WORKPLAN SITE 1116 BRONSON NAS PENSACOLA FL

02/01/2004

WRS INFRASTRUCTURE & ENVIRONMENT

Workplan

Site 1116
Outlying Landing Field (OLF) Bronson – Pensacola, Florida
Construction Contract Number N62467-02-D-0480

Prepared For:
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Southern Division
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Workplan

for

Site 1116
OLF BRONSON

Submittal Date:	**February 24, 2004**
Project Name:	**OLF Bronson Site 1116**
Project Location:	**Outlying Landing Field Bronson – Pensacola, Florida**
Contract Number	**N62467-02-D-0480**
Reference	**Scope of Work, Section 2.2.1**

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ACRONYMS

ASTM	American Society of Testing and Measurement
bls	Below Land Surface
C&D	Construction and Debris
CD	Computer Disk
CHMM	Certified Hazardous Materials Manager
CIH	Certified Industrial Hygienist
CFR	Code of Federal Regulations
CO	Contract Officer
COO	Chief Operating Officer
COR	Contracting Officer Representative
CompQAP	Comprehensive Quality Assurance Plan
CQC	Contractor Quality Control
CPM	Critical Path Method
CRZ	Contamination Reduction Zone
CSIR	Contractor Significant Incident Report
DFARS	Defense Federal Acquisition Regulations Supplement
EZ	Exclusion Zone
FAC	Florida Administrative Code
FAR	Federal Acquisition Regulations
FDEP	Florida Department of Environmental Protection
FL-PRO	Florida Petroleum Residual Organics
FSP	Field Sampling Plan
GCTL	Groundwater Cleanup Target Level
HASP	Health and Safety Plan
ID	Inside Diameter
IWS	Industrial Waste Services
MIS	Management Information Systems
mm	Millimeter
MSDS	Material Safety Data Sheet
MW	Monitor Well
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NWFWMD	Northwest Florida Water Management District
OLF	Outlying Landing Field

OSHA	Occupational Safety and Health Association
OVA	Organic Vapor Analyzer
PM	Senior Project Manager
PPE	Personal Protective Equipment
ppm	Parts Per Million
PVC	Polyvinyl Chloride
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
SAP	Sampling and Analysis Plan
SCTL	Soil Cleanup Target Level
SHSS	Site Health and Safety Specialist
SOP	Standard Operating Procedure
SOW	Scope of Work
SWPPP	Stormwater Pollution Prevention Plan
SZ	Support Zone
TO	Task Order
TtNUS	Tetra Tech NUS
US	United States
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
WBS	Work Breakdown Structure
WMP	Waste Management Plan
WRS	WRS Infrastructure & Environment, Inc.
WTDI	Waste Transportation & Disposal, Inc.
WTP	Wastewater Treatment Plant
yd^3	Cubic Yards

Introduction

WRS Infrastructure & Environment, Inc. (WRS) has prepared this Workplan for Scope of Work (SOW) N62467-03-X0005 to specifically address the required remedial activities for the Outlying Landing Field (OLF) Bronson, Pensacola, Florida, Site 1116 project. The required remedial activities will be performed pursuant to the Remedial Action Plan (RAP) prepared by Tetra Tech NUS, Inc. (TtNUS), comments made during the May 6, 2003 pre-bid site walk and revisions to the SOW as stipulated in PC#000001.

This Workplan is based on two factors which include our: 1) Technical Approach, and 2) Management Plan. The Technical Approach addresses all regulatory issues, details the approach to completing the required work elements as outlined in the RAP, and provides Health and Safety and Quality Assurance approaches to the required work elements. The Management Plan provides WRS's proposed resources (personnel and equipment) and discusses how the SOW will be managed both technically and administratively. A schedule prepared in accordance with the SOW has also been provided.

C.1 Technical Solution

Based on WRS's review of the RAP prepared by TtNUS, participation in the February 26, 2002 site walk and review of the solicitation addenda, the following project objectives have been identified:

- Remove Bunker C and petroleum impacted soils to Florida Department of Environmental Protection (FDEP) leachability soil cleanup target levels (SCTLs) as specified in Chapter 62-777, Florida Administrative Code (FAC) Table 2;
- Remove free product that is observed during soil excavation activities;
- Properly dispose of all waste materials generated during excavation activities and recovered free product;
- Restore the site to original condition;
- Abandon and re-install all site monitor wells impacted by remedial activities;
- Conduct one round of post-excavation baseline groundwater sampling, and three quarters of natural attenuation monitoring in approximately five monitor wells.

C.1.1 Environmental Compliance

WRS will obtain all necessary federal, state, and local permits, authorizations, and/or inspections. These activities include obtaining well installation and abandonment permits from the Northwest Florida Water management District (NWFWMD), building demolition, utility and dig permit approvals from Mr. Charles Brevik with Jones Hill, the Base Operating Services (BOS) contractor at Naval Air Station (NAS) Pensacola, and coordinating with Mr. Mark Gibson, the Natural Resource Manager at NAS Pensacola for tree removal activities. The

following subsections outline our understanding of the Federal, State and local laws, rules, regulations and codes that will govern activities performed on this project.

C.1.1.1 Federal and State Regulations

Federal authority governing the assessment, remediation, and disposal of petroleum-contaminated wastes and hazardous wastes has been delegated to the State of Florida for implementation. Therefore implementation of federal requirements related to the site will be through the FDEP.

The project involves the removal of contaminated media that resulted from the releases of heating oil from four underground storage tanks (USTs). Reportedly, the heating oil was Bunker C fuel oil (TtNUS, 2002). Further, TtNUS speculated that the USTs contained petroleum products of unknown type. The project is being regulated under Chapter 62-770, FAC, per the TtNUS RAP. It should be noted that Chapter 376.301(31) specifically excludes Bunker C fuel oil from the definition of a petroleum product. Bunker C fuel oil is therefore not regulated under Chapter 62-770, FAC, and instead falls within the realm of the Resource Conversation Recovery Act (RCRA). Because the site contains mixed products, however, the simplest and most cost effective solution is to utilize the state petroleum rules to regulate this particular site. While no State permits will be required beyond the RAP (TtNUS, 2001) approval, WRS will complete all activities in accordance with FDEP protocols and guidance. WRS performs all characterization activities in accordance with the recently adopted revisions to Chapter 62-160, FAC, Standard Operating Procedures (SOPs) DEP-SOP-001/01.

C.1.1.2 Local Regulations

Excavation and demolition activities will be coordinated with the NAS Pensacola BOS Contractor and with local and regional regulatory agencies that include the NWFWMD, the Escambia County Building Department, and the Escambia County Health Unit. WRS will coordinate meetings with all local agencies, if necessary, to insure that proper notification and communication is maintained throughout the project. These meetings will be directed by the CO.

C.1.1.3 Community Relations Support

WRS can provide community relations support and has the expertise to conduct public meetings, prepare visual aids and prepare media releases, if requested. At the direction of NAVFAC, we will be prepared and available to discuss each element of our work with any interested party.

C.1.2 Work Approach

C.1.2.1 Basis of Approach

The project approach is described in the following subsections and has been developed to attain the objectives stated in **Section C.1**. WRS prepared and submitted an original work approach in our technical solution proposal documents based on site conditions as presented in the RAP prepared by TtNUS and the SOW. However, due to groundwater elevation increases at the Site a Amendment/Modification to Contract Number 01 was issued to suspend work. As it became evident that groundwater elevations were not going to decrease to levels observed during

preparation of the RAP, a contract task order (CTO) modification was issued to provide dewatering services during excavation activities at the Site. Dewatering during excavation activities will depress the static groundwater table approximately four feet to facilitate the removal of petroleum-impacted soil. Per the RAP prepared by TtNUS, the required excavation depth is 16 feet below land surface (bls). Current groundwater elevations at the Site are approximately 12 feet bls.

To facilitate excavation, WRS will install a dewatering system along two sides of the excavation area. The dewatering system will be used to depress the groundwater elevation in the immediate vicinity of the excavation to approximately 16.5 feet bls, which is approximately 0.5 feet below the depth of the excavation to be performed. WRS has calculated the anticipated groundwater extraction rate to achieve this level of groundwater depression in the vicinity of the excavation using three independent methods. The results of these calculations indicate that the groundwater volumetric flow rate to achieve the necessary dewatering of the excavation area is anticipated to range from approximately 13,200 to 53,500 gallons per day (GPD). These results are based on the original dimensions of the excavation area shown on Figure 2-4 of the RAP, observed Site groundwater levels at the time of preparation of the calculations, and pertinent hydrogeologic data provided in the RAP (i.e., hydraulic conductivity, etc.).

The dewatering system will be rented as a complete system from Thompson Pump & Manufacturing Company. WRS personnel will install well points at 5-foot intervals along two sides of the excavation area. Once the well points are installed, each well head will be connected to the dewatering system via a main header. The dewatering system will require approximately three days of operation to achieve steady-state drawdown within the excavation area. The treatment system will be monitored by WRS personnel 24-hours a day for the initial three day period and through the completion of the excavation. Groundwater extracted by the dewatering system will be discharged into a portable equalizing tank. The extracted groundwater will then be transferred through 9,000 pounds of granular activated carbon (GAC) for treatment. WRS has sized the volume of GAC based on the anticipated volume of groundwater to be treated and reported contaminant concentrations at the Site in the RAP. Analytical samples will be collected daily for the seven days required to operate the dewatering system during the excavation. The samples will be analyzed via United States Environmental Protection Agency (USEPA) Methods 8021 volatile organic aromatics (VOA), 8100 semivolatile organic compounds (SVOCs), and 6010 metals for lead and zinc on an expedited turn around basis. Once treated, the groundwater will be discharged to the land surface at the Site. This is the most cost effective disposal method for the treated groundwater and is an acceptable disposal method for petroleum impacted groundwater per Chapter 62-770, Florida Administrative Code (FAC). In the event the treated groundwater is discharged in the vicinity of a surface water body, a Temporary General Discharge Permit under Chapter 62-770, FAC will be obtained to facilitate disposal of the treated groundwater.

After the dewatering system has achieved steady-stated draw-down within the excavation area to the desired depth, excavation activities will commence. The overall approach for the excavation will be to excavate the source area using conventional excavation techniques. Specifically, WRS will use traditional excavation methods to remove the upper ten feet of overburden from the site.

WRS will direct-load the excavated contaminated soils into transport trucks. This method will reduce the amount of time required to excavate the contaminated soils. Clean overburden soil, identified in the RAP, will be verified in the field and stockpiled for reuse as backfill material. The calculated volume of overburden soils and contaminated soils to be removed are 2,868 cubic yards (yd^3) and 500 yd^3, respectively. WRS has based these soil volumes on calculations presented in the RAP and on an anticipated excavation depth of 10 feet below land surface (bls) for the clean soils and a contaminated soil depth of 16 bls. This is the most conservative interpretation of the SOW and should provide NAVFAC with greater certainty in obtaining funding for the project. Based on our experience with similar sites, WRS has also proposed to perform a limited amount of pre-excavation soil sampling. Pre-excavation sampling was originally included in the SOW but was removed by Addendum 1. However, we believe limited soil screening would be beneficial to confirm the excavation boundaries. The proposed screening would entail advancing up to 15 hand auger borings to a depth of approximately 16 feet bls, or at intersection with the water table, and collecting a soil sample. The samples would then be visually inspected, screened with an Organic Vapor Analyzer (OVA) and semi-quantitatively analyzed for Total Petroleum Hydrocarbons (TPH) using an immunoassay field screening method. Confirmation samples will be collected following excavation activities and analyzed at a fixed base laboratory on an expedited turnaround basis to prevent an additional mobilization prior to conducting backfilling and site restoration activities. These samples will be analyzed for the Kerosene Analytical Group (KAG) parameters which includes volatile organic aromatics (VOAs) (USEPA Method 8021), Polyaromatic Hydrocarbons (PAHs) (USEPA Method 8100) and Total Recoverable Petroleum Hydrocarbons (TRPH) by FL-PRO.

In order to ensure complete removal of all contaminated soil, WRS personnel will remove the existing building foundation. Per the RAP, this material is presumed clean and will be disposed of as Construction & Demolition (C&D) waste.

Free product and petroleum contaminated contact water will be pumped from the excavation into an "onsite storage" tank. This will allow for the free product to separate from the contaminated water prior to disposal. The phase separation will enable accurate measurement of the quantity of free product and reduce disposal costs for petroleum contact water.

One round of post-excavation baseline groundwater sampling will be performed in accordance with the SOW and Amendment 1. Groundwater samples will be collected per FDEP requirements from all site monitor wells. The groundwater samples will be analyzed for the KAG parameters which includes VOAs (USEPA Method 8021), PAHs (USEPA Method 8100), 1,2-dibromoethane (EDB) (USEPA Method 504), Total Lead (USEPA Method 6010) and TRPH by FL-PRO. In addition to contaminant monitoring, monitoring of dissolved oxygen, pH, conductivity, turbidity, and temperature will be performed for the designated monitor wells using WRS's field sampling equipment.

Additionally, three quarters of

C.1.2.2 Site Preparatory Work

WRS has identified the following facilities that will be required to complete the project: a decontamination area; work zones (support zone, contamination reduction zone, and exclusion zones); designated haul routes; and stockpile and debris staging areas. Further, the area of contaminated soil and suspected free-product will also be demarcated. The stockpile and debris staging areas will be comprised of an area to stage clean overburden and a debris area to store roll-off bins. The roll-off bins will be used to store debris from the concrete slab. Clearing and grubbing will be completed as necessary to utilize the required areas. However, these activities will be minimized to preserve existing natural resources.

A site map is included as **Figure 1**.

C.1.2.2.1 Mobilization of Personnel, Equipment, and Supplies

Prior to mobilization to the site, WRS will prepare the Workplan, including the Health and Safety Plan (HASP), Construction Quality Control Project Plan (QCPP), and the Sampling and Analysis Plan (SAP). WRS will obtain final NAVFAC approvals for each deliverable document and prepare bid packages for services required during mobilization and site setup. Appropriate management and technical staff will attend the Workplan design review meeting, the pre-construction meeting, the project team meeting, and other meetings deemed necessary.

Per Addendum 1 two pre-implementation meetings will be held: 1) Post Award kick-off Meeting and 2) Pre-Construction/Workplan Review meeting. WRS will have at a minimum the Project Manager and Site Superintendent, who will also serve as the Site Health and Safety Officer (SHSO) and Project Quality Control Specialist (PQCS), attend both these meetings. Additionally, WRS will have key subcontractors attend the Pre-Construction/Workplan meeting, if required.

WRS will have the limits of the excavation surveyed and staked prior to beginning any site work. Once the excavation area is established WRS personnel will then perform limited pre-excavation sampling and setup the necessary work zones as discussed in **Section C.1.2.2.2** below.

WRS proposes to advance up to 15 hand auger borings to an approximate depth of 16 feet bls, or to the water table, to confirm the excavation boundaries. Visual inspection of the hand auger cuttings will be performed while advancing the boring. A soil sample will be collected from the most visibly impacted depth and then screened with an OVA and semi-quantitatively analyzed using an immunoassay analysis. This data will then be used to confirm the excavation limits. WRS will then communicate the results to NAVFAC so that appropriate decisions can be made regarding execution of the project and avoid potential surprises. WRS has included information on the immunoassay analysis in Appendix A.

Facilities to support site activities will be set up at the site immediately following mobilization. Site preparation will include the set up of the site support zone (SZ) at a central location, establishment and delineation of work zones, and establishment of decontamination areas. WRS will provide power, water, and mobile phones for use at the site, as necessary. Personnel,

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equipment, and supplies will be mobilized from WRS's Tallahassee resource center. Equipment and supplies will be staged to the SZ and inspected to assure suitable condition for use.

