**FINAL**

# Work Plan Addendum 1
# Remedial Investigation IR Sites 34b and 34d

## Naval Weapons Station Seal Beach Detachment Fallbrook
## Fallbrook, California

**March 2016**

Prepared for:

**Naval Facilities Engineering Command Southwest**
**1220 Pacific Highway**
**San Diego, CA 92132-5190**

Prepared by:

**CB&I Federal Services**

Prepared under:

**Contract Number: N62473-10-D-4009**
**Task Order Number: 0096**
**DCN: CBI-4009-0096-2146.A1/F**

In Coordination with:

**Trevet**
**9888 Carroll Centre Road, Suite 228**
**San Diego, California 92126**

**FINAL**

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# Remedial Investigation IR Sites 34b and 34d
## Naval Weapons Station Seal Beach Detachment Fallbrook
## Fallbrook, California

**March 2016**

**Prepared for:**
**Naval Facilities Engineering Command Southwest**
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**San Diego, CA 92132-5190**

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**In Coordination with:**
**Trevet**

***Review and Approval***


Bob Breglio, P.G.
Technical Lead
Trevet

3/9/2016
Date

John Willis
Project Manager
Trevet

3/9/2016
Date

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## *Table of Contents*



### Figures



### Appendix

## *Acronyms and Abbreviations*

| | |
|---|---|
| bgs | below ground surface |
| CFS | CB&I Federal Services |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| DON | Department of the Navy |
| DOT | Department of Transportation |
| DTSC | California Department of Toxic Substances Control |
| IDW | investigation-derived waste |
| IR | Installation Restoration Program |
| NAVFAC SW | Naval Facilities Engineering Command Southwest |
| NAVWPNSTA | Naval Weapons Station |
| RCRA | Resource Conservation and Recovery Act |
| RI | Remedial Investigation |
| SAP | sampling and analysis plan |
| SI | Site Inspection |
| SSHP | Site-specific Safety and Health Plan |
| U.S. EPA | United States Environmental Protection Agency |

# Section 1 Introduction

This work plan addendum has been prepared to address the investigation and planned removal of a large anomaly that was identified during the geophysical investigation, which was conducted as part of the remedial investigation (RI) at Installation Restoration Program (IR) Site 34d, located at Naval Weapons Station (NAVWPNSTA) Seal Beach Detachment (Det.) Fallbrook, California (Figure 1). The anomaly encountered during the geophysical investigation is indicative of an underground storage tank (UST) that previously contained, and may still contain, petroleum fuel used to heat a boiler at former Building 341. The anomaly is anticipated to be a UST due to the anomaly shape, size, and observed pipes that extended from a concrete pad to the anomaly. This work plan addendum details the field, laboratory, and reporting efforts associated with the investigation and planned removal of the suspected UST and includes a sampling and analysis plan (SAP) addendum as Appendix A. Site 34d is the only site discussed in this work plan addendum, however; the title also includes Site 34b as this site was part of the original Work Plan title.

This work plan addendum has been prepared on behalf of the United States Department of the Navy (DON), under Naval Facilities Engineering Command Southwest (NAVFAC SW) Contract Number N62473-10-D-4009, Task Order 0096. Trevet prepared this work plan addendum under subcontract to CB&I Federal Services (CFS). The addition work as part of the RI will also be performed in accordance with the National Oil and Hazardous Substances Contingency Plan; Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA); U.S. Environmental Protection Agency (U.S. EPA) guidance; the San Diego County Department of Environmental Health Site Assessment and Mitigation Manual, and Navy policy. Regulatory agencies, including the California Department of Toxic Substances Control (DTSC) and California Regional Water Quality Control Board, San Diego Region, will also provide oversight for the RI activities. CFS and Trevet will work together to perform the additional RI fieldwork and prepare the RI report, which will include results from the work discussed in this work plan addendum.

## 1.1 Purpose

The purpose of this work plan addendum is to describe the actions planned to remove the suspected UST, clean the tank of residual product, inspect soil adjacent to the suspected UST and pipes to evaluate the extent of potential fuel contamination and to remove the concrete debris that will result from removing the broken concrete slab and sump at the site.

Results from this work plan addendum will be included in the RI report. Based on the findings of this additional field investigation, the RI report will recommend either further action, such as additional characterization, a feasibility study, or a remedial response, or no further action.

