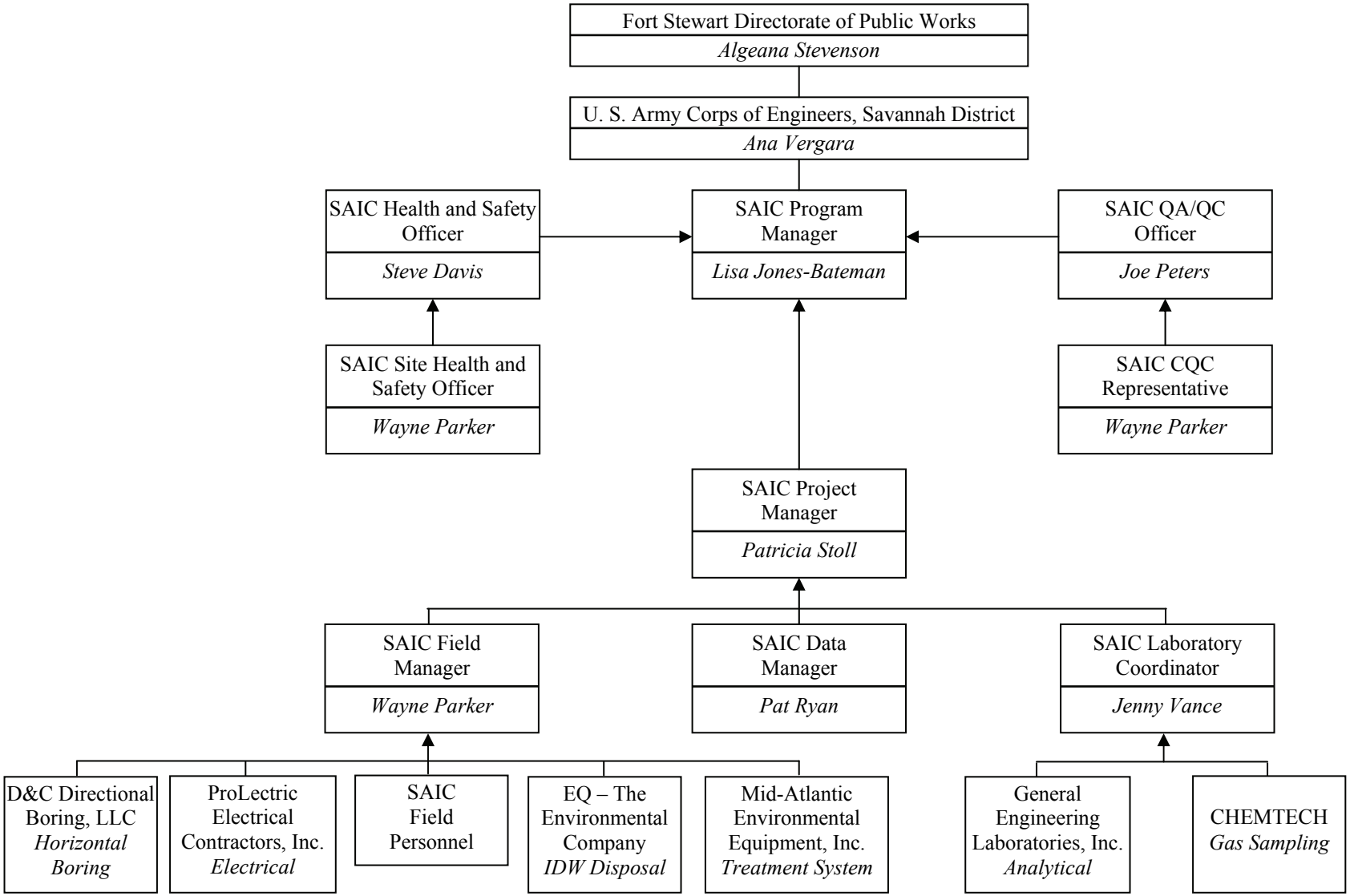