WRS will notify the NAS Pensacola BOS Contractor prior to beginning any excavation work. WRS and BOS Contractor personnel will meet at the site to discuss excavation operations, review the demarcated area of excavation, and obtain a digging permit. Both Sunshine State OneCall of Florida and BOS Contractor personnel will locate all detectable or suspected

<<Insert Figure 1>>

underground, surface, or aboveground utilities in compliance with state, local, or municipal statutes/regulations. WRS will have requested location assistance from all applicable local utility providers as well. A site surveying crew will assist in the location of identified utilities and verify the depths of existing piping or utilities. Utilities within or near the site will be flagged prior to commencement of work.

If unidentified buried utilities are encountered during excavation operations, WRS will immediately stop work and notify NAVFAC CO/COR. The utilities will be hand excavated, if necessary, in order to identify what they are and if they may be active. Care will also be taken to protect the unidentified utilities once excavation operations resume. No unidentified utility, active or inactive, will be removed by WRS without the consent of the CO/COR.

C.1.2.2.2 Work Zone Establishment

Work zone control will be described in detail in the HASP. The work zones will be delineated and marked with the appropriate materials (signs, posts, or colored or labeled tape) under the supervision of the Site Health and Safety Specialist (SHSS) or the Senior Project Manager (PM). The work zones are presented on Figure 2 (Site Layout).

Upon mobilization to the site, WRS personnel will delineate three work zones: the SZ, the Contamination Reduction Zone (CRZ) and the Exclusion Zone (EZ). The purpose of each of these zones is described below.

The SZ will be located near the entrance to the site, generally upwind of the excavation area. All support personnel, equipment, and supplies will be maintained in the SZ. The SZ will serve as the general project management area.

The CRZ will be located between the SZ and the EZ. The CRZ will contain decontamination facilities utilized by WRS personnel to minimize the potential spread of contamination. The decontamination facilities will be constructed by creating a low berm around the designated area and a sump to collect the decontamination water. The pad and sump will be double lined with 6-millimeter (mm) plastic sheeting. A suitable pump will be used to transfer the water from the sump to a temporary on-site storage tank. All personnel, tools, and small equipment will enter and exit the EZ through the CRZ.

The HASP will contain detailed procedures for decontamination of equipment and personnel to ensure that any materials encountered in the EZ are removed in the CRZ. Prior to transporting excavation equipment and any tools used during excavation to another location, decontamination will be conducted. A steam cleaner/pressure washer will be used to remove all loose soils. After decontamination, WRS personnel will visually inspect the decontaminated equipment and/or materials for cleanliness. Decontamination procedures will be conducted on a temporary decontamination pad within a bermed area to allow the water and soils to be recaptured and transferred to the "onsite storage" tank pending final disposal determination. Decontamination water generated during the project will be disposed by WRS along with other petroleum-contact water accumulated during the project. This contact water will be manifested and disposed as discussed in **Section C.1.27.**

<<Insert Figure 2>>

The EZ will be located within the CRZ and will consist of the area of excavation (defined as the excavation plus 3 meters from the limits of excavation), the construction debris stockpile, and the "onsite storage" tank. The EZ will be demarcated using grid stakes and grid corner paint marks. The exclusion and contamination zones will be further marked with caution tape and signs, as appropriate. A site surveying crew will assist in grid delineation to ensure adequate records are maintained with regard to the excavation grid limits and soil sampling locations. Ingress and egress to the EZ will be limited to personnel who meet training and medical monitoring. All personnel entering the EZ will be required to wear the personal protective equipment (PPE) defined in the HASP.

Each stockpile area located in the EZ will be bermed utilizing silt fencing and straw bales. The footprint of the stockpile will be lined with 6 millimeter (mm) polyethylene sheeting. The sheeting will be secured to the straw bales with clean backfill material from the site. In the event of adverse weather, the stockpiles will be covered with 6-mm polyethylene sheeting to prevent the potential for contamination of storm water. The maximum allowable stockpile slope within the EZ will not exceed 1.5 horizontal:1 vertical (1.5H:1V).

WRS will place an "onsite storage" tank within the EZ to contain free product, petroleum-contact water recovered from the excavation and dewatering activities, and water from decontamination activities. The "onsite storage" tank will be placed in a bermed area with a 6-mm plastic liner to provide secondary containment.

C.1.2.2.3 Land Clearing

WRS will coordinate all land clearing activities with the Mr. Mark Gibson of NAS Pensacola Natural Resources. Clearing will be minimized with direct input from Mr. Gibson. Removal of any trees will be performed by hand with a chain saw and appropriate PPE (i.e., chaps, eye protection, etc.) and/or excavation equipment (i.e., loader) depending on the size of the tree(s), safety concerns, and ability to minimize impact to undisturbed areas. Limbs and small stumps will be chipped for use as mulch. This mulch will be provided to the Morale, Welfare and Recreation personnel at the Blue Angel Recreational Park, if desired. Large stumps that require removal will be transported to a C&D landfill for disposal. Wastes generated by the land clearing operations will be disposed as discussed in **Section C.1.2.7**.

C.1.2.2.4 Haul Road Location and Preparation

The site access road will be the primary haul road for the removal of all materials during the soil excavation. WRS will endeavor to reduce impedance of daily traffic to the recreation park during demolition and excavation activities. The primary haul road will be maintained by WRS throughout the project to ensure unimpeded access for both construction and other vehicles. WRS will also place a flagman at the entrance from the site haul road onto the main road during periods of excessive traffic (i.e., during load out).

C.1.2.3 Construction Features

C.1.2.3.1 Demolition Activities

The only demolition activity is the removal of the concrete foundation for the former Building 1116. The dimensions of the concrete foundation are approximately 35 feet long, 25 feet wide, and 6 inches thick. The concrete foundation will be demolished using a tracked excavator (PC-

300 or equivalent). The excavator will be used to break the concrete foundation into large sections. When the size of the concrete debris is manageable, the material will be placed in roll-off bins located in the construction debris stockpile area within the SZ. The debris generated during demolition activities will be disposed at a local C&D Landfill in Pensacola. Pursuant to TtNUS's RAP, WRS has assumed that the construction debris is uncontaminated media.

C.1.2.3.2 Monitor Well Abandonment

Monitor wells located within the limits of excavation will be abandoned prior to excavation activities in accordance with Chapter 40A-3, FAC (Rules of the NWFWMD). Among other considerations, these rules require that a Certified Water Well Contractor abandon the monitor wells. WRS is a Certified Water Well Contractor and will obtain the required permits and self perform the monitor well abandonment.

Based upon WRS's review of the TtNUS RAP, 8 monitor wells (MWs) will require abandonment. These monitor wells include MW-1, MW-2, MW-4, DMW-6, MW-7, MW-10, MW-11 and MW-12. WRS will attempt to maintain, at a minimum, the integrity of monitor wells MW-3, MW-5, MW-8, and MW-9 throughout the construction process.

WRS personnel will abandon the aforementioned wells by filling the well casing with cement–bentonite grout. The grout will be placed in the well casing utilizing a one-inch diameter polyvinyl chloride (PVC) tremie pipe. This pipe will extend to the bottom of the monitor well to insure that the monitor well is grouted from the bottom to land surface. The grout level in the well will be inspected for settling 24 hours after grout emplacement. If settling has occurred, the void space will be filled to land surface.

As a cost saving measure, WRS will attempt to minimize the number of monitor wells to be abandoned through careful direction of the excavation activities. The decision to abandon a monitor well prior to excavation activities will be based upon the location of the monitor well with respect to the limits of excavation. If a monitor well is located within the central portion of the excavation, it will be properly abandoned. If the monitor well is located outside the central portion of the excavation, an attempt will be made to save the monitor well. WRS believes the integrity of monitor wells that are near the exterior of the sloped excavation (MW-3, MW-5, MW-8 and MW-9) can be maintained.

C.1.2.3.3 Overburden Removal and Staging

A standard track excavator (PC-300 or equivalent) equipped with 3-yard bucket will be used to excavate the clean overburden located above the contaminated soil and slope the limits of the excavation. The track excavator will also be used to dress the slopes of the excavation throughout excavation activities. Multiple 16 yd^3 dump trucks, supplied by Tony's Hauling of Pensacola, Florida, will be used to transfer the clean soil overburden from the excavation area to the clean soil stockpile staging area.

WRS will require that all excavation equipment arrive onsite in a pre-cleaned condition. Throughout the work, WRS will implement the engineering controls specified in **Section C.1.2.7.3**, the Storm Water Pollution Prevention Plan (SWPPP), and the Waste Management Plan (WMP) to limit the impact of the excavation/construction on the site and

surrounding areas. These measures will also preclude cross-contamination by controlling dust emissions, surface erosion, and storm water run-on and run-off. Throughout excavation operations, the sides of all excavations will be sloped as needed to maintain stability in accordance with all applicable safety regulations (e.g., Code of Federal Regulations [CFR] 1926, Subpart P) to ensure safety of personnel in the vicinity of the excavations. All excavation and associated tasks will be conducted according to guidelines and requirements of the dig permit acquired from the NAS Pensacola BOS Contractor. WRS does not anticipate that a Florida Registered Professional Engineer sealed excavation plan will be required due to the depth and size of the excavation. However, in the event the excavation does require a sealed excavation plan WRS can provide this document promptly. Finally, the excavation design will comply with the provisions of OSHA Standards 29 CFR 1926.652 and USACE Safety Manual EM 385-1-1, Section 25.

In evaluating the most economical and expedient method to remove and stage the clean overburden, WRS has chosen to modify the excavation approach presented in the TtNUS RAP. In the RAP, a 2 to 1 slope (2-foot horizontal for every 1-foot vertical) was recommended for all the sides of the excavation. Pursuant to 29 CFR 1926 Subpart P, an excavation performed in Type C soil (granular soil) may be excavated to a 1.5H:1V slope. WRS has elected to slope three of the four walls of the excavation to the 1.5H:1V standard to reduce the amount of clean overburden handling (excavation, transfer, stockpiling, backfilling, and compaction) while still maintaining the integrity and safety of the excavation.

WRS has also chosen to increase a portion of the slope of the eastern (fourth) wall of the excavation to a 4H:1V slope. Although this will slightly increase the amount of clean overburden material generated, it will facilitate the direct loading of dump trucks. Additionally, this will allow WRS to remove and transfer material more rapidly as the depth of the excavation increases. This configuration will also eliminate the need for an additional excavator. A map showing the excavation dimensions in plan and profile views is included as **Figure 3**.

The modified surface footprint of the excavation will be approximately 98-feet long and 93-feet wide. The surface footprint will be established during site preparation activities and be used to guide the progress and final dimensions of the excavation. WRS onsite personnel will survey the dimensions of the excavation during and after excavation activities to provide as-built dimensions of the excavation. These survey activities will also be performed during the removal of contaminated soil. Excavation activities will begin in the southwest corner of the excavation. Clean overburden material will be removed at a 1.5H:1V slope to a depth of 10 feet bls. To facilitate contaminated soil excavation and confirmation sampling, however, the slope of the excavation side walls will be established based on the total anticipated depth of the excavation of 16 feet bls. The clean overburden material will be directly loaded into the referenced dump trucks and transferred to, and staged in, the clean soil stockpile area.

WRS calculated that approximately 2,868 cubic yards of material will be generated during the overburden removal stage. The dimensions of the central portion of the bottom of the excavation at this stage will be approximately 50-feet long by 45-feet wide.

Insert Figure 3

C.1.2.3.4 Contaminated Soil Excavation and Disposal

Extent of Contamination

Data acquired during Site Assessment activities and presented in TtNUS's RAP indicates the majority of petroleum contaminated soil exists within the "smear zone" from 10 to 16 feet bls. Using the conservative estimate of a 6 foot thick "smear zone" (10 feet to 16 feet bls), TtNUS calculated a total volume of 500 yd^3 or 750 tons of contaminated soil.

Based upon review of information contained within the TtNUS RAP and Addendum 1, excavation activities will extend to a maximum depth of 16 feet bls or one foot into the water table which ever is greater. However, due to recent increases in groundwater elevation at the Site, dewatering will be necessary to achieve a minimum excavation depth of 16 feet bls.

Dewatering Procedures

Due to groundwater elevation increases at the Site since the preparation of the RAP, dewatering services will be provided during excavation activities at the Site. Dewatering during excavation activities will depress the static groundwater table approximately four feet to facilitate the removal of petroleum-impacted soil. Per the RAP prepared by TtNUS, the required excavation depth is 16 feet below land surface (bls). Current groundwater elevations at the Site are approximately 12 feet bls.

The dewatering system will be installed along two sides of the excavation area. Each side of the dewatering system will consist of 10 jetted into place dewatering wells. The dewatering wells will be spaced approximately 5 feet apart. WRS has calculated the anticipated groundwater extraction rate to achieve this level of groundwater depression in the vicinity of the excavation using three independent methods. The results of these calculations indicate that the groundwater volumetric flow rate to achieve the necessary dewatering of the excavation area is anticipated to range from approximately 13,200 to 53,500 gallons per day (GPD). These results are based on the original dimensions of the excavation area shown on Figure 2-4 of the RAP, observed Site groundwater levels at the time of preparation of the calculations, and pertinent hydrogeologic data provided in the RAP (i.e., hydraulic conductivity, etc.).

The dewatering system will be rented as a complete system from Thompson Pump & Manufacturing Company. Once the well points are installed, each well head will be connected to the dewatering system via a main header. The dewatering system will require approximately three days of operation to achieve steady-state drawdown within the excavation area. The treatment system will be monitored by WRS personnel 24-hours a day for the initial three day period and through the completion of the excavation. Groundwater extracted by the dewatering system will be discharged into a portable equalizing tank. The extracted groundwater will then be transferred through 9,000 pounds of granular activated carbon (GAC) for treatment. WRS has sized the volume of GAC based on the anticipated volume of groundwater to be treated and reported contaminant concentrations at the Site in the RAP. Analytical samples will be collected daily for the seven days required to operate the dewatering system during the excavation. The samples will be analyzed via United States Environmental Protection Agency (USEPA) Methods 8021 volatile organic aromatics (VOA), 8100 semivolatile organic compounds (SVOCs), and 6010 metals for lead and zinc on an expedited turn around basis. Once treated, the groundwater

will be discharged to the land surface at the Site. This is the most cost effective disposal method for the treated groundwater and is an acceptable disposal method for petroleum impacted groundwater per Chapter 62-770, Florida Administrative Code (FAC). In the event the treated groundwater is discharged in the vicinity of a surface water body, a Temporary General Discharge Permit under Chapter 62-770, FAC will be obtained to facilitate disposal of the treated groundwater.

Excavation Approach

Excavation and sloping activities will continue in the contaminated area as referenced in **Section A.1.2.3.3**. Visual observation and OVA soil headspace screening of soil samples collected from the sides and bottom of the excavation will be utilized to determine the extent of excavation. Soils exhibiting an OVA response greater than 50 parts per million (ppm) per the RAP will be removed. Contaminated soil will be directly loaded into 16 yd^3 dump trucks and transported and disposed as described below. Carefully controlled soil excavation and handling methods will be implemented in order to reduce the amount of soil classed as contaminated. Soil that appears to be saturated will be allowed to drain before it is transferred into lined dump trucks. The generated runoff will be directed into the excavation.

Offsite Transportation and Disposal

Laboratory analytical data presented in the TtNUS RAP will be used to characterize the excavated soil and obtain disposal approval from the landfill. Contaminated soil generated during excavation activities will be disposed as non-hazardous media at Allied Waste/BFI – Timberlands Landfill (Timberlands Landfill) in Brewton, Alabama. Timberlands Landfill is a Subtitle D Landfill (Facility #2708) owned by Allied Waste/BFI. Waste Transportation and Disposal, Inc. (WTDI) of Tucker, Georgia will provide soil transportation to the disposal facility. All trucks will be weighed using portable scales to ensure trucks do not leave the site overloaded. The scale weight data will also be used to reconcile weight tickets to be provided by Timberlands Landfill and to allow real-time, on-site tracking of the disposal quantities relative to the initial CTO of 750 tons. This will allow rapid notification to the NAVFAC CO if it appears that contracted quantity of material to be disposed may be exceeded.