## 1.2 IR Site 34d Summary

During the geophysical investigation, which was conducted under the scope of work for the original RI Work Plan (CFS 2015), a large anomaly was detected to the north of the concrete slab for former Building 341 (Figure 2). This anomaly is suspected to be a UST that previously contained, and may still contain, diesel range fuel used to heat a former boiler at the site. Heavy hydrocarbon or diesel fuel was commonly used for heating at military installations in similar settings. The anomaly is consistent with the configuration of a UST in its shape, size, and observed pipes that extended from a concrete pad to the anomaly.

On April 30, 2015, Trevet and CFS personnel were on site to mark out the planned excavations at IR Sites 34b and 34d, and to further review the large anomaly adjacent to former Building 341 that was identified as a suspected UST during the geophysical survey conducted in October 2014. The geophysical survey identified the anomaly as a buried metallic structure with two pipes extending from it to the concrete slab of former Building 341. During the visual review of the anomaly, both Trevet and CFS staff observed two pipes extending from the concrete slab and the paint marks placed on the ground during the geophysical survey that identified the location of the pipes underground. An attempt to expose the pipes adjacent to the slab was conducted to determine pipe depth but the soil was compacted and refusal by shovel was encountered. Both of the pipes extending from the slab were capped with threaded caps and one of the caps was able to be removed and a heavy hydrocarbon odor was identified coming from the pipe. This odor combined with standard uses of diesel or heavy-end hydrocarbons for heating purposes led both Trevet and CFS to assume the anomaly is a UST that previously contained diesel or a similar heating oil that was formerly used to fuel the boiler in former Building 341 and the pipes were used to convey the fuel from the suspected UST to the boiler.

## 1.3 Objectives

The objectives of the this work plan addendum is to remove and dispose of the suspected UST and associated piping, evaluate the extent of hydrocarbon contamination in the soil adjacent to and under the UST and associated piping, and also to remove and dispose of the concrete slab of Building 341 and broken concrete from removal of the three-stage sump.

## 1.4 Scope of Work

The technical approach for this investigation is designed to remove remnant fuel (if any) from the suspected UST and associated piping; clean the tank and associated piping of residual product prior to disposal; remove and dispose of the UST, associated piping, the concrete from the former building 341 slab, and the concrete from the nearby three-stage sump; collect soil samples adjacent to and under the UST and associated piping and analyze them for total petroleum hydrocarbon in the extractable range (TPH-E), which will be reported as TPH-diesel

(TPH-D) and TPH-motor oil (TPH-MO) to determine the extent of fuel release (if any) from the UST and piping. A subset of the samples will also be analyzed for polyaromatic hydrocarbons (PAHs) including naphthalene, as described further in Section 3.5 of the Work Plan Addendum.

The work performed under this work plan will be overseen by a California-licensed professional geologist or engineer. CB&I will be conducting the excavation and removal activities under hazardous substances removal certificate license number 998883. Field work will begin following approval of the work plan addendum by the DON and regulatory agencies and receipt of an authorization to proceed from DON.

Following receipt of validated analytical data from both the work conducted under the initial work plan and under this addendum, an RI report will be prepared. The RI report will document the field work and will include an evaluation of the data collected during the RI and previous investigations.

## 1.5 Work Plan Organization

This work plan includes discussions of the site background, notification requirements, soil investigation procedures, waste management, reporting, and project management activities conducted for the project. The SAP is included as Appendix A. The work plan is organized as follows:

- Section 1.0 Introduction
- Section 2.0 Site Description
- Section 3.0 Field Sampling Plan
- Section 4.0 Project Management Plan
- Section 6.0 References

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# Section 2 Site Description

NAVWPNSTA Seal Beach Det. Fallbrook is located approximately 53 miles north of San Diego, California, in northern San Diego County. It is approximately 9 miles inland from the Pacific Ocean and adjoins a portion of the eastern border of Marine Corps Base Camp Pendleton. The installation occupies 8,852 acres and is secured by a chain-link fence. The location of the installation and IR Sites 34b and 34d are shown on Figure 1.