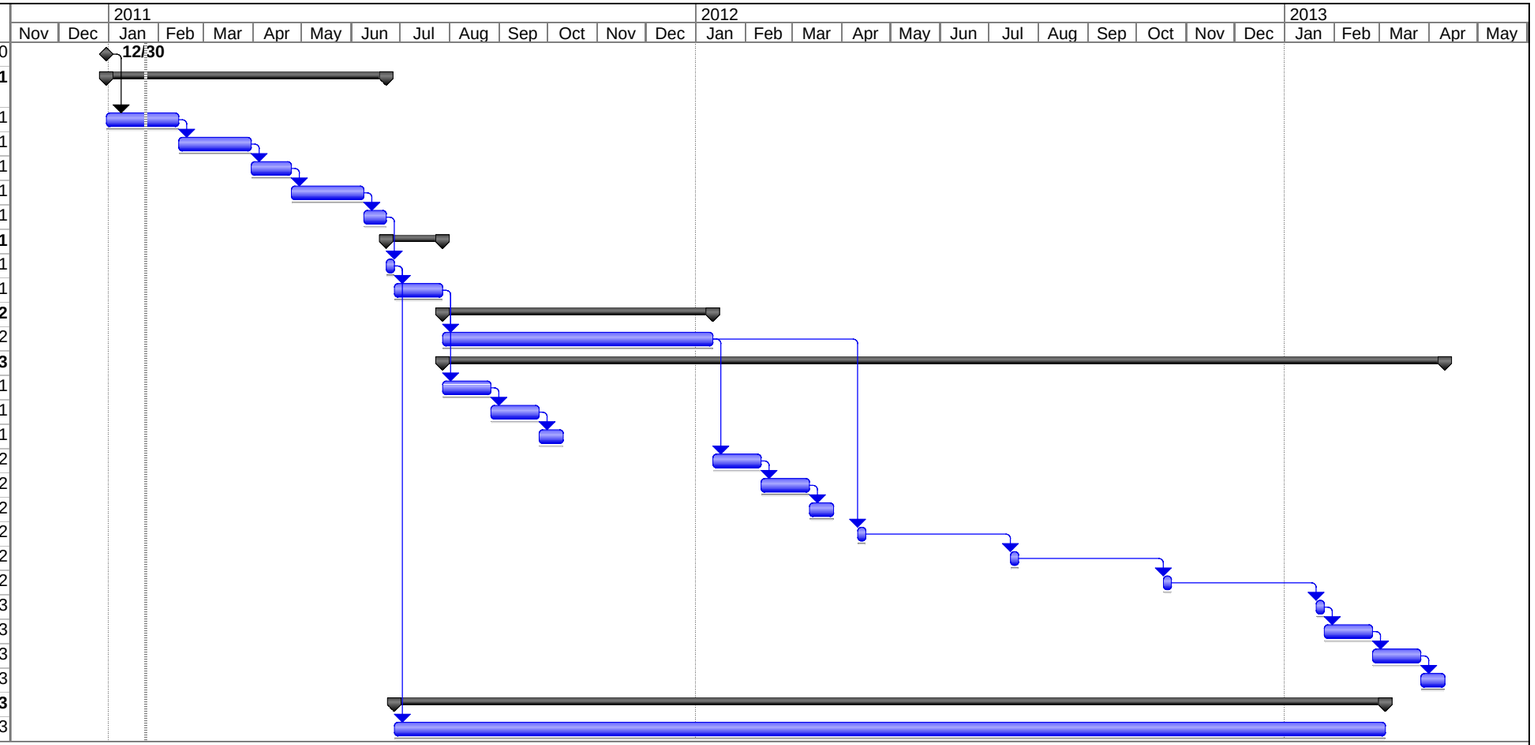