Confirmatory Soil Samples

WRS will leave the excavation area open only as long as necessary to complete field screening and confirmatory soil sampling. Once WRS has assessed that all contaminated soil has been removed from the excavation using visual observation and OVA soil headspace screening, one final set of confirmatory soil samples will be collected from the sides and bottom of the completed excavation per Addendum 1 to the SOW. WRS personnel will collect four samples (two from each side wall) from the north and south side walls. Two samples (one from each side wall) will be collected from the east and west walls. Two samples will be collected from the bottom of the excavation if it is unsaturated. The collected samples will be hand-delivered to Severn Trent Laboratories, Inc. (STL) of Pensacola, Florida, and analyzed for KAG parameters as discussed in **Section C.1.2.1 Basis of Approach.** Backfilling operations will commence, as discussed below, if the analyzed parameters do not exceed applicable leachability SCTLs specified in Chapter 62-777, Table 2, FAC.

C.1.2.3.5 Free Product Removal and Disposal

Extent of Contamination

Data acquired during Site Assessment activities and presented in TtNUS's RAP indicates the majority of free product exists within the "smear zone" from 10 to 14 feet bls. The lateral extent of the free product plume has been assessed and is depicted in Figure 6-1 of the RAP. Calculated volumes of free product ranged from 179 gallons to 700 gallons. Due to the chemical and physical properties inherent to Bunker C fuel oil, TtNUS has estimated the more conservative volume of 179 gallons of free product to exist beneath the site. This volume was used by WRS in developing the free product removal and disposal approach.

Free Product Removal Approach

Due to the high viscosity and other chemical properties of Bunker C fuel oil, the depth to groundwater and our experience at Site 1107, WRS does not anticipate that a large volume of free product will be removed from the excavation. WRS anticipates most of the observed free product will be removed with the soil during excavation activities. If free product is encountered floating on the water table during the excavation, WRS will use a double diaphragm pump to pump the product, along with any water, into an "onsite storage" tank. WRS believes this approach will be more cost effective and less disruptive to site operations than the potential for multiple mobilizations of a vacuum truck. The recovered free product will be disposed at Industrial Wastewater Services (IWS) of Mobile, Alabama in accordance with their Alabama Department of Environmental Management permit number IU414900418.

C.1.2.3.6 Volumetric Measurement Methodology

Methods for accurately measuring the total volume of petroleum impacted soil and free product recovered and disposed during site activities will be important due to the unit rate nature of this project. Accurate measurement methodologies are imperative to ensure the greatest cost savings realization. Additionally, the collected volumetric data can be utilized to accurately calculate the total contaminant mass removed from the site. The selected volumetric measurement methodology and field verification methods are presented below.

The method that WRS will use for measurement of the contaminated soil removed during the project involves the use of on-site scales, truck tracking, and weight tickets provided by Timberlands Landfill. Each truck will be weighed as it enters the landfill and upon exiting from the landfill. These weights will be recorded on a weight ticket and non-hazardous waste manifest issued by the landfill. The difference in weight will provide the total tonnage of soil that was disposed from that truck.

WRS will implement a separate field verification method to allow on-site tracking on the amount of contaminated soil. This method will utilize a system of truck tracking and onsite weight measurement. Each truck that leaves the site with contaminated soil will be weighed with the on-site scales, and the weight entered into a truck tracking log. This tracking log will note the arrival and departure time of the truck, the trucking company, the truck number, the initial truck weight, the final truck weight, and the associated non-hazardous waste manifest number. This information will be compared to the weight tickets and manifests received from the landfill to ensure that there are no significant discrepancies.

The total volume of free product disposed will be determined from the non-hazardous waste manifest and invoice received from IWS. IWS will utilize a vacuum truck to remove free product has accumulated on the surface of the extracted water contained in the "onsite storage" tank. Prior to removal of the free product, WRS will measure the thickness of free product contained in the "onsite storage" tank by means of a weighted measuring tape (accurate to 0.01-inch) coated with water and petroleum detection paste. The corresponding volume of free product can then be calculated. This calculated volume will be compared to the manifested volume to identify any significant discrepancies.

It should be noted that WRS considered the use of an oil water interface probe but decided against its use based upon our past experiences at sites impacted by Bunker C. WRS has determined that collected measurements using an oil water interface probe are highly inaccurate because of the intrinsic characteristics of Bunker C and the interaction with the oil water interface probe. Additionally, once an oil water interface probe has been subjected to Bunker C, it can not be properly decontaminated, limiting its future useful life.

After the free product has been removed from the "onsite storage" tank, the remaining volume will be comprised of petroleum contact water. The petroleum contact water will be treated using the two 9,000 pound GAC vessels which are also used to treat the groundwater generated during dewatering activities.

C.1.2.3.7 Excavation Backfill, Compaction and Site Restoration

Due to the relatively small size of the excavation, backfill operations will not begin until confirmatory sampling has determined that all petroleum-impacted soil has been removed from the excavation. In an effort to minimize recontamination of the clean backfill per the RAP, WRS will procure a subcontractor that will provide clean, well graded, organic-free (less than 0.5 percent organic content) silica sand certified to be free of petroleum hydrocarbon contamination and containing a low moisture density. The organic carbon content of the soil will be measured in accordance with American Society of Testing and Measurement (ASTM) D2074-87. The moisture density testing will be performed in accordance with ASTM D698-91. Moisture content testing will be performed in accordance with ASTM D2216-98. If the subcontractor can not provide certification that the borrow source is free of petroleum hydrocarbon contamination, WRS will arrange for the collection of a composite sample for analyses by USEPA Methods 8021, 8310, and FL-PRO if the backfill source can not supply documentation certifying that the backfill is clean of petroleum contaminants of concern. A modified Proctor will also be established for the borrow source, if necessary.

Pursuant to Addendum 1, backfill material will be placed into the excavation in one-foot lifts and compacted. Compaction will be achieved with the onsite equipment (PC-300 or equivalent) making a minimum of four passes over the backfill material. Backfilling and compaction activities will continue until the excavation area matches the existing grade. No compaction is required per Addendum 1.

WRS will coordinate site restoration activities with the NAVFAC CO/COR, NAS BOS Contractor, and NAS Pensacola Natural Resources personnel. After backfilling, the site will be graded so that drainage will flow away from the excavation and blends into the natural elevations

of the surrounding area. The entry road into the site will be graded in the same fashion and returned to as near pre-construction conditions as possible. The site will be completed with seed and mulch, as necessary, to match existing conditions. Any ground surface damage done by the excavation equipment and/or support equipment will be restored to pre-construction conditions as necessary.

C.1.2.3.8 Monitor Well Replacement

As stated in Section C.1.2.3.2, monitor wells MW-1, MW -2, MW-4, DMW-6, MW-7, MW-10, MW-11, and MW-12 will be abandoned prior excavation activities. These monitor wells will be replaced upon completion of excavation activities. Monitor wells to be replaced are comprised of seven shallow monitor wells and one deep monitor well. Replacement monitor wells will be designed, installed, constructed, and developed in accordance with Southern Division-Naval Facilities Engineering Command, NWFWMD, and FDEP guidelines. Drilling Services will be provided by Prosonic Corporation of Pensacola, Florida.

Each of the seven shallow monitor wells to be replaced will be constructed with two-inch inner diameter (ID) Schedule 40 PVC. All monitor wells will be re-installed to their approximate depths using 4.25-inch ID hollow stem augers. Each replacement monitor well will be constructed per the original monitor wells specifications, if necessary, or as current site conditions warrant. The two-inch deep monitor well will be installed through a six-inch surface casing that will be set to 25 feet bls. The deep monitor well will be installed to a maximum depth of 35 feet bls.

Following installation, each monitor well will be developed to remove fine-grained materials from inside the well screen. The monitor wells will be developed utilizing an in-line submersible electric pump, which will be decontaminated between well locations. Each monitor will be purged until the discharge is sediment free, presents a constant turbidity (plus/minus 10 percent), ten well volumes is reached or the well purges dry. A turbidity meter will be used to measure the turbidity level in the development water throughout the development process. Other groundwater parameters (i.e., pH, conductivity, etc.) will also be monitored during well development activities.

C.1.2.4 Natural Resource Protection

During the construction activities outlined above, WRS personnel will implement the following procedures to preserve the existing natural resource within the project boundaries and adjacent areas. All activities will be conducted to ensure that terrestrial and aquatic ecosystems outside of the work zone will not be disturbed, that hazardous chemicals and contaminated waters are not generated without proper controls in place, and that unreasonable amounts of dust or levels of noise will not be generated. Special measures will include the protection of land resources, fish and wildlife resources, and historical, cultural, and archaeological resources. Measures such as the replacement of damaged landscape features, storm water management and controls, and waste management controls will be used to ensure the protection of the environment.

Prior to commencement of the aforementioned construction activities, WRS will arrange a site tour with the NAS Pensacola Natural Resources Manager, Mr. Mark Gibson, and the NAVFAC CO/COR. A joint survey of the trees, shrubs, grassy areas, open and wooded areas, drainage

features and other environmental concerns will be made in order to establish baseline conditions and to identify special areas of interest. To maximize the protection of these resources, all construction activities will be confined to the specified work zones.

C.1.2.4.1 Land and Wildlife Resources

In general, the land resources will be protected through control of the excavation and demolition work. All work will be conducted within the defined work zones that will be clearly marked with construction stakes made visible by surveyor tape. Further, subcontractor activities will be strictly monitored to ensure that no work occurs outside of these zones. Clearing, grubbing and excavation activities will be controlled by construction stakes and construction lines spray-painted on the ground. The spray paint used will be non-hazardous biodegradable marking paint.

WRS has previously performed review of the federal and state rare, threatened or endangered species list for Escambia County for Site 1107. There were no listed mammals, birds, reptiles and fish in the vicinity that would be potentially affected by site activities.

C.1.2.4.2 Protection of Historical, Cultural and Archaeological Resources

The State Historical Preservation Office will be contacted to determine if any historical, cultural, or archaeological resources exist within the project area. The area has a history of industrial types of use since at least the 1940's and has been previously disturbed by construction or filling; consequently, no historical, scientific, cultural or archaeological sites of importance are expected. However, the work areas will still be observed closely during construction and should potentially important areas or items be identified, the following procedures will be implemented to ensure their protection.

During the course of all work, the work area will be observed for historical, cultural, scientific or archaeological items. Discovery of such items or human skeletal remains will cause a halt in construction activities in that area and the findings immediately reported to the CO/COR. The area containing the suspected items will be cordoned off using a highly visible roping or construction fencing and the area covered in plastic to prevent adverse weather conditions from affecting the site. All historical and archaeological resources are owned and controlled by the U. S. Government and will not be destroyed or removed. Work will not resume in that area until authorized by the CO/COR.

C.1.2.4.3 Tree and Landscape Features Protection

The designation of trees for removal from the project area will be coordinated with the CO/COR. No other trees or shrubs will be removed, cut, defaced or damaged or destroyed as a result of this project. The project limits will be clearly defined to prevent accidental impact upon non-related land resources. Ropes, cables, or guy wires will not be attached or fastened to any existing trees without the expressed authorization of the CO/COR. Any large rocks located within the drip line of a tree that have been displaced by construction activities will be removed.

Trees that have not been designated for removal, which have a potential to be injured, bruised, defaced or otherwise damaged, will be protected by having their root zone properly delineated (this generally coincides with the drip line of the tree). If heavy equipment will be in the immediate vicinity of the tree(s) and can potentially damage the roots, temporary barriers will be

placed around the root zone. Trees pre-approved for fastening or attachment will have a protective wrap placed around the tree.

C.1.2.4.4 Replacement of Damaged Landscape Features

Landscape features that have been damaged will be restored to their original condition. A proposed corrective action plan will be submitted to the CO/COR for approval and, upon approval, the corrective measures will be implemented.

Corrective measures may consist of a range of actions depending upon the severity of the damage. Some options include: removal and replacement of damaged features with equivalent, undamaged trees and landscape features; coating with an approved tree-wound dressing on damaged trees that have been scarred but are otherwise healthy; and pruning of damaged branches with appropriate tree-wound dressing. Trees with 30 percent or more of their root system destroyed may require removal. Any tree or landscape feature replacement will be pre-approved by the CO.

C.1.2.4.5 Storm Water Pollution Prevention Measures

Measures for controlling storm water at the project sites are presented in the Soil Erosion and Sediment Control Plan (SESCP). Storm water management and control for the project will be accomplished through the use of both non-structural controls, such as soil stabilization, phased construction, and good housekeeping practices, and structural controls, such as berms, silt fences, and temporary sediment basins. These facilities will be designed to account for the before and after project site conditions that can impact the quantity and quality of storm water runoff. Approved stabilization measures and structural practices for sediment and soil erosion control will provide protection of surface water resources during the life of the project.

The first course of action will involve non-structural controls of site operations to limit the accumulation of storm water, erosion, and the resultant need for control. Most significantly, land-disturbing activities that may cause erosion will be limited and staged to the greatest degree practical to minimize the potential for erosion. Structural controls will be used to manage run-off and run-on. Generally, these controls will be used in series. For example, the most common structural control, straw bales, might be used in conjunction with silt fences and diversion ditches.

C.1.2.5 Sampling and Analysis Activities

Soil from depths between 10 and 16 feet bls generated during the excavation process will be screened with an OVA in accordance with Chapter 62-770.200(12), FAC. Generated soil will then be segregated based on the level of suspected petroleum contamination. Confirmatory soil samples will be collected from the excavation to confirm the removal of petroleum-contaminated soil. The excessively contaminated soil will be loaded onto trucks and disposed as non-hazardous waste at Timberland Landfill, Permit #2708. All disposal activities will be in accordance with Chapter 62-770, FAC.

C.1.2.5.1 Confirmatory Soil Sampling

Confirmatory soil samples will be collected from the excavation in accordance with Chapter 62-770, FAC requirements and other pertinent guidance. Soil samples from the excavation area will be collected with either pre-cleaned stainless steel hand augers or stainless steel trowels,

depending on access. Soil samples will be analyzed for KAG parameters which includes VOAs (USEPA Method 8021), PAHs (USEPA Method 8310) and TRPH (FL-PRO) by STL of Pensacola, Florida (CompQAP #890142G). All volatile samples will be run as low-level analyses.

C.1.2.5.2 Laboratory and Field Procedures

WRS has selected STL to provide all analytical testing. WRS selected STL because of their proximity to the project and our long-standing working relationship. All analytical methods will adhere to USEPA SW-846 methodologies for the specified analyses.

Under Chapter 62-160 FAC, a contractor performing sampling is required to adhere to Standard Operating Procedure DEP-SOP-001/01. WRS is very familiar with these SOPs and will follow them precisely in the performance of our work.

C.1.2.5.3 Field Screening Requirements

During soil excavation operations, field screening will be conducted on soil excavated from depths between 10 and 16 feet bls. The primary screening criteria during excavation will be visual observation. WRS is experienced with the visual identification of impacted soils based on our work at Site 1107. Careful observation of soil color, staining, and cohesiveness will be made during the excavation process. Additionally, the presence of any discernable odors will also be noted. Soil that is visibly stained or exhibits a petroleum odor will be considered excessively contaminated.

After all visually contaminated soil has been removed, OVA screening will be conducted prior to collection of analytical confirmatory soil samples. This screening will facilitate the identification of any remaining soil contamination prior to collection of analytical confirmatory soil samples. This will reduce the potential for the additional excavation and confirmation sampling. Further, this will reduce analytical costs associated with re-sampling. Each soil screening sample will be collected by filling a pint-size glass jar half full of soil and sealing it with heavy duty aluminum foil. The soil screening sample will then be allowed to equilibrate prior to screening with the OVA. If a reading of 10-ppm or greater is indicated, the soil screening sample will also be screened with a charcoal filter. The charcoal filter will remove all petroleum hydrocarbons from the reading. Therefore, in order to calculate the actual reading, the filtered OVA reading must be subtracted from the unfiltered reading. Excessively contaminated soil will be defined as soil with OVA screening values of 50 ppm or greater.