Historical information obtained during preparation of the Preliminary Assessment (Malcolm Pirnie 2006) indicated that IR Site 34d was reportedly used as a disposal or burial area for dunnage from 1942 until 1978. In addition to the possible disposal of dunnage, at least three structures were known to have existed at the site, Buildings 341, 430 and 325, which were potentially identified as a former restroom, a former boiler house, and a former wooden ammunition magazine, respectively (Figure 2). Currently, manmade features at IR Site 34d consist of the remnants of a building slab (Building 341) and a below-grade, three-stage concrete sump (Building 430). A clay drainpipe extends west from the sump toward a small tributary that drains to Fallbrook Creek. The slab of former Building 341 was inspected and appeared to be the remnant of a restroom (ChaduxTt 2010).

The suspected UST and associated piping (detected during the geophysical investigation) are located to the north, northwest of the former Building 341 concrete slab (Figure 2). The piping can be observed exiting the concrete slab and was detected underground running in a north to northwest direction towards the geophysical anomaly (suspected UST). The anomaly was detected approximately 25 feet to the northwest of the former Building 351 concrete slab (Figure 2).

Other information regarding the location, geology and hydrology, ecological and environmental setting, previous investigations and background, and current site conditions is presented in the original Work Plan (CFS 2015).

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# Section 3 Field Sampling Plan

This section describes the methodology for conducting the addendum to the RI at IR Site 34d, NAVWPNSTA Seal Beach Det. Fallbrook, including the methods and procedures for implementation during field operations.

## 3.1 Health and Safety

The fieldwork will be conducted in accordance with the Accident Prevention Plan (CFS 2014) prepared for this project. The Accident Prevention Plan describes the safety requirements for investigation activities at the subject sites and includes a Site-specific Safety and Health Plan (SSHP) and activity hazard analyses. As required, each field worker on this project will have undergone Occupational Safety and Health Administration 40-hour Hazardous Waste Operation and Emergency Response training. A copy of the plan will be available on site during work activities. Prior to initiating fieldwork, all field personnel will be required to read the Accident Prevention Plan, SSHP, and activity hazard analyses. Air monitoring will be conducted using a combustible gas indicator which will be calibrated according to manufacturer's specifications on a daily basis and be used to monitor the UST and head space for hazardous environments. Health and safety meetings will be conducted with all on-site personnel each day of field activities. All field personnel will attend a NAVWPNSTA Seal Beach Det. Fallbrook hazard control brief pursuant to base explosive safety requirements.

## 3.2 Pre-Field Coordination

All field activities will be coordinated with the following:

- Ms. Pei-Fen Tamashiro, NAVWPNSTA Seal Beach, (562) 626-7897
  pei-fen.tamashiro@navy.mil

Under CERCLA cleanups, federal, state, or local permits are exempted for on-site response actions. NWS Seal Beach Detachment Fallbrook fire department will be notified prior to cutting the UST piping.

## 3.3 Site Preparation for Intrusive Investigation

The locations of the suspected UST and piping were identified during the geophysical survey, and the geophysical contractor marked the ground with paint and documented the locations in pictures. The proposed locations for the excavations (UST and piping excavations) were selected to include areas required to remove the suspected UST and the associated distribution pipes. On April 30, 2015, CFS and Trevet placed wooden stakes at the locations of the excavations in case the paint was washed away or otherwise disturbed. Before excavation begins,

the anomaly markings will be verified. If the markings have been disturbed or are no longer visible, a limited geophysical survey will be performed to verify the position of the anomaly.

An investigation derived waste (IDW) staging area will be selected prior to initiating fieldwork. The staging area will be used to store IDW generated (including the UST and piping) during field efforts. IDW staging area will likely be established at IR Site 34d.

## 3.4 Tank Removal, Excavation, and Backfilling Activities

Initial site activities for the work discussed in this addendum will include an assessment of the contents of the UST and the piping. Initially, the surface soil around the suspected UST will be removed. If the structure is indeed a UST, it will be exposed so that an access port or top hatch or other filling portholes can be observed and then opened to estimate the quantity of fuel, if any, remaining in the UST. The UST will be vented slowly so that any pressure differential will be relieved gradually. A PID and explosimeter will be used to evaluate potentially hazardous gases vented from the UST and piping. Once an estimate of the residual fuel has been performed, the fuel (if any is observed to be left in the tank) will be removed and placed into Department of Transportation (DOT) approved 55-gallon drums and stored on-site pending disposal. The tank and associated piping will then be rinsed with a power washer to further remove the residual fuel. During the washing process, the UST and work area will be continuously monitored for hazardous gases and explosive conditions. The lower explosive limit (LEL) will be monitored and maintained below 20 percent with dry ice as appropriate. This process will continue until the residual fuel has been removed, to the extent practical, from the UST and associated piping. The mixture of fresh water and fuel will also be placed in DOT approved 55-gallon drums and temporarily stored on-site pending disposal. If the UST contains soil or other solids, the solids will be removed before further work.