Figure 2. Organizational Chart for the Pilot Study at Bulk Fuel Tank 7009

ID	Task Name	Duration	Start	Finish
1	Notice to Proceed	1 day	Thu 12/30/10	Thu 12/30/10
2	**Task 1 - CAP Part B Addendum/WorkPlan/UIC Permit/SSHP/APP**	**124 days**	**Thu 12/30/10**	**Wed 6/22/11**
3	Draft Plans	45 edays	Thu 12/30/10	Sun 2/13/11
4	Review	45 edays	Sun 2/13/11	Wed 3/30/11
5	Final Plans	25 edays	Wed 3/30/11	Sun 4/24/11
6	Final Plan Review	45 edays	Sun 4/24/11	Wed 6/8/11
7	Revised Final Plans	14 edays	Wed 6/8/11	Wed 6/22/11
8	**Task 2 - Install Pilot Scale Product Recovery System**	**25 days**	**Wed 6/22/11**	**Wed 7/27/11**
9	Injection well install	5 edays	Wed 6/22/11	Mon 6/27/11
10	System Delivery and install	30 edays	Mon 6/27/11	Wed 7/27/11
11	**Task 3 - Operantion and Maintenance**	**120 days**	**Thu 7/28/11**	**Wed 1/11/12**
12	Six months of operation	6 mons	Thu 7/28/11	Wed 1/11/12
13	**Task 4 - Reporting/Monitoring**	**445 days**	**Wed 7/27/11**	**Wed 4/10/13**
14	CAP Part B Progress Report draft	30 edays	Wed 7/27/11	Fri 8/26/11
15	Review	30 edays	Fri 8/26/11	Sun 9/25/11
16	Cap Part B Progress Report Final	15 edays	Sun 9/25/11	Mon 10/10/11
17	CAP Part B Semi Annual Progress Report draft	30 edays	Wed 1/11/12	Fri 2/10/12
18	Review	30 edays	Fri 2/10/12	Sun 3/11/12
19	CAP Part B Semi Annual Progress Report final	15 edays	Sun 3/11/12	Mon 3/26/12
20	First Quarterly Monitoring	5 edays	Tue 4/10/12	Sun 4/15/12
21	Second Quarterly Moniroting	5 edays	Sat 7/14/12	Thu 7/19/12
22	Third Quarterly Monitoring	5 edays	Wed 10/17/12	Mon 10/22/12
23	Fourth Quarterly Monitoring	5 edays	Sun 1/20/13	Fri 1/25/13
24	CAP Part B Semi Annual Progress Report draft	30 edays	Fri 1/25/13	Sun 2/24/13
25	Review	30 edays	Sun 2/24/13	Tue 3/26/13
26	CAP Part B Semi Annual Progress Report final	15 edays	Tue 3/26/13	Wed 4/10/13
27	**Task 5 - IDW**	**440 days**	**Tue 6/28/11**	**Mon 3/4/13**
28	IDW disposal thoughout the project	22 mons	Tue 6/28/11	Mon 3/4/13



Project: BFF Product Recovery Pilot S
Date: Mon 1/24/11

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

Figure 3. Pilot Study Project Schedule

3.0 PROJECT SCOPE AND OBJECTIVES

3.1 SCOPE

The scope of the pilot study can be defined by its three main components: (1) develop a WP/CAP–Part B Addendum; (2) install and operate the pilot-scale product recovery system; and (3) complete reports as specified in the *Scope of Work for Product Recovery System Pilot Study, Bulk Fuel Facility (HAA-09) Former UST 117, Building 7009, Hunter Army Airfield, Georgia, Facility ID #9-025113*2* (USACE 2010).

3.2 OBJECTIVE

The project objective is to install a pilot-scale product recovery system at the site consisting of a combination surfactant injection/MPE system to recover trapped free-phase product from under the AST. This pilot study will be used to determine the feasibility of implementing such technology at the BFF and, potentially, other fuel storage facilities at HAAF.

