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FINAL PHASE I RESOURCE CONSERVATION AND RECOVERY ACT FACILITY
INVESTIGATION WORK PLAN FOR SOLID WASTE MANAGEMENT UNIT 27 SITE 2010-2
NSB KINGS BAY GA
9/1/2013
NSB KINGS BAY

FINAL

**Phase 1 RCRA Facility Investigation Work Plan
SWMU 27 (SITE 2010-2)**

**Naval Submarine Base Kings Bay
Camden County, Georgia**

September 2013

**DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SOUTHEAST**

JACKSONVILLE, FLORIDA

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Acronyms and Abbreviations

ASTM	American Society for Testing and Material
bgs	below ground surface
BOSC	Base Operations Support Contractor
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Corrective Action Plan
CAO	Corrective Action Oversight
CLEAN	Comprehensive Long-term Environmental Action—Navy
CMO	Consolidated Mess Open
COC	chain-of-custody
COPC	chemical of potential concern
CSM	conceptual site model
DO	dissolved oxygen
DoN	U.S. Department of Navy
DPT	direct-push technology
DQO	data quality objective
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
FID	flame ionization detector
GA EPD	Georgia Environmental Protection Division
GPS	global positioning system
HHRA	human health risk assessment
HWSF	hazardous waste storage facility
ID	internal diameter
IDW	investigation-derived waste
IPT	Integrated Product Team
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MNA	monitored natural attenuation
msl	mean sea level
MS/MSD	matrix spike/matrix spike duplicate
NAVFAC	Naval Facilities Engineering Command
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEESA	Naval Energy and Environmental Support Activity

NFA	No Further Action
NTU	Nephelometric Turbidity Unit
ORP	oxidation-reduction potential
OVA	organic vapor analyzer
PAH	polycyclic aromatic hydrocarbon
PID	photoionization detector
PRG	preliminary remediation goal
PPE	personal protective equipment
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QAPP	quality assurance project plan
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RPM	Remedial Project Manager
RSL	regional screening level
SAA	Satellite Accumulation Area
SOP	standard operating procedures
SSL	Soil Screening Level
SU	Standard Unit
SUBASE	Naval Submarine Base, Kings Bay, Georgia
SVOC	semi-volatile organic compound
SWMU	Solid Waste Management Unit
TCA	Temporary Collection Area
TCLP	toxicity characteristic leaching procedure
TOC	Total Organic Carbon
TPH	total petroleum hydrocarbon
UST	underground storage tank
USTMP	Underground Storage Tank Management Program
VOC	volatile organic compound
WQP	water quality parameter

SECTION 1

Introduction

This sampling visit and confirmation sampling work plan (WP) has been prepared in accordance with (IAW) the Navy Business Management Systems protocol for identifying the source and nature of a potential release. This WP presents the technical approach to address potential soil impacts at the former satellite accumulation area 2010-2 and identified as Solid Waste Management Unit 27 (SWMU 27) located at Naval Submarine Base, Kings Bay, Georgia (SUBASE). Figure 1-1 is an area map, figure 1-2 is a site vicinity map, and figure 1-3 is an aerial view of SWMU27.

The United States Environmental Protection Agency (EPA) conducted a RCRA Facility Assessment (RFA) August 11–13, 2009 and identified this site as SAA 2010-2. The EPA noted in the RFA that no further action (NFA) was warranted based on a visual inspection and historical documentation. The SAA is no longer in use and no soil or groundwater sampling with analytical testing has been conducted to support a release of the constituents stored at the site. It was later determined by the Georgia Department of Environmental Protection (GADEP), after re-evaluating the finding from the RFA, that the various types of chemicals stored within the confines of this accumulation area and warranted further investigations. It was also noted that no secondary containment had been in place to capture any release or spills that may have occurred during the operational period. Therefore, GAEPD requested the addition of this site as part of the renewal requirements to be inserted into the Hazardous and Solid Waste Part B Permit.