Once the UST and piping have been emptied and rinsed, the piping will be cut from the UST and excavations will be conducted to remove the piping and the UST from the soil. Prior to removing the UST, a site walk will be conducted to ensure there are no ignition sources present. Prior to any cutting or removal, the UST will be inerted using dry ice and the LEL will be maintained below 20 percent. Calculations will be conducted once the UST is excavated to determine the size of the UST. If potentially explosive atmospheric conditions are noted during monitoring with a combustible gas indicator, then the tank will be inerted using dry ice. A conversion of 15 pounds of dry ice per 1000 gallons (UST size) will be used to initially determine the quantity of dry ice needed to inert the atmosphere within the UST, and atmospheric monitoring will be used to assure that the tank remains inert. The soil from the excavations will be placed off to the side, at a distance that will prevent excessive loading on the face of the excavation (at least 5 feet). The overburden soil removed from above the UST and piping will be stockpiled in one pile while any soil excavated from below the UST and piping will be placed on plastic sheeting in a

separate stockpile and characterized to assess if suitable for use as backfill. Stockpile areas will be bermed with soil and covered in plastic sheeting prior to placement of a stockpile. Additionally, the stockpiles will be covered with plastic to prevent rain from entering the stockpile. Alternatively soil and/or concrete may be loaded directly into containers (drums or roll-off bins) for characterization, rather than stockpiled. Overburden soil is assumed to be clean and will be used as backfill. The pipe and the UST will be removed from the excavations and placed on plastic sheeting to await disposal.

The excavations created during the pipe and UST removal will be limited to the depth and width required to remove the pipe and UST only. It is not the intent of this project to remove soil that has been impacted by a potential release from the pipe and/or the UST, however if a release is identified, some impacted soil may be removed in an attempt to evaluate the lateral and vertical extent of the impact. The soil within the excavations will however be inspected for staining, discoloration, and odor and any observed anomalies will be noted for future planning. Additionally, soil samples will be collected from the soil that was around the UST and distribution pipes to evaluate the extent of fuel contamination.

All of the areas requiring backfilling (the UST and distribution piping excavations along with the three-stage sump void space) will be backfilled with soil obtained from the excavation itself. Once all the excavated soil has been used for backfilling, additional soil from the site will be used to fill and grade the area so that no depressions remain and water does not pond in the area. There are no plans to test this locally available soil prior to emplacement in the excavations/void space. An attempt will be made to not create any significant depressions or holes from the borrowed soil areas.

Other field support activities will include characterizing and managing IDW. The additional IDW that will be generated as part of this work plan addendum is the potential residual fuel in the UST and pipes, solids from the UST and piping, cleaning fluids generated during rinsing, and the UST and piping themselves, and any soil removed from beneath the tank or piping. The residual fuel, rinse water mixture, and tank solids will be sampled, characterized, and disposed of in accordance with state and federal waste generation guidelines. All hazardous waste generated and disposed of under this Work Plan will be transported by a licensed hazardous waste hauler. The UST and piping will be hauled to an appropriate facility for recycling or disposal. Waste manifests documenting the disposition of all hazardous wastes generated will be included in the forthcoming RI report for the site. If the tank is recycled, documentation of that recycling will be provided.

### 3.4.1 Soil Sampling

Soil sampling and analysis will be performed to evaluate soil adjacent to the suspected UST and piping to confirm potential hydrocarbon contaminants. The technical approach for sample

collection and analysis assume that the suspected UST was used for storage of petroleum hydrocarbon fuel.

A total of up to 24 soil samples are anticipated to be collected from these excavations at IR Site 34d to characterize the impact of a potential release around the tank and pipe delivery system. Five soil samples are planned from the UST excavation and six soil samples collected from the delivery pipe excavation. In addition, up to 13 soil samples may be collected in areas where a release is suspected, based on visual or olfactory observations, or on the results from screening with a PID. Of the five samples collected from the UST excavation, one sample will be collected from each of the four sides of the tank and one from the middle of the tank footprint. The approximate proposed sample locations are shown on Figure 3. The depth of the sidewall sample locations will be determined based on the presence of visual staining, odors, elevated PID readings, or fluids/groundwater.