4.0 FIELD ACTIVITIES

Surfactant flushing involves the injection and subsequent extraction of chemicals to solubilize and/or mobilize contaminants. In this case, Petrosolv™ will be injected into nine injection points and then extracted along with groundwater and free product from two existing wells for up to 6 months.

4.1 INJECTION WELLS

Nine, 1-in. injection points with 5-ft screens will be installed adjacent to AST 7009 as shown in Figure 1. A 5-ft screen will be installed to intercept the water table and to provide sufficient screen above the water table to facilitate surfactant interaction with residual free-phase product in the vadose zone. The bottom of the screen interval of the injection points will be installed to a depth of 6 ft BGS. These points will be installed by hand auger with sealed boots to maintain berm integrity. Injection lines for each point will remain above ground within the fenced BFF and will be buried in a shallow trench (i.e., less than 2 ft deep) outside the fence to the injection manifold.

4.2 INJECTION OPERATIONS

Potable water will be supplied by Fort Stewart and provided to the injection system from the fire hydrant located at the site. Approximately 12,000 gal of surfactant (Petrosolv™) will be injected as a 5% solution at a total rate of 0.5 to 2 gal per minute (gpm) across all nine injection points. A maximum of 7,800 gal of potable water will be required per day during injection operations or approximately 54,000 gal per week.

4.3 EXTRACTION OPERATIONS

Existing monitoring wells MW-E5 and MW-E1 will be used to extract groundwater, surfactant, and product from the site during surfactant injection and until all visible surfactant is recovered. Extraction

lines for each monitoring well will remain above ground within the fenced BFF and will be buried in a shallow trench (i.e., less than 2 ft deep) outside the fence to the treatment trailer. Extraction rates, estimated at 2 to 3 gpm per extraction well, will be set so as to not dewater the smear zone and prevent surfactant-light, nonaqueous-phase liquid contact. The total extraction rate will always be more than the total injection rate.

4.4 TREATMENT SYSTEM

Figure 4 presents the flow of materials within the treatment system. Fluids extracted from wells MW-E5 and MW-E1 will first flow through a liquid/vapor separator. Separated vapor will be sent to the air stripper vapor discharge, while liquid will be sent to a frac tank. Water from the frac tank continues on to an oil/water separator (OWS), where oil is separated from the extracted water and stored for off-site disposal as free-phase product in drums. Following the OWS, extracted water goes through an air stripper to remove volatile organic compounds (VOCs). The extracted water then passes through an ultra-filtration system to remove any remaining surfactant and/or free product. All removed surfactant and free product will be stored for off-site disposal as petroleum-impacted water. Finally, treated water will be passed through liquid-phase granular activated carbon as a final polishing step and discharged to the HAAF waste water treatment plant (WWTP).

Two chemical dose systems (one for anti-fouling and one for anti-foaming agents) will be used as needed.

Delivery of the completed treatment enclosure is expected to occur in June 2011. SAIC will be present on-site to direct the placement of the trailer (Figure 1). ProLectric Electrical Contractors, Inc. will be responsible for supplying 460-V/3Φ power to the treatment enclosure from the current Base supply.

4.5 EFFLUENT DISCHARGE

At system startup, all discharge will be containerized in a 20,000-gal Baker tank and sampled to ensure compliance with HAAF WWTP water acceptance criteria. Once these criteria have been satisfied, the system will discharge directly to the WWTP. Effluent samples will be collected biweekly to ensure continued compliance with the acceptance criteria.

Effluent discharge will be conveyed through 1-in. piping to the WWTP. The waste water line will be installed as shown on Figure 1 using Vermeer-type horizontal drilling equipment typical of utility installations. The waste water discharge line will pass beneath Lamar Canal at approximately 24 ft BGS (approximately 10 ft below the bottom of the ditch) and will connect with an 8-in. polyvinyl chloride main leading to the WWTP.