Figure 1-1. Area Map

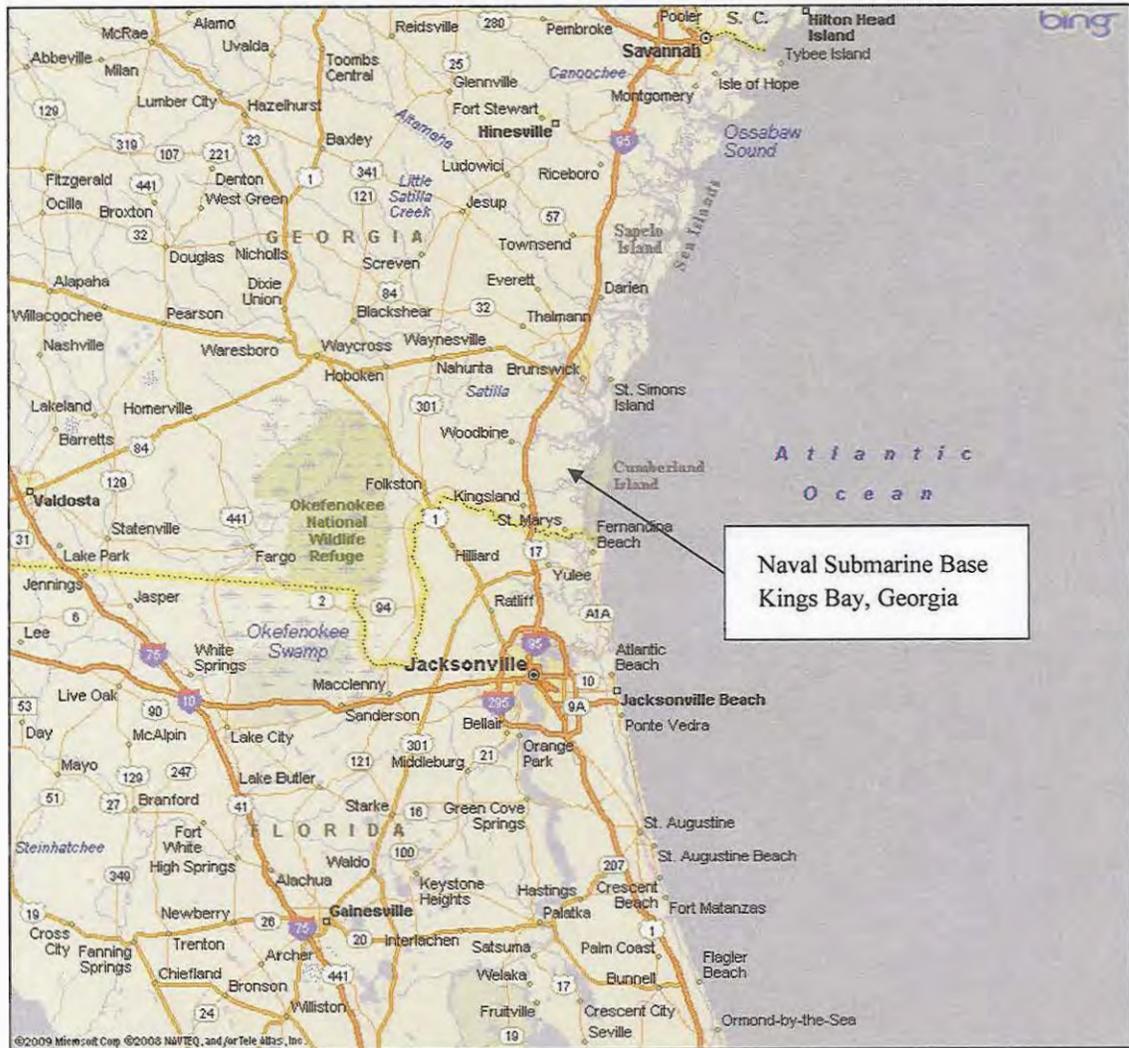