Samples will be collected using the excavator bucket to bring soil from desired locations to ground surface. These samples will then be collected from the excavator bucket using a disposable plastic scoop to transfer soil into a laboratory-supplied container. If contamination is encountered during the excavation, then the bucket will be decontaminated between samples as described below in Section 3.6. This method will limit the need to slope, bench, or shore the excavation or conduct air monitoring within the UST excavation since no human will be entering the excavation. This method is anticipated to be used for the UST excavation only since it is anticipated to be greater than 4 feet in depth. Samples from the piping excavation will be collected directly without the aid of the excavator using disposable plastic scoops to transfer soil into a laboratory-supplies container since this excavation is anticipated to be less than 4 feet deep.

## 3.5 Sample Analysis

Soil samples will be analyzed by the analytical laboratory following the methods and procedures outlined in the SAP addendum (Appendix A) and as described below.

All soil samples from the suspected UST and piping excavation will be analyzed for TPH-E by U.S. EPA Method 8015. The TPH results will be reported as TPH-E, diesel fuel and motor oil carbon ranges. The sample from each of the excavation areas (piping and the UST) reporting the highest concentration of TPH-E will be additionally analyzed for PAHs including naphthalene, by U.S. EPA method 8270C SIM. U.S. EPA method 8260B will be added to a single sample collected from the area of the UST excavation, and a single sample from the removal of the piping system. A combination of visual screening and use of a PID will determine the sample from each area most likely to contain volatile contamination. If groundwater is encountered in the UST excavation, a sample will be collected using a new disposable bailer and analyzed for TPH by U.S. EPA method 8015, PAH by U.S. EPA method 8270C, and VOCs by U.S. EPA

method 8260B. Quality control samples will be collected including one matrix spike/matrix spike duplicate per 20 samples. Further information regarding the sample analysis and methods is presented in the attached SAP addendum (Appendix A).

## 3.6 Equipment Decontamination

The excavator bucket is the only proposed piece of non-disposable equipment that will come in contact with the sampling media during the sampling. Therefore, it is the only piece of equipment that will be decontaminated. The bucket will be decontaminated in between excavation areas using a physical removal of soil procedure in accordance with the following step:

1. **Physical removal of soil.** This step will remove visible soil from the equipment. The soil will be brushed off the bucket in the area of the excavation to keep the potentially impacted soil in the area of the excavation.

## 3.7 Reporting and Data Submission

All data collected in accordance with this work plan addendum will be include in the RI report, which will be prepared to document the RI activities and data collected, summarize the results and findings, describe the nature and extent of contamination, and present recommendations for follow-up actions. Further information regarding aspects of the RI report are included in the Work Plan (CFS 2015).

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# Section 4 Project Management Plan

This section presents the site management structure, project organization, key personnel, and schedule.

## 4.1 Project Organization and Key Personnel

The project team consists of the CFS program manager and Trevet's project manager, field team lead, site safety and health officer, and quality assurance manager. The bullets below outline the project team member's roles.

- The CFS program manager, Rich Wong, will provide overall project guidance and will facilitate interaction between the DON and subcontractors.
- Trevet's project manager, John Willis, will have overall responsibility for all aspects of the project and for communications between Trevet, CFS, and the DON.
- Day-to-day operations and subcontractor oversight is the responsibility of the field team leader (to be determined), who will report to the project manager on a regular basis.
- The site safety and health officer (to be determined) will have responsibilities including oversight and review of all SSHPs, plan implementation, and policy conformance by all field personnel and subcontractors at the site.
- The quality assurance manager, Gerald Tamashiro, is responsible for all contractual quality assurance and quality control requirements as well as in-house quality assurance requirements for project deliverables and subcontractor work products.
- Technical review will be conducted by an in-house senior staff member to assure that all documents are reviewed and internally consistent prior to submittal to the DON.

A project organization chart is provided in Worksheet #5 of the SAP addendum (Appendix A).

## 4.2 Project Schedule

This addendum to the RI field investigation is anticipated to be conducted in January 2015.