Because the discharge of any generated waste water will be through the HAAF WWTP, there is no need for a modified or new National Pollutant Discharge Elimination System permit.

4.6 SAMPLE COLLECTION

Air, groundwater, and effluent samples will be collected during the pilot study. Table 1 lists the frequency of sampling, and Table 2 summarizes the samples to be collected and analyzed.

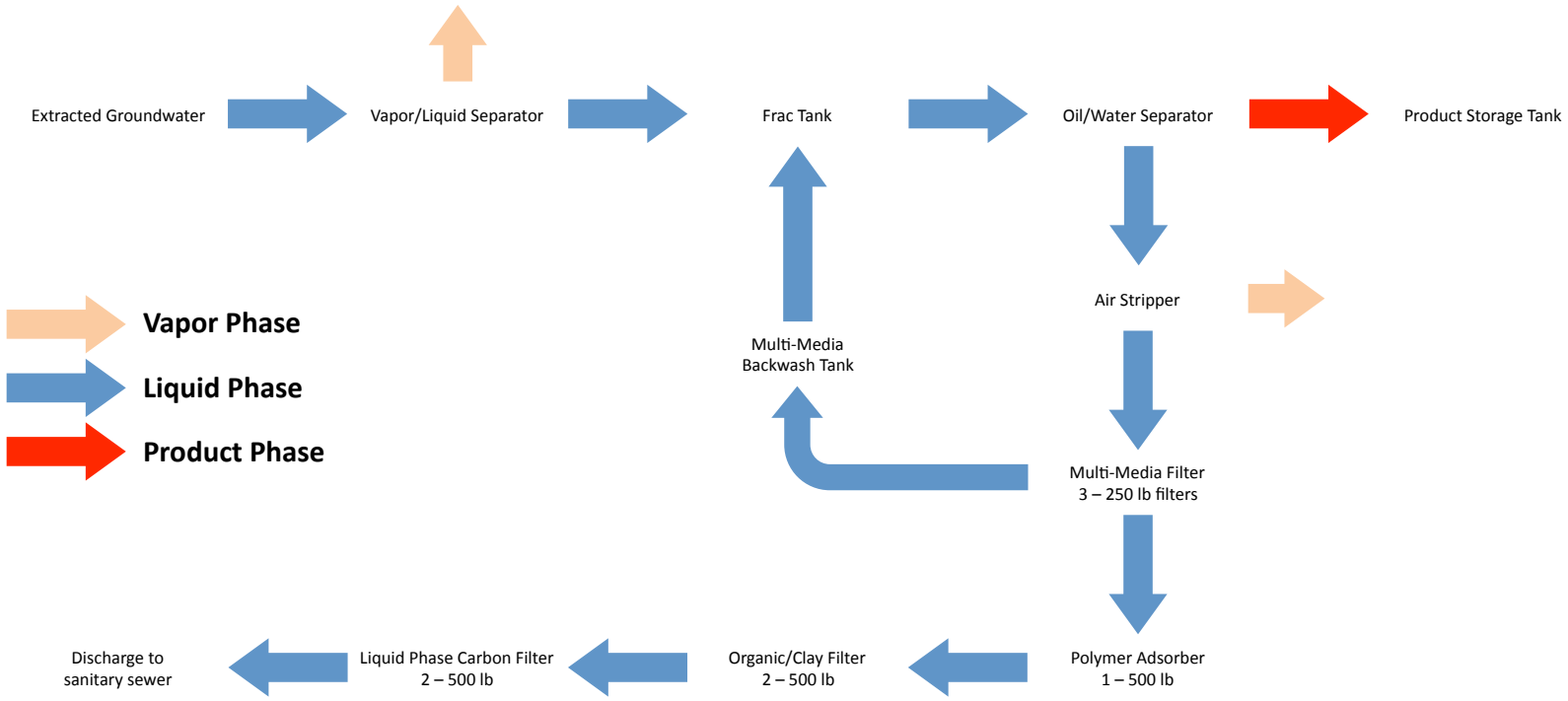


Figure 4. Treatment System Flow Diagram

Table 1. Frequency of Sample Collection During the Pilot Study at Bulk Fuel Tank 7009