Figure 1-2. Site Vicinity Map

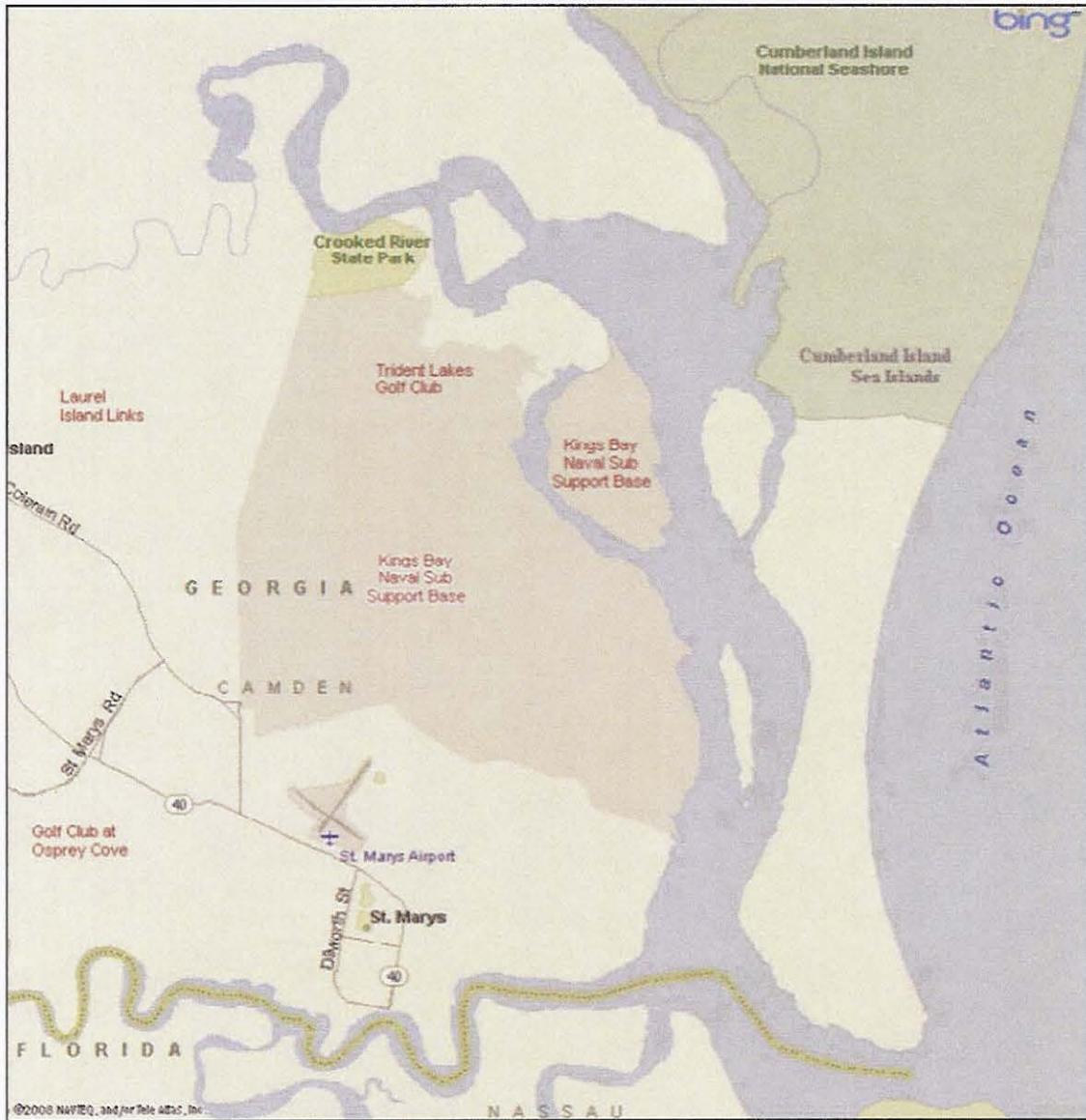