C.1.2.6 Record Keeping

All data and information required by Chapter 62-160.600, FAC, and FDEP's SOP (DEP-QA-001/92) will be maintained for a minimum of five years. This data and information will include all chain of custody records, field records (i.e. field books and sampling forms), shipping receipts, and original laboratory reports.

Sampling personnel will keep field records during all excavation operations and sampling activities. These field records will include, but not be limited to:

- Location, depth, and unique sample identification number of all screening and analytical samples for each media sampled;

- Lithologic descriptions of all soil screening and analytical samples utilizing the Unified Soil Classification System;
- Sampling times, dates, and names of personnel actually performing the sampling;
- A completed FDEP Petroleum or Petroleum Products Water Sampling Log for each groundwater sample collected; and
- The laboratory where the analytical samples were shipped, how they were shipped, and the proposed methods of analysis.

Photographs will be taken throughout the excavation event for documentation purposes.

C.1.2.7 Waste Management

Several different waste streams will be generated during this project and will be managed through a WMP. Petroleum contaminated soil, petroleum contact water, free product, development water, decontamination water, general construction debris, recyclable materials, and sanitary waste have been identified as expected waste streams needing to be controlled, managed and disposed. Specific detailed plans will be developed for each of these waste streams. Generally speaking, all wastes will be collected, labeled, characterized and stored in a secure location under the control of the Contractor. Each type of waste will be segregated in individual containers. Upon accumulating pre-established quantities, the wastes will be transported by an approved transporter and disposed at an approved facility or landfill in accordance with the WMP. The WMP will also contain the written management protocols for complying with the required employee training, record keeping, inspections, sampling and analysis, waste determinations, accumulation/storage/transportation and disposal criteria, Land Disposal Restrictions, and the pollution prevention/hazardous waste minimization criteria.

C.1.2.7.1 Prevention of Releases to the Environment

The general soil and free product removal efforts and demolition activities potentially expose the environment to various types of releases. Potential waste elements include cement for construction, petroleum products, fuels and oils present in vehicle tanks and separate containers, and chemicals for cleaning equipment and various other tasks.

Three critical activities required to protect the site from releases are release prevention, containment, and notification procedures. Oily or other hazardous substances will be prevented from entering the ground or drainage areas through the implementation of the HASP and the WMP. If a release does occur, WRS will immediately respond to contain the release and prevent further spread of the contamination. A quick response will be essential to prevent the spread of the spill. WRS will use 6-mm polyethylene liners, adsorbent pads, berms, shovels, equipment, and/or other means necessary to contain the release. Releases of oil, fuel oil, or other hazardous substances will be immediately reported to the CO. Other notifications and reports will be made to the appropriate regulatory authorities.

C.1.2.7.2 Impact to the Environment from Contractor Operations

WRS will recycle tree parts staged following tree removal efforts summarized in **Section C.1.2.2.3.** The resultant mulch will be used for erosion control and ground cover in the area of excavation and other areas disturbed during site activities.

Contaminated waters that may potentially pollute the environment can stem from one of two sources. Either they were present before remedial activities began and were released by the work activities, or they were brought onto the site as part of the work effort and were subsequently released. All waters from a decontamination process (i.e. spill cleanup, equipment cleaning, etc.) or from direct rainfall on contaminated areas will be collected within the work area and stored separately. Waters from decontamination efforts will be sampled and tested as necessary and, if considered hazardous, will be properly labeled and disposed in accordance with hazardous waste procedures. Collection of the water from a decontamination zone will prevent additional contamination by vehicular or equipment tracking of the contamination off site or out of the work zone.

Rain occurring during the life of the project may introduce run-on onto the site. Cleared sites will be especially vulnerable to erosion and the spread of contamination by this outside flow. Care will be taken to prevent rainwater that falls outside of the site from entering the site and becoming contaminated. This will be accomplished by using approved Best Management Practices defined in the SWPPP to divert the storm water and slow it down to prevent erosion and contact with contaminated soils.

Rainwater that falls directly onto the contaminated areas will be assumed to be contaminated for disposal purposes and will not be allowed to leave the site as surface run-off. This water will be captured and held in the area where it falls. Collected rainfall will be both drained to a sump and held, or pumped to a temporary storage facility. It will be tested and disposed at a proper wastewater treatment facility.

Groundwater extracted during dewatering activities will be discharged into a portable equalizing tank. The extracted groundwater will then be transferred through 9,000 pounds of GAC for treatment. Analytical samples will be collected daily for the seven days required to operate the dewatering system during the excavation. The samples will be analyzed via United States Environmental Protection Agency (USEPA) Methods 8021 volatile organic aromatics (VOA), 8100 semivolatile organic compounds (SVOCs), and 6010 metals for lead and zinc on an expedited turn around basis. Once treated, the groundwater will be discharged to the land surface at the Site. In the event the treated groundwater is discharged in the vicinity of a surface water body, a Temporary General Discharge Permit under Chapter 62-770, FAC will be obtained to facilitate disposal of the treated groundwater.

Air pollution during construction activities is a potential concern for a project of this nature. Contamination from dust generated on site as a result of dry soil and vehicular activity will be controlled though watering. A water truck will be the primary means of control. The standard for dust control will be no visible dust. When dust does appear, the dusty areas will be watered with the water truck.

C.1.2.7.3 Engineering Controls

Engineering controls and work practices will be used to control fugitive emissions. Water will be applied to site and work area surfaces where other engineering controls (such as temporary liners) are not employed and when airborne dust emissions are present. Water for this purpose will be potable water brought to the site from the local utility via water truck. Speed limits for

site vehicles will be established and enforced to limit the generation of dust. WRS will ensure that haul and access roads and pathways are properly maintained to enhance control of dust. Material transport vehicles will be loaded in a manner to avoid spillage during transport. Any spillage of waste or construction materials during transport will be cleaned up immediately. WRS will make every effort to prevent the release of hazardous or petroleum-contaminated waste. Throughout the excavation activities, WRS will incorporate the use of 6-mm polyethylene liners, berms, and/or other measures to prevent uncontrolled releases and to reduce the potential cross-contamination of hazardous and non-hazardous materials.

If noxious odors or hazardous emissions are detected at the site, they will be controlled by limiting the amount of waste exposed, by continuous water misting, or by other controls as necessary. Other measures may include covering the stockpiles, spraying the piles with odor suppressing foam, or applying chemicals to halt volatilization. Covering the waste in the trailer or truck will control odors generated by material in transport vehicles.

In order to reduce unnecessary noise, only the equipment required will operate at any given time. Hearing protection will be worn by all Contractor crewmembers as specified in the HASP. Work activities will be planned and scheduled to minimize the number of times the waste or construction materials are handled or disturbed. Excavation, stockpile, and backfilling of work areas will be planned to minimize the aerial extent of waste or work area exposed.

WRS will provide daily cover (6-mm polyethylene sheeting) at the end of each day of excavation and/or material stockpiling. Daily cover will be provided for dust control and to reduce precipitation permeation of stockpiled materials.

Vehicular traffic, which will include principally truck traffic, will be controlled on-site by implementing and enforcing traffic routes for all vehicles. These routes will be clearly marked and drivers will be informed of the traffic plan in writing prior to performing any work at the site. As excessively contaminated soil is removed from the sites by truck, the driver will be prohibited from leaving his truck cab and will be so instructed. Route markers (e.g., traffic cones and traffic signs) will be placed as necessary to mark site access and routes of travel.

C.1.2.8 Natural Attenuation Monitoring Plan

In addition to the round of post-excavation baseline groundwater sampling, three quarters of natural attenuation monitoring will also be performed in accordance with the SOW, Amendment 1, and PC#000002. Groundwater samples will be collected from approximately five monitor wells each quarter. The groundwater samples will be analyzed for the KAG parameters which includes VOAs (USEPA Method 8021), PAHs (USEPA Method 8100), 1,2-dibromoethane (EDB) (USEPA Method 504), Total Lead (USEPA Method 6010) and TRPH by FL-PRO. In addition to contaminant monitoring, monitoring of dissolved oxygen, pH, conductivity, turbidity, and temperature will be performed for the designated monitor wells using WRS's field sampling equipment.

The main objectives of the Natural Attenuation Monitoring (NAM) will be to monitor the overall effectiveness of the remedial effort on the reduction of petroleum hydrocarbons in the groundwater, verify the contaminant plume has not migrated beyond its pre-remedial effort location, and to comply with Chapter 62-770, FAC.

C.1.2.8.1 Quarterly Groundwater Potentiometric Data Collection and Interpretation

Groundwater levels will be measured in all site monitor wells during each monitoring event. Groundwater elevation and top-of-casing data will be summarized in tables and the results of the groundwater elevation survey will be presented graphically. Potentiometric data from the monitor wells will be interpreted to indicate the groundwater flow direction and gradient and compared to historical data for variation.

C.1.2.8.2 Quarterly Groundwater Sampling and Data Interpretation

Groundwater monitoring visits will be conducted quarterly. Groundwater samples will be collected from designated monitor wells to assess groundwater contaminant concentrations and contaminant degradation by natural attenuation. Monitor wells will be purged and sampled per FDEP SOP-001/01. Groundwater elevation data will be used to calculate the purge volume for each monitor well. At least three well volumes of water will be purged from each monitor well. Field parameters - pH, temperature, conductivity, turbidity, dissolved oxygen, and oxidation-reduction potential – will be recorded to confirm equilibration to within the guidelines presented in WRS's approved CompQAP. If parameters do not stabilize, purging will be suspended after five well volumes. The groundwater samples will be analyzed by STL for the KAG parameters which includes VOAs (USEPA Method 8021), PAHs (USEPA Method 8100), 1,2-dibromoethane (EDB) (USEPA Method 504), Total Lead (USEPA Method 6010) and TRPH by FL-PRO.

C.1.2.8.3 Quarterly Monitoring Reports

Results of the initial monitoring event will be included in the post-remediation activity summary report. Subsequent reports will be submitted quarterly. Each monitoring report will conform to Chapter 62-770, FAC, and include:

- Tables presenting the field and laboratory groundwater analytical results and water table elevations;
- A figure indicating the location of all site monitoring wells;
- Recent groundwater elevation and contaminant contour maps; and
- Conclusions and recommendations on further monitoring and operations.

C.1.2.9 Regulatory Compliance

This Workplan provides the guidance and directives to ensure that WRS performs sampling and analysis tasks in compliance with Chapter 62-770, FAC, site-specific HASP and FSP, and all additional FDEP protocols. WRS sampling activities and laboratory analysis will be performed using methods and techniques developed or recognized by FDEP, including sample collection, identification, preservation, chain-of-custody, shipping, and storage procedures. Analytical procedures, including quality control requirements, will be conducted as specified in the FDEP

reference methods employed. Sampling and analytical methods are presented in the QCPP and FSP.

Petroleum-contaminated materials recovered from the site will require disposal by WRS. The handling of such materials will be in accordance with applicable Federal and state regulations.

Non-hazardous waste manifests, required by the State, will be completed, signed by the CO (waste generator), and submitted to the appropriate agencies. Any weight or other restrictions on public roads to be used by waste transporters will be verified prior to shipment of any materials off site.

C.1.2.10 Report Requirements

Upon completion of excavation and restoration activities at Site 1116, WRS will prepare a Project Completion Report in accordance with Section 2.4 of the SOW. The report will summarize the remedial activities and results. The report will include, but not be limited to the following:

- The dates field activities occurred;
- The total volume of soil excavated;
- The volume of soil disposed off-site;
- Copies of all waste disposal manifests;
- Analytical results for disposed soil;
- Analytical results for confirmatory samples;
- Volume of free product and contaminated groundwater recovered and disposed;
- As-built drawings indicating the area of excavation performed by a Registered Land Surveyor (Northwest Florida Engineering and Surveying);
- A site map indicating the location of all existing and replaced monitoring wells; and
- Conclusions as to the effectiveness of the remedial activities and recommendations on further activities.

WRS will sign and seal geologic and engineering documents in accordance with Chapters 471 and 492, FS and Chapter 62-770, FAC. Required reports will be prepared using Microsoft Word, Microsoft Excel, AutoCAD, and Adobe Acrobat software and will be provided in both hard copy format and in electronic format on computer disk (CD). The reports will be prepared in standardized formats in accordance with Chapter 62-770, FAC. WRS will coordinate closely with FDEP to streamline the reporting process.

C.1.3 Project Quality Control

This section summarizes WRS's standard quality control (QC) requirements to be used for this project. Our QC program is based on a three-phase contractor quality control (CQC) system. It governs the work quality for all of our projects regardless of project type such as civil work and environmental work. WRS controls the construction quality by adhering to an approved Project QC Plan. WRS realizes the importance of effective control of our operations and services; it promotes pride in work, gains favorable reputation with our customers and saves the customer both time and money.

The following paragraphs summarize WRS's CQC requirements. The requirements are intended to control the quality of the remedial action for Site 1116.

C.1.3.1 Quality Control Inspection System

For each definable feature of work the Quality Control Specialist will perform the three phases of control (i.e., Preparatory, Initial and Follow-up) to ensure that work complies with contract requirements. A list of Definable Features of Work is provided below. The three phases of control will adequately cover both on-site and off-site work and will include the Inspection Plan with a schedule of inspection activities for each definable feature of work.

Definable Features of Work:

1. Pre-Construction Activities
2. Site Preparation
3. Dewatering System Installation and Operation
4. Demolition Activities
5. Monitor Well Abandonment
6. Overburden Removal and Staging
7. Contaminated Soil Excavation, Sampling, Analysis, and Disposal
8. Free Product Removal and Disposal
9. Confirmatory Sampling and Analysis
10. Excavation Backfill Placement, Compaction, and Testing
11. Site Restoration
12. Monitor Well Replacement
13. Post Completion Reporting
14. Baseline Post-Excavation Groundwater Sampling
15. Three Quarters of Natural Attenuation Monitoring

Three-Phase QC procedures are summarized below. The following CQC forms to be used for this project are:

- Truck Tracking Log
- Contractor Production Report
- Contractor Quality Control Report
- Preparatory Phase Checklist
- Initial Phase Checklist
- Rework Items Checklist
- Testing Plan and Log
- Submittal Register (blank and site specific)

C.1.3.1.1 Preparatory Phase

Notification to NAVFAC CO/COR will be made at least two working days in advance of each preparatory phase. A preparatory phase meeting with the Senior Project Manager and Site Superintendent will be conducted prior to beginning any definable feature of work and the following tasks will be performed:

- Each paragraph of the applicable specification section will be reviewed.

- Contract drawings will be reviewed.
- Appropriate shop drawings and submittals for materials and equipment will be reviewed to ensure that they have been submitted and approved. Receipt of approved factory test results will be verified, when required.
- The testing plan will be reviewed to ensure that provisions have been made for the required QA/QC testing.
- Required materials, equipment and sample work will be examined to ensure that they are on hand and conform to the approved shop drawings and submitted data.
- The HASP and appropriate activity hazard analysis will be reviewed to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted.
- Construction and/or environmental data collection methods will be discussed.

C.1.3.1.2 Initial Phase

The Project Quality Control Specialist will notify the CO/COR at least two working days in advance of each initial phase. When crews are ready to start to work on a definable feature of work, WRS will conduct the initial phase meeting with the personnel responsible for that definable feature of work. The Senior Project Manager (PM) will observe the initial segment of the definable feature of work to ensure that the work complies with contract requirements and document the results of the initial phase in the Daily Contractor Quality Control Report. The initial phase will be repeated for changes in personnel assigned responsibility for the work, or when acceptable levels of specified quality are not being met. WRS will perform the following for each definable feature of work:

- Establish the quality of workmanship required.
- Resolve conflicts.
- Review the HASP and the appropriate activity hazard analyses to ensure that applicable safety requirements are met.
- Verify that testing is performed.