Frequency	No. of Samples	Analyses	Turn-Around
Extraction Wells			
Biweekly	2	Visual check for surfactant	NA
Once[a]	2	BTEX	7 days
Air Stripper			
Monthly	1	VOCs	7 days
Treatment System Effluent			
Once[b]	1	VOCs, TPH-DRO, TPH-GRO, Oil and Grease, COD, TDS, TSS, Total Iron, Hardness, pH, and phenols	48 hr
Biweekly	1	VOCs, TPH-DRO, TPH-GRO, Oil and Grease, COD, TDS, TSS, Total Iron, Hardness, pH, and phenols	7 days
Biweekly[c]	3	TPH-DRO	7 days

[a] During the fourth quarter gauging event.
[b] At startup.
[c] From the sampling ports between each filter unit to check for breakthrough.
BTEX = Benzene, toluene, ethylbenzene, and xylenes.
COD = Chemical oxidant demand.
DRO = Diesel-range organics.
GRO = Gasoline-ranges organics.
NA = Not applicable.
TDS = Total dissolved solids.
TPH = Total petroleum hydrocarbons.
TSS = Total suspended solids.
VOC = Volatile organic compound.

Table 2. Summary of Analytical Samples for the Pilot Study at Bulk Fuel Tank 7009

Matrix	Analysis	Analytical Procedure	No. Field Samples	QC Dups.[a]	QC Trip Blanks	Total Samples	Holding Time	Preservation Requirements	Sample Containers
Air Samples	VOCs	TO-15	6	1	0	7	30 days	None	SUMMA Canister
Effluent Water Samples	VOCs	SW-846 8260B/5030 and 8260B/5035	13	1	13	27	14 days	HCl to pH <2 Cool, 4°C	40-mL GSV
	TPH-GRO	SW-846 8015C	31	2	0	14	14 days	Cool, 4°C	40-mL GSV
	TPH-DRO	SW-846 8015C	31	2	0	14	7 days (extraction) 40 days (analysis)	Cool, 4°C	1-L amber glass bottle with Teflon®-lined lid
	Oil and Grease	EPA 413.2	13	1	0	14	28 days	H_2SO_4 to pH <2 Cool, 4°C	1-L glass bottle with Teflon®-lined lid
	COD	EPA 410.4	13	1	0	14	28 days	H_2SO_4 to pH <2 Cool, 4°C	125-mL polybottle
	BOD	SM 5210 B	13	1	0	15	24 hr	Cool, 4°C	500-mL polybottle
	TDS and TSS	SM 2540 C	13	1	0	14	7 days	Cool, 4°C	1,000-mL polybottle
	Total Iron and Hardness	SW-846 6010C, SM 2340 C	13	1	0	14	180 days	HNO_3 to pH <2	100-mL polybottle
	pH	EPA 150.1	13	1	0	14	ASAP	Cool, 4°C	250-mL polybottle
	Phenols	EPA 420.1 or 420.4	13	1	0	14	28 days	H_2SO_4 to pH <2 Cool, 4°C	1,000-mL polybottle
Groundwater Samples	BTEX	SW-846 8260B/5030 and 8260B/5035	2	0	1	3	14 days	HCl to pH <2 Cool, 4°C	40-mL GSV

This table is in conformance with Engineering Manual-200-1-3 (USACE 2001).

[a] The number of QC duplicate samples represents a 10% distribution between the different types of investigations to be conducted; however, the actual number of duplicates collected for each investigation type might vary slightly from the distribution presented.