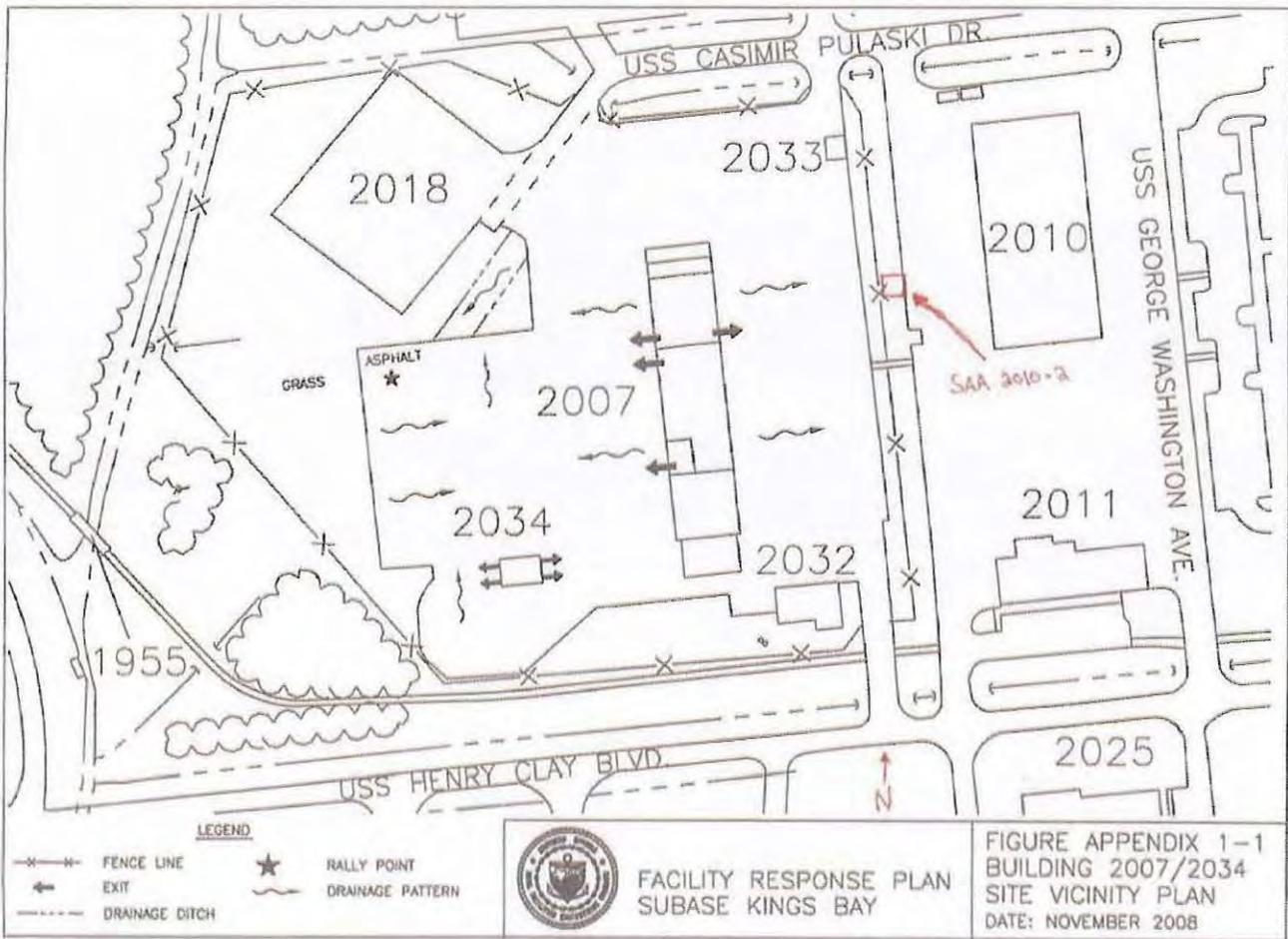