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# Section 5 References

CB&I Federal Services (CFS). 2014. Draft Accident Prevention Plan, Site Inspections at IR Sites 30, and 31, Extended Site Inspection at IR Site 32, and Remedial Investigation and Focused Feasibility Study at IR Sites 34B and 34D, Naval Weapons Station Seal Beach Detachment Fallbrook. August.

_____. 2015. Final Work Plan. Remedial Investigation IR Sites 34b and 34d Naval Weapons Station Seal Beach Detachment Fallbrook Fallbrook, California. May.

ChaduxTt. 2010. Site Inspections Report for Installation Restoration Program Sites 32, 34b, 34d, and 34e and Munitions Response Program Sites UXO1, UXO2, UXO3, UXO4, UXO6, and UXO7, Naval Weapons Station Seal Beach Detachment Fallbrook, Fallbrook, California. May 19.

Malcolm Pirnie, Inc. 2006. Preliminary Assessment for the Munitions Response Program, Naval Weapons Station Seal Beach Detachment Fallbrook, California. June.

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# Figures

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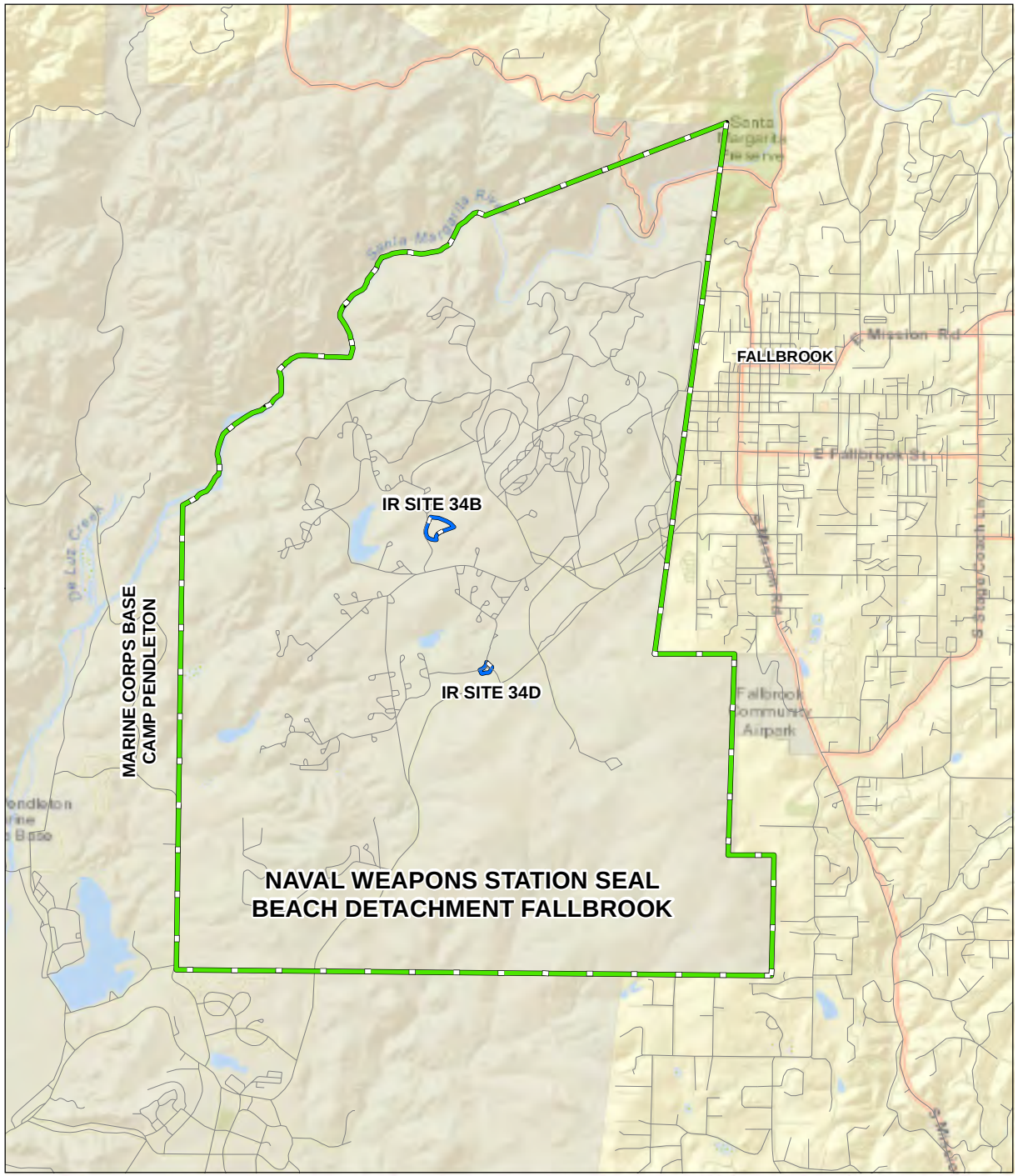