C.1.3.1.3 Follow-up Phase

WRS will perform the following for ongoing work daily, or more frequently as necessary, until the completion of each definable feature of work and document in the daily logs:

- Verify the work is in compliance with contract requirements.
- Maintain the quality of workmanship required.
- Verify that testing is performed.
- Verify that rework items are being corrected.

For offsite work, WRS will notify the CO/COR at least two weeks in advance of preparatory and initial phases.

The Project Quality Control Specialist will develop a specific inspection checklist for each definable feature of work that contains sufficient information to:

- verify compliance with contract requirements,
- maintain established levels of workmanship,
- verify completion of testing requirements, and

- identify and verify rework items.

C.1.3.1.4 Material and Equipment Receipt Inspection

The Project Quality Control Specialist, or authorized designee, will conduct Receipt Inspection of materials and equipment procured in accordance with the contract requirements. Expected material and equipment will include, but not be limited to, clean backfill, replacement well construction materials and the required pieces of heavy equipment to perform the SOW. In addition to the submittal documentation, which will be reviewed and approved as required by submittal procedures. The following attributes will be inspected for each order/shipment as applicable:

- Material and equipment is the same as specified by the Task Order Specification
- Quantity as specified by the procurement document
- Dimensions as required by the procurement document
- Damage
- Identification and Marking
- Cleanliness

Materials and equipment found to be unacceptable at receipt inspection will be rejected and "Red Tagged" until correction or replacement is made. This material/equipment will not be used until the corrective action results in satisfactory re-inspection. The results of the receipt inspection, by attribute, will be included in the daily logs for the date of inspection.

C.1.3.1.5 Rework

The Project Quality Control Specialist will maintain a list of work that does not comply with the contract, identifying what items need to be reworked, the date the item was originally discovered, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. The Project Quality Control Specialist will attach a copy of the Rework Items List (refer to end of this section for the Rework Items Checklist) to the last daily log of each week.

C.1.3.2 Quality Control Submittal Log

In accordance with the government-approved Project QC Plan and Specification Section 01330, Submittal Procedures, the Project Quality Control Specialist will manage all required submittals, ensuring that they undergo full review, certification and approval cycles. The Project Quality Control Specialist will track all submittals using a Submittal Register. Both the standard blank WRS Submittal Register and an example Submittal Register for the project have been included in **Appendix G**.

C.1.3.2.1 Subcontractor Responsibilities

The following outlines the responsibilities of WRS's subcontractors regarding submittals. As mentioned earlier, a total of eight subcontractors (Allied Waste/BFI, WTDI, STL Laboratories, Prosonic Corporation, Industrial Wastewater Services, Tony's Hauling, Northwest Florida Engineering and Surveying, Thompson Pump & Manufacturing Company, and Pensacola Testing Laboratories) will provide services for this task. The Project Quality Control Specialist will assist the subcontractors in fulfilling their responsibilities, but is not responsible for doing

the subcontractor's work. Deviation from these guidelines and responsibilities will be made only with the written permission of the WRS Program Manager.

Of the nine subcontractors, all but one (Prosonic Corporation) will be required to provide submittals. Each subcontractor will coordinate preparation and processing of submittals in a manner that will not delay work. Adequate time will be provided to allow for potential re-submittal of incomplete items. The subcontractor will transmit submittals to WRS in an orderly sequence in accordance with the submittal register. This will prevent delays in the work, delays to the government, or delays to other contractors. Finally, the subcontractor will correct and resubmit submittals as directed by WRS. This will be done via letter or markings on resubmitted information.

C.1.3.2.2 Contractor (WRS) Responsibilities

WRS will be responsible for reviewing and certifying that submittals are in compliance with contract requirements. The approving authority on submittals is the Project Quality Control Specialist unless submission to the government is specified for a specific submittal. The specific QC responsibilities for submittals are as follows:

- Note the date on which the submittal was received.
- Determine and verify field measurements, materials, field construction criteria; review each submittal.
- Review submittal for conformance with project design concepts and compliance with the contract documents.
- Determine the appropriate action based on the review of the submittal.
- When the government is the approving authority or when a variation has been proposed, forward the submittal to the government with the certifying statement or return the submittal to the contractor marked "Not Reviewed" or "Revise and Resubmit" as appropriate.
- Ensure that the material is clearly legible.
- Stamp each sheet of each submittal with the appropriate stamp. When the data is submitted in a bound volume or on one sheet printed on two sides, it will be stamped on the front of the first sheet only. When agreed to by the government, a single cover sheet containing the required certification statement may be utilized.
- Sign the certifying statement or approval statement. The signature will be in original ink. Stamped signatures are not acceptable.
- Update the submittal register as submittal actions occur and maintain the submittal register at the project site until final acceptance by the government.
- Retain a copy of approved submittals at the project site, including the contractor's copy of approved samples.
- When the approving authority is the Project Quality Control Specialist, forward two copies of each approved submittal (except "Samples," where only one set is required), to the CO/COR.
- Submittals returned to the subcontractor will contain one of the following notations:
  - "Not Reviewed" indicates the submittal has been previously reviewed and approved, is not required as a submittal, does not have evidence of being reviewed and approved by the contractor, or is not complete. A submittal marked "Not Reviewed" will be

returned with explanation of the reason it is not reviewed. Returned submittals deemed to lack review by the contractor or to be incomplete will be resubmitted with appropriate action, coordination, or change.

- Submittals marked "Approved" or "Approved as Submitted" authorize the contractor to Proceed with the work covered.
- Submittals marked "Approved as Noted" authorize the contractor to proceed with the work as noted provided the contractor takes no exception to the notations.
- Submittals marked "Revise and Resubmit" or "Disapproved" indicates the submittal is incomplete or does not comply with the design concept or the requirements of the contract documents and will be resubmitted with appropriate changes.

C.1.3.3 Quality Control Testing Plan and Logs

As tests are performed, the Project Quality Control Specialist will record on the "Testing Plan and Log" the date test was conducted, the date test results were forwarded to the CO, any remarks, and acknowledgement that an accredited or CO approved testing laboratory was used. A copy of the updated testing plan and log will be attached to the Daily CQC Report of each month.

In development of the Testing Plan and Log, consideration will be given to the use of multiple Testing Plans and Logs subdivided by definable features of specification and/or of different materials within a definable feature section of the specification. When materials are tested on a specific frequency, accumulated material totals will be recorded in the Remarks section or on attachment to each specific Testing Plan and Log to provide assurance that the tests are conducted at the required intervals.

C.1.4 Site Health and Safety

C.1.4.1 Site Responsibilities and Authorities

The following personnel have principal responsibility for the implementation and maintenance of health and safety measures during site remediation activities.

C.1.4.1.1 Senior Project Manager

Responsibilities

The PM, Mr. Mark White, PG, has the following responsibilities:

- Ensure that the project is performed in a manner consistent with the HASP;
- Ensure that the HASP and Activity Hazard Analysis' are prepared and approved by appropriate parties;
- Ensure that adequate funds, materials, and equipment are allocated to fully implement the HASP;
- Require compliance with the HASP for subcontractor personnel through the Subcontract Agreement;
- Provide subcontractor(s) with job site hazard information via the HASP and MSDS.

Authorities

The PM has the authority to stop work if, in his opinion, a stoppage is necessary to protect the health and well being of site workers or the general public.

Communications
The PM reports to the CO. Written communications are provided to the CO/COR as specified in the submittal register.

C.1.4.1.2 Quality Control Program Manager

Responsibilities
The Quality Control Program Manager, Mr. Jon Berry, will have the following responsibilities:

- Designate, oversee and direct the Project Quality Control Specialist who will be on the project site at all times during progress of the work.
- The Quality Control Program Manager will have complete authority to take any action necessary to ensure conformance with the contract requirements.
- In the event of the Project Quality Control Specialist's absence, an approved alternate Project Quality Control Specialist will be designated by the Quality Control Program Manager. The designated alternate will be present on site at all times during progress of the work.

Authorities
The Quality Control Program Manager or his designee can immediately stop any segment of work that does not comply with the contract plans and specifications and direct the removal and replacement of any defective work. Remove any individual from the site who fails to perform work in a skillful and workmanlike manner or does not comply with the contract plans and specifications.

C.1.4.1.3 Site Superintendent

Responsibilities
Specific responsibilities of the Site Superintendent, Mr. James Fletcher, will include:

- Directing site activities in accordance with the HASP;
- Ensuring that resources called for in the HASP and Workplan/Operations Plan are on site and operational;
- Correcting unsafe acts and conditions;
- Participating in pre-job and daily safety meetings;
- Verifying that all permits, supporting documentation and clearances for a given task(e.g., utility surveys, health and safety plan, confined space entry permits) are in place prior to the commencement of covered activities; and,
- Informing the appropriate site management of the activities to be performed each day.

Authorities
The Site Superintendent can temporarily halt work at any time if, in his/her opinion, a stoppage is necessary to protect the health and well being of site workers or the general public.

Communications
The Site Superintendent reports directly to the PM. The Site Superintendent will also serve as the Site Health and Safety Specialist (SHSS).

C.1.4.1.4 Health and Safety Manager

Responsibilities
The WRS Health and Safety Manager is Mr. Doug Nelson, CIH, CHMM. He will be responsible for the following:

- Preparing the HASP; and,
- Participating in the meeting on Work Procedures.

Authorities
The Health and Safety Manager has the authority to inspect and direct the correction of the implementation of procedures set forth in the HASP, including the authority to temporarily halt work on a project if necessary to protect employee safety and health.

Communications
The Health and Safety Manager communicates safety and health performance feedback to the PM and SHSS.

C.1.4.1.5 Site Health and Safety Specialist

Responsibilities
The SHSS will be Mr. James Fletcher. His responsibilities will include monitoring the crew members and job site for unsafe acts and conditions. The SHSS will assist and represent the Health and Safety Manager in the continued on-site implementation and enforcement of the HASP. The SHSS will be present on site full time for the duration of field activities. The SHSS is also responsible for:

- Attending the Pre-Construction Conference;
- Maintaining the references listed at Section 01525N;
- Maintaining a log of safety inspections performed;
- Monitoring compliance with medical monitoring and training requirements;
- Evaluating air monitoring data relative to established Action Levels;
- Revising work zone boundaries and levels of PPE as monitoring and other data indicate;
- Maintaining project files which contain health and safety documentation in support of the HASP;
- Reviewing copies of all initial and subsequent accident or injury reports;
- Conducting and documenting daily safety meetings and performing additional safety training as required;
- Initiating necessary changes to the HASP;
- Implementation of day-to-day work zone monitoring;
- Calibration of instruments;
- Maintenance of health and safety equipment and supplies; and,
- Preparing Daily Safety Reports.

Authorities
The SHSS has the authority to stop work if unacceptable health and safety conditions exist. The SHSS has the authority to initiate changes to the HASP.

Communications
The SHSS reports to the Health and Safety Manager on matters relating to project safety and health, and has an indirect reporting relationship to the PM. The SHSS will provide written reports to the Health and Safety Manager in the form of documents prepared in support of the HASP (e.g., air monitoring logs, confined space entry permits, daily safety meeting reports, daily safety reports and accident investigation reports) at a frequency determined by the Health and Safety Manager. These same reports will be provided to the PM daily. The SHSS communicates unsafe conditions and acts to the Health and Safety Manager for correction, unless there is an imminent threat that requires immediate mitigation of the hazard.

C.1.4.1.6 Scientists, Operators, and Technicians

Responsibilities
All site personnel share responsibilities for health and safety. Specific duties include:

- Conducting work in accordance with the HASP;
- Participating in daily safety meetings/planning;
- Prompt reporting of all incidents and potential health and safety-related problems.

Authorities
All employees have the authority to stop the work they are doing if they suspect there is a threat to the well being of themselves or their co-workers.

Communications
Scientists, Operators, and Technicians report to the Site Superintendent. All health and safety related concerns are reported to the SHSS.

C.1.4.2 Safety Training and Meeting Requirements

C.1.4.2.1 General

Consistent with Occupational Safety and Health Association (OSHA) 29 CFR 1910.120 regulation covering Hazardous Waste Operations and Emergency Response, all site personnel performing have received 40-hour HAZWOPER training, annual 8-hour refresher training, and annual medical monitoring. At a minimum, all personnel are required to be trained to recognize the hazards on-site, the provisions of the HASP, and the personnel responsible for safety on the site.

C.1.4.2.2 Pre-Assignment and Annual Refresher Training

Prior to arrival on site, WRS and each subcontractor will provide proof of pre-assignment training, consistent with 29 CFR 1910.120 paragraph (e)(3) for each employee assigned to the project. The SHSS will maintain documentation verifying that all OSHA-mandated health and safety training requirements have been met.

Any person who is going to enter the CRZ or EZ will have completed a 40-hour training course as required by 29 CFR 1910.120 (OSHA), plus three days of actual field experience under the

direct supervision of a trained and experienced supervisor. All personnel also receive 8 hours of refresher training annually.

C.1.4.2.3 Site Superintendent's Training

Consistent with OSHA 29 CFR 1910.120 paragraph (e)(4), individuals designated as Site Superintendent receive an additional 8 hours of training.

C.1.4.2.4 Health and Safety Plan Review

Prior to the commencement of work on site, an initial site-specific training session for all employees will be conducted by the SHSS. The training will cover anticipated hazards, their control and the contents of the HASP. Other elements of the training include:

- names of personnel and alternates responsible for site safety and health and emergency response for hazardous waste operations;
- safety, health and other hazards present on the site;
- use of PPE;
- work practices by which the employee can minimize risks from hazards;
- safe use of engineering controls and equipment on the site;
- medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards

Site specific training for employees entering onto the site subsequent to the first session will be conducted by the SHSS.

C.1.4.2.5 Meetings

The SHSS will attend the Pre-Construction Conference. Meetings to discuss work procedures and safety precautions required by the Accident Prevention Plan and the HASP will be attended by WRS's SHSS, Site Superintendent, and quality control personnel.

Weekly safety meetings will be held at the project site. Documentation of meetings will include contract title, signatures of attendees and a list of topics covered. Documentation will be attached to the QC Contractor Quality Control daily report.

WRS will also conduct a review of the appropriate Activity Hazard Analysis at the preparatory, initial and follow-up phases of quality control inspection. Attendance documentation will be maintained at the project site.

C.1.4.2.6 New Employee Indoctrination

When an employee that did not attend the HASP Review arrives at the site, the SHSS will review the Plan with the employee prior to their participation in site activities. Documentation of the orientation will be maintained at the site.

C.1.4.3 Medical Surveillance Requirements

General

WRS utilizes a Medical Monitoring Program designed to determine each employee's health status and fitness (including the ability to utilize respiratory protection) for working at hazardous waste sites. All WRS personnel involved in hazardous waste site activities are required to

undergo baseline, annual, and employment termination examinations. Medical surveillance records for WRS employees are retained for the length of employment plus 30 years.

WRS and subcontractor personnel involved in work activities with potential exposure to contamination by any route of exposure are required to participate in a Medical Monitoring Program. Workers must undergo a pre-work baseline or annual examination no more than 12 months prior to participation in on-site field activities. Workers must undergo follow-up examinations at 12-month intervals.

Certifications of employee fitness will be provided to the CO/COR for each employee before they perform work on activity covered by this HASP. Employees or subcontractor employees who develop a lost time injury or illness during the project, will have their treating physician provide WRS with a return to work, fitness for duty statement prior to the employee's return to work. The written statement will be provided to the CO/COR as part of the weekly safety report.

The contents of physical exams required as part of the Medical Monitoring Program are described below.

Baseline Physical Examination
A baseline physical examination is performed for employees prior to their participation in hazardous waste site activities. The purpose of this examination is the identification of any illness or problem that would put an employee at unusual risk for certain exposures, and to certify the safe utilization of negative pressure respirators (OSHA Safety and Health Standard 29 CFR§1910.134). Data such as age, sex, race, smoking, prior employment/exposure history, etc. which may have a bearing upon the occurrence of subsequent events once employment begins, are also gathered.