Figure 1-3. SWMU 27 Aerial View



Figure 1-4. Site Location



SECTION 2

Background Information

The submarine base is located in the southeastern corner of Georgia (GA) approximately 8 miles north of the GA state line. SUBASE includes approximately 16,168 acres of Camden County, GA. Currently, the base supports submarines, crew training, weapons handling and storage, submarine maintenance, and associated personnel. Background information for SWMU 27 is presented below.

2.1 SWMU 27

SWMU 27 consists of a fenced enclosure (18 ft by 12 ft and 6 ft high) located outside and to the west of Building 2010. This is a former satellite accumulation area where waste is generated by base operations support contractor (BOSC) activities in Building 2010 and throughout the base. When full, the BOSC transfers the drums to the hazardous waste storage facility (HWSF) for disposal. The Draft RFA was provided to stakeholders to allow for a comment period. SUBASE provided comments to this report and submitted these to GAEPD. GAEPD reviewed SUBASE comments and responded via letter on January 31, 2011. Due in part to the comments SUBASE provided back to GAEPD, they re-evaluated several of the SAAs to determine if a potential exists for a release of hazardous constituents or hazardous waste. Their reassessment found SAA 2010-2 did exhibit evidence of a release due to the appearance of surface staining and gaps in the asphalt base at this unit without secondary containment to prevent any spilled waste from migrating onto the adjacent soils. GAEPD further stated “from our last inspection at SUBASE, we observed that hazardous waste is no longer stored at SAA #2010-2; however, this unit has been used to store hazardous waste in the past; and, therefore, qualifies as a SWMU.” It should be noted that the EPA RFA reported and Naval Facilities Engineering Command Southeast (NAVFAC SE and SUBASE) personnel confirmed this area has a concrete type slab while GAEPD has noted this to be asphalt material. This area has both a concrete slab with an asphalt extension added that abuts up to the concrete slab.

2.1.1 RCRA Facility Assessment

On August 11–13, 2009, a four-person contractor team performed a visual site inspection (VSI) at SUBASE. Also present were several representatives of EPA Region 4, GADNR, SUBASE, and the NAVFAC SE. SUBASE primarily generates wastes during the maintenance and refurbishment of submarines, munitions, various support equipment, and during base operations. These operations include vehicle maintenance, carpentry, painting, plumbing, heating and air conditioning maintenance, steam and compressed air work, roads and grounds maintenance, and electrical work. Common hazardous wastes generated by these activities include, but are not limited to paint waste, solvent-contaminated waste, oil/grease, contaminated absorbents, contaminated rags and wipes, lead batteries, spent sand blasting grit,

plating waste, and solvents such as lacquer, thinners, and mineral spirits. Large amounts of used oil and universal waste are also generated through these maintenance operations (NSB Kings Bay, 1993; Advent, 2009; Booz Allen, 2009).

An inventory of the waste stored at SAA 2010-2 that was noted in the RFA that included universal waste, dry cell batteries, fuel (RJ-4/JP-10) and debris, paint solids and containers, oily/greasy debris, non-flammable adhesives and sealants, liquid oily debris, vulcanizing adhesives with lead (D001, D008, D040), aerosol cans, flammable/non-flammable (D001, D005, D007, D008), universal waste, light bulbs (D008, D009), and paint-related trash/debris (D005, D007, D008, D035, D043, F002).

2.1.2 Current Regulatory Status

GAEPD issued a letter on January 31, 2011 to SUBASE that designated SAA 2010-2 a RCRA SWMU. This letter also indicated that Former SAA 2010-2 will be added to the list of SWMUs as SWMU 27. On September 28, 2012, GAEPD included SMWU 27 in Section IV.A1–Applicability and IV.C–RCRA Facility Investigation that further stipulated completion of a SVCS work plan to be submitted in accordance with the Hazardous Waste Facility Permit #HW-014(S&T)-4.

In January 2013, SUBASE issued a letter to GAEPD requesting an 180-day extension to complete the SVCS work plan which was granted. The new due date for submission of an SVCS work plan is now October 4, 2013.

SECTION 3

Confirmation Sampling

3.1 Transport Mechanisms

Transport pathways describe the mechanisms whereby contaminants are transported from the source to an exposure point where human or ecological receptors contact might occur.

3.1.1 Soil

During the RFA, the inspectors noted visual soil staining in the area where spent chemicals were held prior to being moved to the HSWA Permitted facility. Soil sampling and testing has not been conducted in this area and will be addressed as part of this work plan. No intrusive soil sampling has taken place in or around the former SAA. The purpose of the site visit and confirmation sampling is to collect soils samples at various depth intervals in strategic locations and have these tested in a fix laboratory setting. At a minimum, four soil borings will be drilled within the area of the SAA concrete and asphalt pads with an additional four soil borings placed just outside the confines of the accumulation area. Soil samples will be collected just below any concrete or asphalt cover and every two feet thereafter until the top of the shallow unconfined water table is reached. If no permeable cover exists, surface soils will be collected first and then subsurface sample next as noted above. Soil sampling locations will be determined as part of the field activities to ensure adequate precautions are taken for utilities and access restrictions. The objective during this phase of the confirmation sampling is to collect a sufficient number of soil samples along with a corresponding number of soil samples at representative depth intervals for analytical testing.