ASAP = As soon as possible.
BOD = Biological oxidant demand.
BTEX = Benzene, toluene, ethylbenzene, and xylenes.
COD = Chemical oxidant demand.
DRO = Diesel-range organics.
EPA = U. S. Environmental Protection Agency.
GRO = Gasoline-range organics.
GSV = Glass septa vial.
H_2SO_4 = Sulfuric acid.
HCl = Hydrochloric acid.
HNO_3 = Nitric acid.
QC = Quality control.
TDS = Total dissolved solids.
TPH = Total petroleum hydrocarbons.
TSS = Total suspended solids.
VOC = Volatile organic compound.

- Groundwater samples from the extraction wells will be collected biweekly and visually monitored for surfactant (which is colored to easily identify) to track the effectiveness of the product recovery and determine when the system can be removed from service.

- Air samples will be collected monthly from the air stripper and analyzed for VOCs to monitor discharge to the atmosphere.

- Effluent samples will be collected from the treatment system and analyzed for VOCs, total petroleum hydrocarbons (TPH)-gasoline-range organics (GRO), TPH-diesel-range organics (DRO), oil and grease, chemical oxidant demand, total dissolved solids, total suspended solids, total iron, hardness, phenols, and pH, initially, prior to any discharge to the HAAF WWTP. Effluent water samples will then be collected biweekly during operation of the system and analyzed for these same parameters to ensure continued compliance with the acceptance criteria of the WWTP.

- Effluent samples will be collected biweekly from between each pair of filter media (e.g., between the two liquid-phase carbon filters) and analyzed for TPH-DRO and TPH-GRO to ensure that filter breakthrough is not occurring.

- Groundwater samples will be collected from MW-E5 and MW-38 during the fourth quarterly gauging event for BTEX analysis, thus meeting the biannual sampling requirements of the existing CAP–Part B.

4.7 WELL GAUGING

Following system operation, SAIC will gauge the site wells (MW-E1 through MW-E6) for product rebound quarterly for 1 year.

4.8 OPERATIONS AND MAINTENANCE

During the anticipated 6 months of operation, SAIC or its subcontractor personnel will inspect the system weekly, at a minimum, for potential operation and maintenance issues. MAE2 will visit the site on a monthly basis to change out filter materials as needed.

5.0 SAMPLE CHAIN OF CUSTODY/DOCUMENTATION

5.1 FIELD LOGBOOKS

Refer to Attachment 4 of the WP for Preliminary Groundwater and CAP–Part A/Part B Investigations (SAIC 1996).

5.2 SAMPLE NUMBERING SYSTEM

A unique sample numbering scheme will be used to identify each sample designated for laboratory analysis. The purpose of this numbering scheme is to provide a tracking system for the retrieval of analytical and field data on each sample. Sample identification numbers will be used on all sample labels

or tags, field data sheets and/or logbooks, chain of custody records, and all other applicable documentation used during the project.

A summary of the sample numbering scheme to be used for the project is presented in Table 3.

Table 3. Sample Identification System for the Pilot Study at Bulk Fuel Tank 7009

Sample Identification: XX-YY-DDDDM	
XX = Site location designator	Example BF = Bulk Fuel Facility
YY = Sample location	Examples E5 = Extraction well MW-E5 38 = Monitoring well MW-38 T1 = Treatment system location #1 T2 = Treatment system location #2
DDDD = Sample date	Example 0207 = February 7
M = Sample medium	Examples A = Air E = Effluent water G = Groundwater

5.3 SAMPLE DOCUMENTATION

Refer to Attachment 4 of the WP for Preliminary Groundwater and CAP–Part A/Part B Investigations (SAIC 1996).

5.4 DOCUMENTATION PROCEDURES

Refer to Attachment 4 of the WP for Preliminary Groundwater and CAP–Part A/Part B Investigations (SAIC 1996).

5.5 DATA MANAGEMENT PLAN

Refer to Attachment 2 of the WP for Preliminary Groundwater and CAP–Part A/Part B Investigations (SAIC 1996).