Annual Physical Examination
Examinations are performed and an updated occupational history is completed on an annual basis during the anniversary month of the baseline physical examination. This examination serves to identify and prevent illness caused by cumulative exposure to toxic substances.

Return to Work Examination
Any job-related illness or injury will be followed by a medical examination to determine fitness for duty or possible job restrictions based upon the physical findings of the medical examiner. A similar examination will be performed following three (3)-missed workdays due to a non-job-related illness or injury requiring medical intervention.

C.1.4.3.1 Site Specific Medical Monitoring Measures
Heat stress monitoring will be conducted for those employees wearing impermeable PPE and working in temperatures in excess of 70 degrees F.

C.1.4.3.2 Substance Abuse Policy Statement
It is the policy of WRS to provide quality products and services to its customers and to maintain a safe and healthy workplace by assuring a work environment free of alcohol and other drugs. The unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the workplace. Any employee who is in violation of this policy will be

subject to disciplinary action up to and including discharge. Help is available to employees who have substance abuse problems through the Employee Assistance Program.

Employees working on this project will be performing safety sensitive functions. As such they are subject to pre-assignment drug screening (within 12 months of work on site), random substance abuse screening, reasonable suspicion drug and alcohol screening, and post accident alcohol and drug screening.

Federal law requires that employees working on this project must notify their supervisor of a criminal conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days following the conviction. The law further requires that WRS notify the CO within 10 calendar days of such notification.

C.1.4.4 Personal Protective Equipment Requirements

PPE selection is both task specific and responsive to air monitoring data. **Table 1** below lists initial task specific PPE levels in the far-left column. These levels are disqualified for use if air monitoring indicates that the upper action limit for the level of protection being used is exceeded. Downgrades in respiratory protective equipment will be made based upon air surveillance data and options listed in columns to the right of the initial PPE column. Individuals using respiratory protective equipment will have current fit tests and be clean shaven in facial areas where the respirator sealing surface makes contact.

Table 1. Initial Levels of Personal Protective Equipment

Location	Job Function/Task	Levels of PPE		
Support Zone	Project Administration, Material & Equipment Storage	D		
Contamination Reduction Zone	Personnel decontamination	D+		
	Equipment decontamination	D+		
Exclusion Zone	Clearing & Grubbing	D		
	Demolishing Concrete Foundation	D		
	Excavating Overburden	D		
	Excavating Contaminated Soils	C	D+	
	Dewatering Activities	C	D+	
	Free Product Recovery	C	D+	
	Post-Excavation Sampling	D+		
	Backfilling	D		

Determination of the appropriate level of protection within the limits specified in the HASP is the responsibility of the SHSS. The SHSS will evaluate work practices, air quality, and other factors in making this determination.

Ensemble Components

Levels C, D and D+ personal protection are planned for use at this project. The components included in each level of PPE and explanations for their use are presented as follows:

Level C

Level C will consist of the following items:

- Full face air purifying cartridge respirator with organic vapor cartridges
- Steel-toed boots
- Hard hat
- Poly-coated Tyvek coveralls or equivalent when handling wet materials
- Tyvek coveralls or equivalent when handling dry materials
- Thin mil PVC or latex inner gloves
- PVC outer gloves
- Hearing protection around heavy equipment

Level D

This is the basic work uniform and will consist of the following items:

- Hard hat
- Safety glasses
- Steel-toed boots
- Hearing protection (as applicable)

Level D+

May be appropriate when handling contaminated material that poses no inhalation hazard:

- Hard hat
- Safety glasses
- Steel toed boots
- Poly-coated Tyvek coveralls or equivalent when handling wet materials
- Tyvek coveralls or equivalent when handling dry materials
- Thin mil PVC or latex inner gloves
- PVC outer gloves
- Hearing protection around heavy equipment

C.1.4.5 Health and Safety Monitoring and Sampling Requirements

Health and safety monitoring and sampling will be performed to meet requirements established under HAZWOPER (29 CFR 1910.120), Permit Required Confined Space Entry (29 CFR 1910.146) and Excavation Safety Standards (29 CFR 1926.651).

Table 2 below defines equipment used for real time monitoring activities.

Table 2. Monitoring Activities and Equipment

Instrument	Parameter Monitored	Application(s)
% Lower Explosive Limit Meter	Flammable Atmospheres	• Prior to entry into excavation ≥ 4 ft. deep • Prior to entry into a confined space
% Oxygen Meter	Oxygen deficient/ enriched atmospheres	• Prior to entry into excavation ≥ 4 ft. deep • Prior to entry into a confined space
Carbon Monoxide	Carbon monoxide from	• Prior to entry into excavation ≥ 4 ft. deep

Meter	combustion engine equipment	• Periodically to establish excavation is safe from combustion gases
Hydrogen Sulfide Meter	Hydrogen sulfide from bunker C fuel	• Prior to entry into excavation ≥ 4 ft. deep
Photoionization Detector or Flame Ionization Detector	Volatile Organic Compounds (VOC)	• Prior to entry into excavation ≥ 4 ft. deep • Prior to entry into a confined space • Periodic monitoring of employee breathing zones with potential VOC exposures • Periodic monitoring of Work Zone perimeters to verify their adequacy

The SHSS will perform monitoring activities. Monitoring equipment will be calibrated in accordance with the manufacture's instructions. The SHSS will compare monitoring data to the Action Limits and direct site activities in response to the data. Monitoring data will be recorded onto a Monitoring Data Sheet and attached to the Daily Report.

No air sampling activities are anticipated to be necessary at this site. The WRS Health and Safety Manager will review monitoring data to verify that sampling activities are not necessary.

C.1.4.5.1 Site Control Measures

Site control measures have the following objectives:

- Communicate site hazards to the public and project personnel;
- Prevent the spread of contamination;
- Prevent the exposure of unprotected personnel;
- Keep unauthorized personnel out of the project site.

Site control measures will include:

- Establishment and maintenance of work zones;
- Signage;
- Site perimeter security;
- Decontamination of equipment and personnel prior to exiting the EZ.

C.1.4.5.2 Work Zone Controls

Work zones will be established to prevent the spread of contamination and exposure of unprotected personnel. Three work zones will be maintained: exclusion; contamination reduction and support. Decontamination activities will be performed in a decontamination corridor adjacent to the exclusion zone. Exiting the exclusion zone will be through the decontamination corridor. Work zones will be posted and site drawings will indicate the location of work zones. Project personnel will be familiarized with work zones in Safety Meetings.

C.1.4.6 Personal Hygiene Procedures

Personal hygiene activities will follow gross decontamination. They will include hand and face washing prior to any hand to mouth activity. Potable water, cups, soap, towels and chemical toilets will be on site to facilitate personal hygiene activities. Toilets will be available in a

quantity sufficient to meet gender and crew size needs. Personal hygiene facilities will be located in the site's SZ.

C.1.4.7 Personnel and Equipment Decontamination

Decontamination of equipment and personnel will be performed to limit the potential migration of contaminants outside the exclusion zone. All equipment and personnel will be decontaminated prior to leaving the exclusion zone.

Level of PPE Required for Decontamination Personnel
The level of protection required for personnel conducting equipment decontamination will be Level D+. The SHSS is responsible for monitoring decontamination procedures and determining their effectiveness.

Equipment Decontamination
Contact of equipment with contaminated materials will be minimized so that only minimal decontamination is necessary. A heavy equipment decontamination pad will be constructed in the decontamination zone. It will be constructed of a waterproof material in such a manner that solids and liquids are collected and not released to clean areas of the site. Heavy equipment will be moved onto or over the decontamination pad. Hand tools will be used to remove solids. A high-pressure water rinse will follow if hand tool removal methods prove inadequate. All heavy equipment will be decontaminated prior to removal from the site. Decontamination will be verified visually. No visible soil or residue will be the benchmark for a decontaminated piece of equipment.

Personnel Decontamination Procedure
All site personnel should minimize contact with contaminants in order to minimize the need for extensive decontamination. Personnel decontamination will be conducted adjacent to the heavy equipment decontamination pad. Gross decontamination will include:

- Boot wash/rinse if reusing boot covers
- Wash/rinse outer gloves if reusing
- Remove coveralls and dispose
- Remove boot covers and place in lined trash container or boot rack if washed/rinsed
- Remove outer gloves and place in lined trash container or glove rack if washed/rinsed
- Remove respirator
- Wash/rinse respirator (inside and out) and hang for drying
- Remove inner gloves

Personal hygiene following decontamination will take place following gross decontamination.

Personnel Decontamination Equipment
Decontamination equipment for personnel decontamination will consist of two wash tubs (boot wash), trash cans with liners (for disposable PPE), 5 gallon buckets (glove wash and rinse and respirator wash, sanitize and rinse), brushes, water supply, and detergent. Boot, glove and respirator cleaning and rinsing solutions will be changed at least daily.

Disposition of Decontamination Wastes

All equipment used for decontamination will be decontaminated or disposed of properly. Liquids will be containerized and characterized for proper disposal. All disposable PPE will be containerized and properly disposed.

C.1.4.8 Emergency Response Planning and Contingency Procedures

Emergency response planning and contingency procedures will be prepared to define personnel responsibilities, resources and actions necessary to respond to uncontrolled releases of contaminated materials, fires and injuries to personnel. The following elements will be addressed:

- Pre-Emergency Planning;
- Personnel Roles and Lines of Authority;
- Emergency Recognition/Prevention;
- Emergency Equipment/Facilities;
- Evacuation Routes/Procedures;
- Emergency Communications;
- Emergency Contact/Notification System;
- Emergency Medical Treatment Procedures;
- Emergency Response Critique.

C.1.4.9 Incident Reporting Procedures

WRS will notify the CO/COR of a recordable occupational injury or illness, or Significant Accident as soon as practical. Such notifications will be made no later than four hours following the incident. Information will include the contractor's name, contract title, type of contract, name of activity, installation or location where accident occurred, date and time of the accident, names of personnel injured, extent of property damage and a brief description of the incident.

Recordable occupational injuries and illnesses will be investigated by WRS, recorded on NAVFAC Contractor Significant Incident Report (CSIR) form and reported to the CO/COR within five days of the incident.

Accidents involving weight handling equipment (WHE) will be investigated by WRS, recorded on the WHE Accident Report form and provided to the CO/COR within 30 days of the accident.

C.1.4.10 Health and Safety Record Keeping requirements

Health and safety records maintained to support the project will include:

- Site Specific HASP/ Accident Prevention Plan and any Modifications;
- Activity Hazard Analysis;
- Excavation Safety Daily Inspections;
- Confined Space Entry Permits;
- Certificates of Training;
- Fit for Duty Statements (Medical Surveillance);
- Material Safety Data Sheets;
- Respirator Fit Tests;

- Weekly Safety Meeting Notes with Attendee Signatures;
- Air Monitoring Data;
- Accident Reports;
- Safety Inspections.

All records will be available at the project site.

C.2 Management Approach

WRS understands that the technical capabilities required for this task order must be implemented through an effective management plan to ensure appropriate and responsive services and to maintain clear lines of communication with NAVFAC. This section describes our proven project management approach to meeting NAVFAC's requirements for technical performance, schedule performance, and control of cost and quality. We also describe the resources and management methods we will use to assure effectiveness and efficiency.

C.2.1 Project Management Structure

Our project management approach begins with a strong commitment to communication and coordination with NAVFAC, and technical and operational controls. We have well-established operational control procedures relating to cost and schedule and subcontract management. The key features of our management approach are described in the following subsections.

C.2.1.1 Project Organizational Structure

The WRS project organization for this task order is presented in **Figure 4**. WRS will manage all aspects of this project and perform the majority of services required using our existing personnel and equipment. Our proposed subcontractors will provide additional support under the organizational structure illustrated in **Figure 4.**

C.2.1.2 Key Project Personnel and Responsibilities

The following paragraphs briefly describe the responsibilities of key project personnel and their assigned responsibilities. Each position is filled by an individual carefully selected based on education, experience, and expertise in the designated area of responsibility. They have worked together before on numerous projects and will provide NAVFAC with a cohesive project team that have developed mutual trust and respect for each other.

Program Manager: Mr. Brent W. Anderson, PE, PG is the Program Manager and will serve as the primary point of contact for receipt and negotiation of this task order. He will work closely with the Senior Project Manager to obtain any required corporate resources.

Health and Safety Manager: Mr. Douglas Nelson, CIH, CHMM is the Health and Safety Manager and will implement and oversee the Health and Safety Program. He will develop, implement, and sign the site HASP. He will approve any changes to the established Health and Safety Program or site HASP with the concurrence of the Contracting Officer or designated representative.

Senior Project Manager: Mr. Mark White, PG, will serve as the Senior Project Manager for this proposed task order. Mr. White was chosen for his extensive experience managing projects of a similar nature in the state of Florida. Mr. White has managed the remediation of petroleum contaminated soil at over 50 sites throughout the state with over 15 of these sites involving the removal of free product. This experience has provided him with a working knowledge of the federal, state, and local laws and regulations governing the cleanup of petroleum contaminated

sites in the state. He also has over 12 years of experience performing environmental consulting, remediation, and construction services in the Florida Panhandle and is intimately familiar with the geological and hydrogeological conditions of the area.

Upon receipt of the task order, he will serve as the primary point of contact for NAVFAC and will coordinate, direct, and integrate all elements of the project team. He will be responsible for the overall management of the project including subcontract management; cost and schedule tracking and control; and implementation of site safety, quality control, and quality assurance plans.

Site Superintendent and Site Health and Safety Specialist: Mr. James Fletcher will serve as the Site Superintendent for this CTO and will be on-site at all times. Mr. Fletcher was chosen for his experience at NAS Pensacola Site 1107. He has a working knowledge of the health and safety concerns associated with petroleum contamination and is experienced in soil excavation and site restoration.

He will be responsible for the execution of site activities in accordance with the approved Work Plan and will direct and oversee the activities of the cleanup crew at the direction of the Senior Project Manager. He will also be responsible for the implementation and enforcement of the site HASP and QAPP.

Mr. Fletcher will also serve as the Site Health and Safety Officer on this task order to optimize the cost effectiveness of task order resources. Mr. Fletcher has assisted in the preparation of site health and safety plans. Further, he has been responsible for the implementation of several site health and safety plans. He has served simultaneously as the Site Health and Safety Officer on several project sites throughout the Southeastern United States, including sites in the state of Florida. He has also received first aid and CPR training.

In this capacity, Mr. Fletcher will have the on-site responsibility and authority to modify and stop work, or remove personnel from site if working conditions change that may affect on-site and off-site health and safety. He will serve as the main contact for any on-site emergency situation. He will be responsible for the implementation and enforcement of the HASP.

In addition to serving as the Site Superintendent and Site Health and Safety Officer, Mr. Fletcher will also serve as the Project Quality Control Specialist. Mr. Fletcher has completed the USACE Construction Quality Management for Contractors training course and served in similar capacities on other projects, including Site 1107 at NAS Pensacola. In this role, Mr. Fletcher will be responsible for ensuring that construction activities are performed according to the plans and specifications, on time and within a defined budget. Further, he will be responsible for developing and maintaining an effective Construction Quality Control system for the project.

Quality Control Program Manager: Mr. Jon Berry is the Quality Control Program Manager. Mr. Berry or his representative will be on-site at all times during task order execution.