The Navy anticipates using advanced Direct Push Technology (DPT). The location of the soil borings will be selected on the basis of site conditions and rig-access capability. Each boring will be advanced from the ground surface down to the water table (approximately 7 feet bgs) for lithological characterization and the presence of organic vapors. Soil from each boring will be screened using a flame ionization detector (FID) or a photoionization detector (PID).

Confirmation sampling will follow the Environmental Protection Agency's Residential Regional Screening Levels and will include soil sampling analysis for metals, volatile organic chemicals, and semi-volatile organic chemicals. In addition, soil sampling will be conducted in accordance with the EPA's Field Branches Quality System and Technical Procedures as noted at the following Web page: <http://www.epa.gov/region4/sesd/tbqstp/>. One subsurface soil sample (the 2-foot interval directly above the water table) will be collected from each of the borings. Soil samples will be submitted to an offsite laboratory for analyses as described earlier in the work plan. As a caveat to the above sampling procedures and analytical testing requirements, efforts will be made to avoid cross contamination when sampling in the asphaltic area so as not to skew the results.

3.1.2 Groundwater

Groundwater contamination will not be addressed as part of this soil confirmation sampling phase. If contamination is detected in a soil sample above the applicable residential standards, then a phase II assessment will address the shallow, unconfined aquifer. Background standards have not been established at this time. In order to evaluate the potential for soil leaching to groundwater, the analytical results from subsurface soils will be compared to the soil screening levels as identified in EPA's Residential Screening Level tables in addition to the Residential Screening Levels.

3.1.3 Sample Handling and Analysis

Samples for chemical analyses will be placed into laboratory-prepared sample containers with the appropriate preservatives and stored on ice in a cooler at approximately 4° Celsius (or less) until shipped to the laboratory. Sample preservation details, the type of container used for each sampling effort, as well as a summary of preservation requirements, are described in the QAPP.

Proper COC documentation will be maintained for all samples from the time of collection until they are shipped to the analytical laboratory. The COC forms will contain the following information: project number (delivery order), sampler names, sample numbers, number of containers, methods of preservation, date and time of sample collection, analysis requested, date and time of transportation to the laboratory, method of transportation, and any other information pertinent to the samples. Samples will either be hand delivered to the laboratory via courier or shipped via overnight courier.

A copy of the UFP-SAP will be submitted upon award of a contract to conduct the site assessment field activities. Under Federal Acquisition Regulations, the Navy is required to award contracts to address certain tasks such as the QAPP because this will require identification of a specific laboratory. The selected contraction has sole responsibility to engage a third party support in their efforts to fulfill tasks as outlined in the statement of work.

3.1.4 Investigation-Derived Waste Management

Investigation-derived waste (IDW) will be managed in accordance with the Waste Management Plan established by SUBASE Kings Bay. IDW will consist of soil cuttings, personal protective equipment (PPE), decontamination fluids, and purged groundwater. PPE, such as sampling gloves, will be placed in plastic bags and disposed of in an onsite dumpster. Soil and liquid IDW will be placed in poly-tanks or 55-gallon drums, or, if low volumes are expected, in 5-gallon containers. Samples will be collected from each waste stream for analysis of toxicity characteristic leaching procedure (TCLP), reactivity, ignitability, and corrosivity in order to determine the appropriate method of disposal. The drums and poly- tanks will be transported to and staged at a designated 90-day storage area pending final disposition. A waste management subcontractor will assist with the removal of the IDW from the storage area and transportation to a permitted disposal facility.

3.1.5 Surveying

The horizontal coordinates of each soil boring location will be surveyed using a global

positioning system (GPS) unit. This data will be included as an overlay on a site map.

3.1.6 Data Management and Validation

It is anticipated that data management activities will consist primarily of entering field and laboratory data onto computerized spreadsheets using database software and tabulating field and analytical results for preparation of the report.

The laboratory analytical results will be evaluated to assess the technical adequacy and usability of the data. The data will be technically reviewed based on specifications set forth in the Naval Energy and Environmental Support Activity (NEESA) and EPA guidance documents.