6.0 SAMPLE PACKAGING AND SHIPPING

Refer to Attachment 4 of the WP for Preliminary Groundwater and CAP–Part A/Part B Investigations (SAIC 1996).

7.0 INVESTIGATION-DERIVED WASTE

SAIC will adhere to the procedures outlined in the existing UST investigation WPs (and all addendums) for the disposal and handling of IDW related to installation and operation of the pilot-scale product recovery system. While awaiting results from chemical testing, all IDW shall be stored in properly labeled poly tanks or drums located in a nearby area designated by USACE or Fort Stewart. All IDW not able to be disposed of at the HAAF WWTP shall be disposed off-site at a permitted facility (either non-hazardous or hazardous, as warranted). SAIC will complete all manifests for waste disposal and will provide 72 hr notice to Fort Stewart prior to removing waste from the site. A Fort Stewart representative must sign each manifest.

8.0 CONTRACTOR CHEMICAL QUALITY CONTROL PROGRAM

Refer to Chapter 5.0 of the WP for Preliminary Groundwater and CAP–Part A/Part B Investigations (SAIC 1996).

9.0 CORRECTIVE ACTIONS

Refer to Chapter 6.0 of the WP for Preliminary Groundwater and CAP–Part A/Part B Investigations (SAIC 1996).

10.0 REFERENCES

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SAIC 1998. *Sampling and Analysis Plan for Corrective Action Plan–Part A and B Investigations for Former Underground Storage Tanks at Hunter Army Airfield, Georgia,* Oak Ridge, TN.

SAIC 1999. *Soil Gas Survey Report for the Bulk Fuel Facility (HAA-09) at Hunter Army Airfield, Georgia*, November.

SAIC 2000. *Corrective Action Plan–Part A Report for the Former Underground Storage Tank 117, Building 7002 Site, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*1, Hunter Army Airfield, Georgia.* Oak Ridge, TN. June.

SAIC 2001. *Corrective Action Plan–Part B Report for the Former Underground Storage Tank 117, Building 7002 Site, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*1, Hunter Army Airfield, Georgia.* Oak Ridge, TN. July.

SAIC 2003. *First Annual Monitoring Only Report for Former Underground Storage Tank 117, Building 7002, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*1, Hunter Army Airfield, Georgia,* July.

SAIC 2005. *Second Annual Monitoring and Free Product Removal Report for Former Underground Storage Tank 117, Building 7009, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*2, Hunter Army Airfield, Georgia,* December.

SAIC 2006. *Completion Report for Former Underground Storage Tank 117, Building 7002, Release #1, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*1, Hunter Army Airfield, Georgia,* July.

SAIC 2007. *Third Annual Monitoring and Free Product Removal Report for Former Underground Storage Tank 117, Building 7009, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*2, Hunter Army Airfield, Georgia,* September.

SAIC 2008. *Fourth Annual Monitoring and Free Product Removal Report for Former Underground Storage Tank 117, Building 7009, Bulk Fuel Facility (HAA-09), Facility ID #9-025113*2, Hunter Army Airfield, Georgia,* September.

SAIC 2009. *2008 Free Product Removal Report for the Bulk Fuel Facility (HAA-09), Building 7009, Hunter Army Airfield, Georgia,* May.

SAIC 2010. *2009 Free Product Removal Report for the Bulk Fuel Facility (HAA-09), Building 7009, Hunter Army Airfield, Georgia,* May.

USACE (U. S. Army Corps of Engineers) 2001. *Requirements for the Preparation of Sampling and Analysis Plans*, Engineering Manual 200-1-3, February.

USACE 2010. *Scope of Work for Product Recovery System Pilot Study, Bulk Fuel Facility (HAA-09) Former UST 117, Building 7009, Hunter Army Airfield, Georgia, Facility ID #9-025113*2,* June.