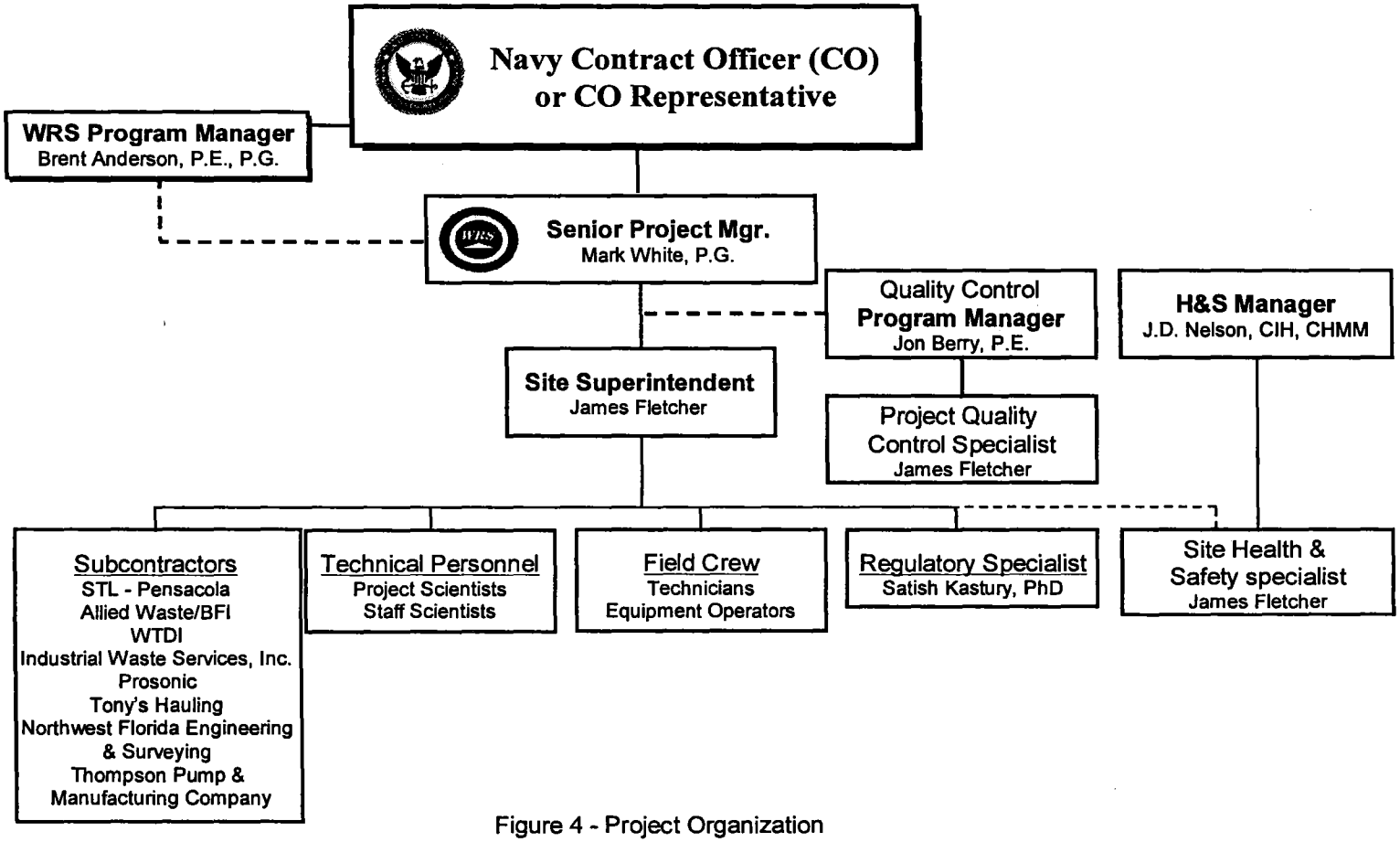


Figure 4 - Project Organization

He will serve as the primary point for overall management of project quality control and will have the authority to enforce all quality control matters. He will be responsible for the development and implementation of the Quality Control Project Plan (QAPP). He will report directly to the WRS President and COO, independent of the project team, to ensure that quality is not compromised.

Regulatory Specialist: Mr. Satish Kastury will serve as the Regulatory Specialist on this task order. Mr. Kastury has over 18 years of regulatory experience including serving as the Environmental Administrator for the Hazardous Waste Program at FDEP. He has significant experience managing regulatory matters at environmental sites and is well qualified to oversee the regulatory aspects of this project. He has working experience in federal, state, and local laws and regulations, and guidance associated investigations, studies, designs, and remediation. He will be the single point of resource for all regulatory matters.

Other Team Personnel: All other team personnel shown in **Figure 4** are responsible for performing field activities assigned to them; understanding and complying with the HASP and QAPP; and conducting themselves in a safe manner, mindful of the inherent hazards associated with work on site.

C.2.1.3 Project Communications and Contact Personnel

WRS recognizes that excellent communication is required to ensure that NAVFAC receives services in an efficient, responsive, and safe manner. Our standards for clear and timely communications, both formal and informal, are an integral part of our operations and contribute greatly to the quality and responsiveness of our services. Open communications between all project team members (NAVFAC, WRS, and selected subcontractors) is absolutely essential.

WRS maintains a 24-hour telephone and facsimile capability. Switchboard operators are authorized to contact WRS personnel 24 hours a day, any day, when required. All key project personnel will be assigned mobile cellular telephones. The Program Manager maintains a roster of on-call personnel, including selected personnel from operations, management support, technical, and Health and Safety groups. The Program Manager is also responsible for relaying all relevant information to the CO/COR.

Table 3 lists contact personnel for WRS designated to support this task order is provided below:

Table 3. Key Personnel Contact List

Name	Title	Office Phone	Mobile/Cell
Mr. Brent Anderson, PE, PG	Program Manager.	850.531.9860	850.251.8889
Mr. Mark White, PG	Senior Project Manager	850.531.9860	850.251.4510
Mr. Jon Berry, PE	QC Program Manager	813.684.4400	813.335.0171
Mr. Doug Nelson, CHMM	Health & Safety Mgr.	770.469.6522	678.296.1267
Mr. James Fletcher	Site Superintendent/SHSS	850.531.9860	850.251.4514

Operational efficiency, responsiveness, health and safety, and community relations are all integral elements in achieving good site communications. Elements of the on-site communications network will include a meeting between the CO/COR and WRS Senior Project Manager or Site Superintendent (in the Senior Project Managers absence) each day to discuss progress and approach and to plan future events. At this meeting the Senior Project Manager or Site Superintendent will present the CO/COR with a report of planned activities for review and approval. The Senior Project Manager or Site Superintendent and CO/COR will also communicate daily regarding cost control issues.

The Senior Project manager or Site Superintendent and CO/COR will also interact as needed during each day of the project. Daily, weekly, and monthly (if necessary) reports will be prepared as required by the CO/COR. In addition, the CO/COR will have complete access to the Senior Project Manager or Site Superintendent as needed.

Direct communication will occur between all field personnel and the SHSS regarding health and safety issues. Health and safety meetings will be conducted at the start of each day to outline scheduled tasks and hazards associated with those tasks. These meetings will periodically include procedural reviews of such topics such as hand signals, emergency procedures, and other safety protocols. Attendance is mandatory for WRS and subcontractor personnel. The CO/COR is welcome to be in attendance at these meetings.

Operations meetings will occur regularly between the Senior Project Manager, SHSS, QC Program Manager, Site Superintendent, and subcontractors to discuss progress and corrective actions, as needed. On-site communications equipment, (including hand held radios, telephones, facsimile machine, pagers, emergency air horns, and mobile cellular phones) will be inspected and maintained regularly.

C.2.1.4 Project Submittals

Prior to mobilizing to the site, WRS will prepare all pre-construction submittals required in the Scope of Work and contract specifications, as stated in the task order, to the CO/COR for approval. All pre-construction submittals will be prepared in accordance with Section 01330, or as otherwise stated in the specifications or task order. Site activities will not commence until approval of the pre-construction submittals has been obtained from the CO/COR.

C.2.1.5 Cost and Schedule Control

The WRS Management Information Systems (MIS) will provide the basic tools to accumulate project cost and schedule data, enabling us to closely monitor project performance, manage subcontractor costs, report progress, and implement any necessary corrective action. Our planning and scheduling software, SureTrak®, will be utilized on this project as a management tool to control project cost and schedule.

SureTrak® enables summarization of performance data, including costs, at the appropriate Work Breakdown Structure (WBS) levels. The Senior Project Manager will review the details for each work element in the task order. He will sum this information, using the roll-up features of the WBS, to see performance on phases of activities. The cost data will be organized to the proper

level of detail, enabling clear identification of trends of interest. Reports will be developed from SureTrak® that are flexible in content and format, for communication of project information to NAVFAC, supplementing regular verbal communications.

WRS will establish internal controls for this project. These controls will include:

- A clearly defined and enforced approval process at the requisition, purchase order, vendor invoice, and expense report levels to ensure both the financial integrity and the proper classification of all costs.
- Comparison of invoices to purchase orders and receiving tickets prior to data entry. This will be done to verify unit prices and quantities of materials and services received.
- Quality Control (QC) checks within the accounts payable system to detect and prevent duplicate payments to vendors.
- A hierarchy of password protection and system access control to prevent unauthorized use of the WRS accounting system.
- Regular review of detailed project costs by the Senior Project Manager to ensure charges are coded to the appropriate job and WBS account.

The project schedule will be used as the baseline schedule against which actual progress and actual expenditures for the project will be posted, and against which project performance will be evaluated. The working schedule will be maintained in SureTrak® and will provide the basis for generating updated project schedules and progress reports, and for performing analysis to model corrective actions. The Senior Project Manager and Site Superintendent will use the charts and schedules produced by SureTrak® to monitor field activities and assess actual performance against the SOW and baseline schedule.

C.2.2 Proposed Subcontractors

This section presents our proposed subcontractors. We discuss the services they will provide, why they were chosen, our past working relationship, and how they will be managed.

C.2.2.1 Subcontractor Management and Organization

WRS will perform most of the services required for this project using our existing personnel and equipment. For this project, we will utilize the services of nine specialty subcontractors. **Table 4** identifies these proposed subcontractors and their roles on this task order.

Table 4. Subcontracted Services

Subcontractor	Services to be Provided
Allied Waste/BFI and WTDI	Transportation and disposal of contaminated soil
Tony's Hauling	Provide backfill and on-site transportation of clean overburden soils
Prosonic	Monitor well installation
STL Pensacola	Analytical laboratory services
Industrial Wastewater Services	Transportation and disposal of free product and contaminated water
Pensacola Testing	Geotechnical testing services
Thompson Pump & Manufacturing Company	Provide dewatering system
Northwest Florida Engineering & Surveying	Registered Land Surveying services

These subcontractors were carefully selected based on their quality of service, cost effective service, past working relationship with WRS, and their close proximity to NAS Pensacola. All proposed subcontractors, except the Timberlands Landfill, are within 40 miles of NAS Pensacola, providing cost effective mobilization and familiarity with the local conditions.

Allied Waste/BFI's Timberland Landfill was selected as the disposal facility of choice since they are the closest subtitle D landfill to NAS Pensacola, thus reducing the cost of waste transportation.

All subcontracts will be administered by the Senior Project Manager and procured in accordance with the requirements of the Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation Supplement (DFARS).

The SHSS will ensure that subcontractor personnel are properly trained and perform their service in accordance with the Health and Safety Plan. The Quality Control Program Manager will implement strict inspection and auditing protocols to ensure that subcontractor personnel have met formal training requirements and have demonstrated an aptitude to perform their assigned tasks. He will also perform inspections of all work performed by subcontractors on a daily basis. The Senior Project Manager and Site Superintendent will exercise engineering, quality assurance, safety, and administrative surveillance over each subcontractor to ensure satisfactory technical performance and compliance with applicable laws and regulations.

C.2.2.2 Subcontractor Limits of Responsibility

All proposed subcontractors will be responsible for the strict implementation of the HASP and QAPP while performing their contracted services during task order execution. They will be responsible for ensuring that their personnel have met formal training requirements and have demonstrated an aptitude to perform their assigned tasks. They will be responsible for performing their designated tasks in accordance with the workplan and their contractual obligations.

C.2.3 Resource Plan

For this CTO, WRS will mobilize personnel, supplies, and equipment from WRS's Tallahassee, Florida Resource Center. All resources will be mobilized as required by the CO and with his/her approval.

WRS will mobilize personnel in a phased approach beginning with site reconnaissance, survey, and assessment of immediate hazards and concerns. Personnel will be added as needed to accomplish the removal tasks in order to meet the project schedule. For this CTO, WRS intends to mobilize/utilize resources shown in **Table 5** below.

Table 5. Required Resources

Personnel	Equipment	Materials
(1) Program Manager (1) Senior Project Mgr. (1) Site Superintendent/ SHSS/QC Specialist (1) Staff Scientist (1) Equipment Operators (2) Technicians	Hydraulic Excavator (PC 300) Bulldozer (D-5) Loader (JD 544) Pickup Trucks Vacuum Truck (subcontracted) Wood Chipper Onsite Storage Tank Air Compressor Pump, Hoses & Fittings Dump Trucks (subcontracted) Survey Equipment Personal Protective Equipment Air Monitoring Equipment Pressure Washers Roll-Offs Portable Generator Sampling Equipment	Sample Jars Poly Sheeting Silt fence Caution Tape Hay Bales Lumber (decon area constr.) Respirator Cartridges Backfill Soil (select fill) Decontamination Materials

WRS will also coordinate with pre-qualified local subcontractors and suppliers for support services and supplies, as described in **Section A.2.2.** WRS will first ensure that proper agreements and purchase orders have been effected and NAVFAC approval is obtained as necessary.

The resources required for each task of this task order, including labor, equipment, and materials, are loaded into the schedule for performance measurement and budget calculation purposes. WRS has organized activities associated with this task order into the following main tasks:

Definable Features of Work:

1. Pre-Construction Activities
2. Site Preparation
3. Dewatering System Installation and Operation

4. Demolition Activities
5. Monitor Well Abandonment
6. Overburden Removal and Staging
7. Contaminated Soil Excavation, Sampling, Analysis, and Disposal
8. Free Product Removal and Disposal
9. Confirmatory Sampling and Analysis
10. Excavation Backfill Placement, Compaction, and Testing
11. Site Restoration
12. Monitor Well Replacement
13. Post Completion Reporting
14. Baseline Post-Excavation Groundwater Sampling
15. Three Quarters of Natural Attenuation Monitoring

The schedule provided in **Section C.3** will break these tasks down further to provide detail work activities associated with each task

C.2.3.1 Staffing and Equipment Resources by Project Task

The list of staffing and equipment resources, organized by project task, is presented below in **Table 6.**

Table 6. Personnel and Equipment Resources by Task

Resource	Unit	Task Number												
		1	2	3	4	5	6	7	8	9	10	11	12	13
PERSONNEL														
Program Manager	Each	1	--	--	--	--	--	--	--	--	--	--	--	--
Health & Safety Mgr.	Each	1	--	--	--	--	--	--	--	--	--	--	--	--
Senior Project Mgr.	Each	1	1	1	1	1	1	1	1	1	1	1	1	1
Site Superintendent	Each	--	1	1	1	1	1	1	1	1	1	1	1	1
SHSS	Each	--	1	1	1	1	1	1	1	1	1	1	1	--
QC Program Manager	Each	1	1	1	1	1	1	1	1	1	1	1	1	--
Regulatory Specialist	Each	1	1	--	--	--	1	1	--	--	--	--	--	--
Project Scientists	Each	--	1	--	--	--	1	1	1	--	--	1	1	--
Staff Scientists	Each	--	1	--	--	--	1	1	1	--	--	1	1	1
Equipment Operators	Each	--	2	2	2	2	2	--	2	--	2	--	--	--
Technicians	Each	--	2	2	2	2	2	1	1	2	2	--	--	1
EQUIPMENT														
PC-300 Excavator	Each	--	1	1	--	1	1	--	--	1	1	--	--	--
Dozer, D5	Each	--	1	1	--	1	1	--	--	1	1	--	--	--
Backhoe, w/ hoe ram	Each	--	--	1	--	--	--	--	--	--	--	--	--	--
Wood Chipper	Each	--	1	--	--	--	--	--	--	--	1	--	--	--
Vacuum Truck	Each	--	--	--	--	--	--	1	--	--	--	--	--	--
Dump Truck	Each	--	--	2	--	3	3	--	--	3	--	--	--	--
Water Truck	Each	--	1	1	--	1	1	--	--	1	1	--	--	--
Compactor	Each	--	--	--	--	--	--	--	--	1	--	--	--	--
Org. Vapor Analyzer	Each	--	--	--	--	--	1	1	1	--	--	--	--	--
Explosimeter	Each	--	--	--	--	--	1	1	1	--	--	--	--	--
Hand Auger	Each	--	--	--	--	1	1	--	--	1	--	--	--	--
Survey Equipment	Each	--	--	--	--	1	1	--	--	1	--	--	--	--
Onsite Storage Tank	Each	--	--	--	--	--	--	1	--	--	--	--	--	--
Pressure Washer	Each	--	--	--	--	--	1	--	--	--	--	--	--	--
Pump	Each	--	--	--	--	--	1	1	--	--	--	1	--	--
Water Level Indicator	Each	--	--	--	1	--	--	--	--	--	--	1	--	--
Pickup Truck	Each	--	3	3	3	3	3	3	3	3	3	1	--	1
Car	Each	1	--	--	--	1	--	--	--	--	--	--	--	--

C.2.3.2 Efficiency and Cost Effectiveness

The proposed resourcing plan has been developed to maximize the efficient and cost effective use of resources without compromising safety and quality.