3.1.7 Data Evaluation

The laboratory analytical results for soil will be compared with appropriate regulatory criteria in support of residential standards or background if data is available. These data will then be placed in the SVCS report using a spreadsheet format showing the analytical results, in appropriate mg/kg, for each soil boring location.

3.2 Report Preparation

A sampling visit/confirmation sampling report will be prepared for SWMU 27 detailing the sampling results along with recommendations for a path forward. The report will include, but not be limited to, the following:

- Information to supplement and/or verify the environmental setting including geology and hydrogeology
- Summary of the investigation/sampling activities
- Characterization of any potential source(s)
- Evaluation of the contamination data if detected above appropriate standards
- Conclusions and recommendations

Draft reports will be submitted to NAVFAC SE, SUBASE, and GAEPD for comments and approval. Response to comments and necessary revisions will be made to the draft reports before issuing a final report.

SECTION 4

Project Management and Staffing

The proposed management and staffing for this SVCS project site will be based on the award of a contractor, however, the following individuals will be the main contracts throughout the period of performance of the work:

- Mr. Dana Hayworth, P.G.—NAVFAC SE Remedial Program Manager (RPM)
- Ms. Sarah Reed, P.E.—NAVFAC SE Integrated Product Team (IPT) South Atlantic Supervisor
- Mr. Tom Stofflet—SUBASE Installation Restoration Manager

SECTION 5

Project Schedule

The project schedule is presented on table 5-1. The schedule presents the anticipated completion and/or submittal dates for specific tasks or documents.

TABLE 5-1

Proposed Project Schedule
 SWMU 27 SVCS Work Plan
 NSB Kings Bay, GA

Task Name	Duration (Days)	Start Date
Field Preparation/Mobilization	15 days	30 days after final work plan submittal
Soil Sampling		
Lab Analysis, Data Validation and Data Management	60 days	14 days after soil sampling
Draft SVCS Report	45 days	10 days after receipt of validated data
Response to Comments	15 days	30 days after comments received
Final SVCS Report	15 days	30 days after responses accepted

SECTION 6

References

- Georgia Environmental Protection Agency (GA EPD). 1996. Guidance for Selecting Media Remediation Levels at RCRA Solid Waste Management Units.
- Environmental Protection Agency (EPA). 2009. DRAFT RCRA Facility Assessment Report, U.S. Naval Submarine Base, Kings Bay.
- Georgia Environmental Protection Agency (GA EPD). 2011. RCRA Facility Assessment, Naval Submarine Base, Kings Bay.
- J.J. Sosa and Associates, Inc. (J.J. Sosa). 1999. Corrective Action Plan Report, Consolidated Mess Open, Building 1039.
- U.S. Environmental Protection Agency (EPA). 1989. Risk Assessment Guidance for Superfund (RAGS), Volume I, Human Health Evaluation Manual (Part A) Interim Final.
- U.S. Environmental Protection Agency (EPA). 1990. National Oil and Hazardous Substances Pollution Contingency Plan (NCP).
- U.S. Environmental Protection Agency (EPA). 1997. Ecological Risk Assessment Guidance for Superfund (RAGS): Process for Designing and Conducting Ecological Risk Assessments.
- U.S. Environmental Protection Agency (EPA). 2000a. Guidance for Data Quality Objectives Process.
- U.S. Environmental Protection Agency (EPA). 2000b. Data Quality Objectives Process for Hazardous Waste Site Investigations.
- U.S. Environmental Protection Agency (EPA). 2000c. Office of Technical Services, Region 4. Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins. Originally published November 1995. Website version last updated May 2000: <http://www.epa.gov/region4/waste/oftecsesr/healthbul.htm>.
- U.S. Environmental Protection Agency (EPA). 2001a. Region 4 Ecological Risk Assessment Bulletins—Supplement to RAGS.
- U.S. Environmental Protection Agency (EPA). 2001b. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments. EPA 540-R-97-033. OSWER 9285.7-01D.
- U.S. Environmental Protection Agency (EPA). 2004. Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal

Risk Assessment) Final. OSWER 9285.7-02EP.

U.S. Department of the Navy (DON). 2003. Guidance for Conducting Ecological Risk Assessment.