The plan features the following benefits:

- Cost-effective mobilization of resources from the closest WRS resource center (Tallahassee, Florida) using a staged approach. Staffing and equipment resources will only be on-site when needed.
- Efficient utilization, and cost effectiveness of the project staff through dual tasking. The Quality Control Program Manager will also serve as the Regulatory Specialist and the Site Superintendent will also serve as the Site Health and Safety Specialist.
- Use of local subcontractors for cost-effective performance of specialty services.

Throughout project execution, the task order management team will continually review and monitor the resource plan for areas to further enhance efficiency and cost effectiveness.

C.3 Schedule

The project schedule including all major tasks expected during project performance is provided in **Figure 7.** This schedule defines WRS's performance schedule for this project.

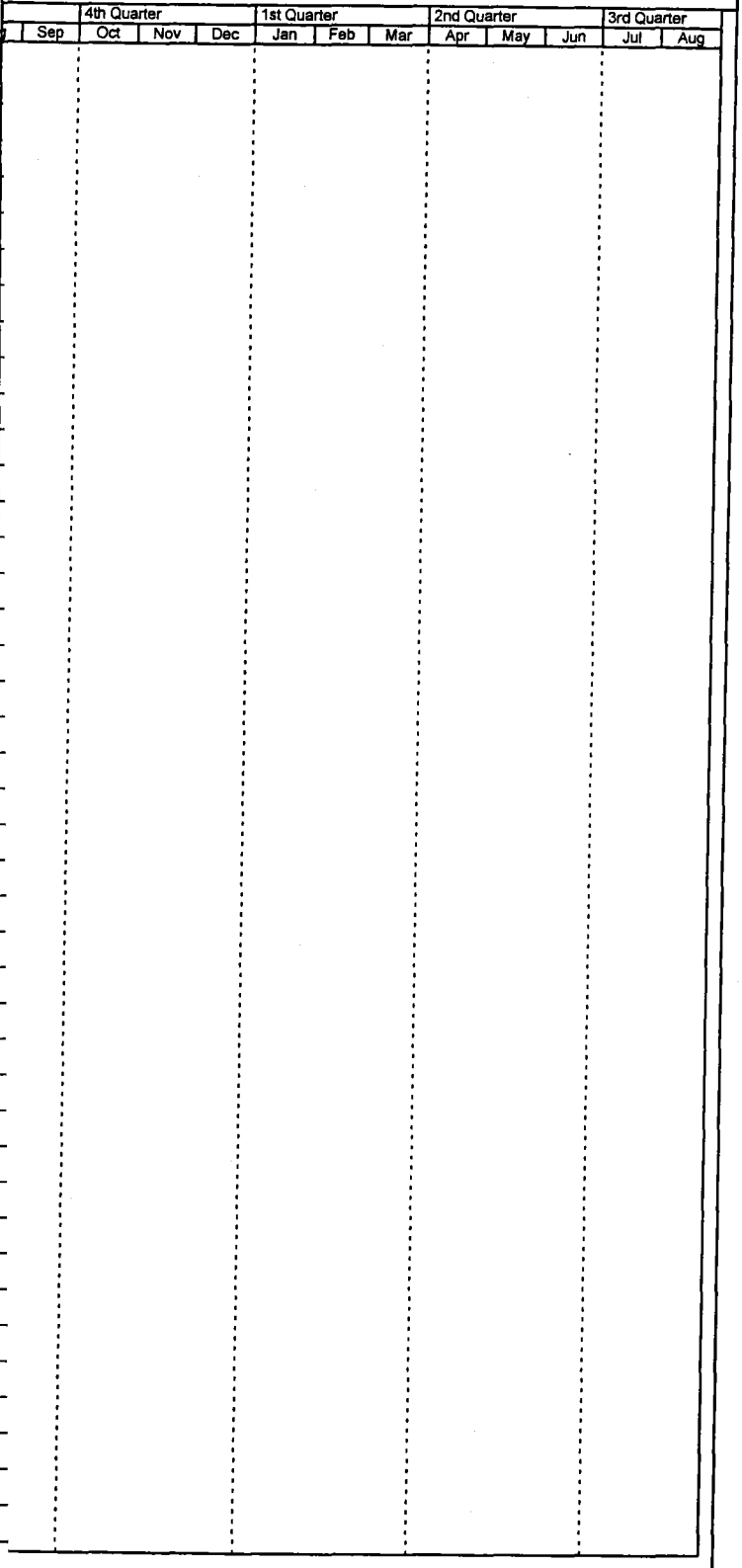
A detailed, computerized critical path method (CPM) schedule will be submitted prior to the commencement of work. This schedule will include all engineering, procurement, construction, and testing activities in the Precedence Diagram Method time-scaled network logic diagram format. Resource data will be loaded in the appropriate activities, including labor, equipment, and quantities. Appropriate direct costs and cost loading will be applied to the scheduled resource data. Associated activity numbers, descriptions, early start dates, schedule float, activity relationships and dependencies, resources, and costs will be shown on the schedule printouts. Other coding will be associated with each schedule activity in accordance with Part 1.5.2, Schedule Data, of Division 0001 Specification Section 01321N, "Network Analysis Schedules." This schedule will be constructed in accordance with the above-mentioned Specification Section and with Federal Acquisition Regulations 52.236-15, "Schedules for Construction Contracts". Submittals will include the complete CPM time-scaled logic diagram of the Network Analysis Schedule, a tabular schedule report sorted by predecessor and successor, a graphical schedule report sorted by Total Float and Early Start, a schedule report showing all Government responsibility activities sorted by Early Start, an Earned Value Report, and, if necessary, an Early Project Completion report. Upon approval by the Contracting Officer, this Accepted Network Analysis Schedule will become the "Baseline CPM Schedule," and will be used to plan, organize, and direct project work.

Regular updates will be made to the Network Analysis Schedule to reflect the current status of project work, with the contracting officer's concurrence and approval. By comparing the updated Network Analysis Schedule to the Baseline CPM Schedule, percent complete progress data, earned value, and early project completion data will be calculated. Project submittals will include the updated Network Analysis Schedule, Cost Summary and Earned Value Report, 30-calendar day look-ahead report, Schedule Report grouped by total float and sorted by Early Start, and written status report and potential delay discussion. In addition, more detailed Workplan schedules will be submitted on a biweekly basis, showing detailed activities critical path activities, and labor, equipment, and tool resources.

WRS has prepared the Network Analysis Schedule using Primavera SureTrak® Software. However, in consultation with the contracting officer, this software may be supplemented by external database software (i.e., Microsoft Access), and/or replaced by Primavera Project Planner (P3®) for the purpose of providing more detailed costing information for NAVFAC. The scheduling software data will be integrated into the MIS system to allow the easy generation of custom schedule and progress reports at any time. This will also allow flexibility in implementing changes to the schedule, allowing NAVFAC to take quick advantage of opportunities to shorten the schedule. All electronic submittals will be in SureTrak®-compatible file format.

Insert Figure 5

ID	Task Name	Duration	Start
1	**DFOW 1 - Preconstruction Activities**	**170 days**	**Fri 7/25/03**
2	Project Award	0 days	Fri 7/25/03
3	PAK Meeting	1 day	Thu 8/7/03
4	Notice to Proceed	1 day	Fri 8/8/03
5	Notice of Suspension	135 days	Mon 8/11/03
6	Pre-Mobilization Submittal Preparation	10 days	Mon 2/16/04
7	Submittal Revisions/Review	10 days	Mon 3/1/04
8	Preconstruction Meeting	1 day	Mon 3/15/04
9	Notifications and Permits	3 days	Tue 3/16/04
10	**DFOW 2 - Site Prepartory Work**	**1 day**	**Fri 3/19/04**
11	Work Zone Establishment	1 day	Fri 3/19/04
12	**DFOW 3 - Dewater System Installation & Operation**	**10 days**	**Mon 3/22/04**
13	Dewatering System Installation	1 day	Mon 3/22/04
14	Dewatering System Operation	9 days	Tue 3/23/04
15	**DFOW 4 - Demolition Activities**	**0.5 days**	**Mon 4/5/04**
16	Concrete Pad Demolition	0.5 days	Mon 4/5/04
17	**DFOW 5 - Monitor Well Abandonment**	**1 day**	**Mon 4/5/04**
18	Monitor Well Abandonments	1 day	Mon 4/5/04
19	**DFOW 6 - Overburden Removal & Staging**	**3 days**	**Tue 4/6/04**
20	Overburden Removal	2 days	Tue 4/6/04
21	Overburden Staging	1 day	Thu 4/8/04
22	**DFOW 7 - Excavation, Sampling, Analysis, Disposal**	**2 days**	**Fri 4/9/04**
23	Excavation & T&D, Sampling	2 days	Fri 4/9/04
24	**DFOW 8 - Free Product Removal & Disposal**	**1 day**	**Tue 4/13/04**
25	Free Product Removal & Disposal	1 day	Tue 4/13/04
26	**DFOW - 9 Confirmation Sampling & Analysis**	**1 day**	**Wed 4/14/04**
27	Sampling	1 day	Wed 4/14/04
28	**DFOW - 10 Backfill, Compaction, & Testing**	**2 days**	**Thu 4/15/04**
29	Backfill, Compaction, & Testing	2 days	Thu 4/15/04
30	**DFOW 11 - Site Restoration**	**1 day**	**Mon 4/19/04**
31	Site Restoration	1 day	Mon 4/19/04
32	**DFOW 12 - Monitor Well Replacement**	**2 days**	**Tue 4/20/04**
33	Monitor Well Installation	2 days	Tue 4/20/04
34	**DFOW 13 - Post Completion Reporting**	**11 days**	**Thu 4/22/04**
35	Receive Analyticals	1 day	Thu 4/22/04
36	Project Completion Report	10 days	Fri 4/23/04
37	**DFOW 14 - Baseline Post-Excavation Groundwater Samplin**	**2 days**	**Fri 4/23/04**
38	Baseline Post-Excavation Groundwater Sampling	2 days	Fri 4/23/04
39	**DFOW 15 - Three Quarters of Natural Attenuation Monitorin**	**270 days**	**Mon 4/26/04**
40	First Quarter - NAM	90 days	Mon 4/26/04
41	Second Quarter - NAM	90 days	Mon 8/30/04
42	Third Quarter - NAM	90 days	Mon 1/3/05



APPENDIX A

Immunoassay Field Screening Documentation

Remediation, Assessment & Industrial Testing

D TECH®

D TECH BTEX Field Test Kit

Features

- rapid and simple field testing method for soil or water samples
- semi-quantitative or qualitative results at set action levels
- test up to 4 samples at one time
- results in less than 15 minutes
- simple test protocol with no training required
- all materials included
- latex particle / membrane immunoassay

SDI

Test Result Type

- Qualitative or semi-quantitative.

Samples per Kit

- 4 samples per test kit.

Assay Range

- Assay Range:

	Water (ppm)	Soil (ppm)
w/ DTECHTOR	0.6-10	2.5-35
w/ color card	0.6-10	2.5-35

- Range may be extended 10x to 10,000x with Dilution Pacs.
- Semiquantitative ranges of detection when used with DTECHTOR meter.

Sample Preparation

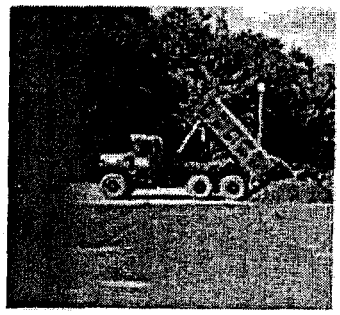
- Soil samples require prior extraction using the D TECH BTEX Soil Extraction Pac.

Sampling Time

- "Dirt to Data" in approximately 15 minutes.
- Soil extraction time is typically 3 minutes or less per sample plus assay run time of approximately 20 minutes.
- Multiple samples can be extracted simultaneously.

Remediation, Assessment & Industrial Testing

D TECH®



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Basic Test Procedures

- Soil Samples: transfer 1 mL of extract solution from D TECH BTEX Soil Extraction Pac to Bottle A and mix.
- Water Samples: transfer 1 mL of sample to Bottle A and mix.
- Fill BTEX Test Vial with Bottle A solution.
- Fill BTEX Reference Vial with Reagent C.
- After 2 minutes, pour BTEX Test and Reference Vial contents into the "T" and "R" wells of the plastic assembly device.
- After the liquid has drained, add 10 drops of Regent D to each side.
- Add 5 drops of Reagent E to each side of the assembly and drain.
- Read color development using the DTECHTOR meter or the reference color card, and determine the sample result from the Instruction Guide.

Specificity

The D TECH BTEX test kit has been tested for cross-reactivity with compounds having similar structures to the BTEX group. The table below summarizes the cross-reactivity of these compounds in water samples using the DTECHTOR.

Compound	IC_{50} (ppm)	MDL (ppm)
Benzene	12.6	1.2
Toluene	4.5	0.6
Ethylbenzene	4.3	0.6
Xylenes	4.3	0.6
O-Cresol	10.0	1.5
Chlorobenzene	14.0	1.8
1,2-Dichlorobenzene	21.0	6.0
Nitorbenzene	23.0	6.0
2-Nitrophenol	55	7.0

The DTECH BTEX test kit can be used to test for TPH in soil. Knowledge of the contaminating fuel type is necessary to obtain the highest level of accuracy

Fuel Type	MDL
Gasoline	80 ppm
Diesel	40 ppm
Kerosene	60 ppm
JP-4	80 ppm
JP-5	100 ppm
Jet A	25 ppm

Test Kit Components

- Latex particle, enzyme conjugate, color development and stop reagents in test vials or dropper bottles.
- Membrane filtration devices.
- Disposable dropper pipets.
- Test kit instructions and color card.
- The above includes all reagents and materials for analysis of 4 samples.

Storage & Precautions

- Kit should be stored from 40° to 100°F (4° to 38°C).
- Do not store or run in direct sunlight.
- Expiration date varies with storage temperature; therefore, see package label.
- Color development is temperature dependent and takes approximately 10 minutes at 75°F.
- Reagents from different kits cannot be mixed.

Other Required Materials

- Soil samples require extraction using the DTECH BTEX Soil Extraction Pac.

Other Recommended Materials

	SDI Part #
• DTECHTOR Meter (strongly recommended)	TK-1001M-1
• Personal protective clothing (i.e. latex gloves)	
• Liquid and solid waste containers	
• Marking Pen	

Ordering Information

	SDI Part #
BTEX Test Kit (4 Test)	TK-1003-1
BTEX Soil Extraction Pac (4 Test)	TK-1003S-1
DTECHTOR Meter	TK-1001M-1
BTEX Soil 1:10 Dilution Pac (4 Test)	TK-1003S1-1