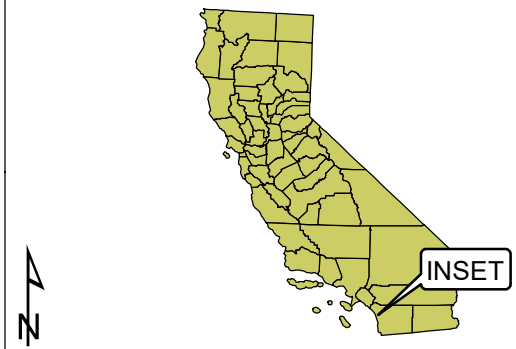


**LEGEND**

IR SITE BOUNDARY

NAVAL WEAPONS STATION SEAL
BEACH DETACHMENT FALLBROOK

N

GRAPHIC SCALE

0 0.5 1.0 2.0

( IN MILES )

1 INCH = 1.0 MILES

DEPARTMENT OF THE NAVY
NAVAL FACILITIES
ENGINEERING COMMAND

SAN DIEGO, CALIFORNIA

NAVFAC

NAVAL WEAPONS STATION SEAL BEACH
DETACHMENT FALLBROOK
FALLBROOK, CALIFORNIA

# FIGURE 1

SITE LOCATION MAP

TREVET

DATE: FEBRUARY 2016

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DELIVERY ORDER: 0096

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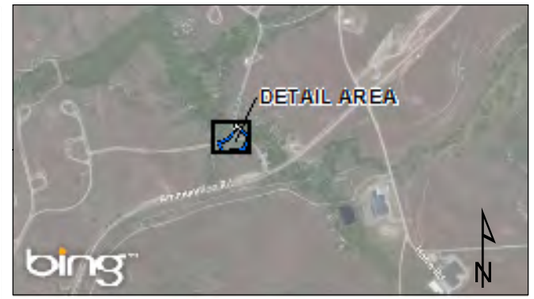


**LEGEND**

- APPROXIMATE EXTENT OF PROPOSED EXCAVATION
- APPROXIMATE LOCATION OF BURIED METALLIC STRUCTURE (ANTICIPATED UST)
- APPROXIMATE LOCATION OF FORMER BUILDING
- APPROXIMATE LOCATION OF FORMER BUILDING 430 3-STAGE CONCRETE SUMP
- APPROXIMATE LOCATION OF FORMER FUEL TRANSFER PIPE
- IR SITE 34D BOUNDARY

**NOTES:**
IR - INSTALLATION RESTORATION
UST - UNDERGROUND STORAGE TANK
**SOURCE:**
GOOGLE MAPS AERIAL IMAGE

N

GRAPHIC SCALE
0 20 40 80
( IN FEET )
1 INCH = 40 FEET

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH
DETACHMENT FALLBROOK
FALLBROOK, CALIFORNIA

# FIGURE 2

PROPOSED EXCAVATION LOCATIONS AT IR SITE 34D

TREVET

DATE: FEBRUARY 2016

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**LEGEND**

- APPROXIMATE EXTENT OF PROPOSED EXCAVATION
- APPROXIMATE LOCATION OF BURIED METALLIC STRUCTURE (ANTICIPATED UST)
- APPROXIMATE LOCATION OF FORMER BUILDING
- APPROXIMATE LOCATION OF FORMER BUILDING 430 3-STAGE CONCRETE SUMP
- APPROXIMATE LOCATION OF FORMER FUEL TRANSFER PIPE
- IR SITE 34D BOUNDARY
- APPROXIMATE LOCATION OF PROPOSED SAMPLES

**NOTES:**
IR - INSTALLATION RESTORATION
UST - UNDERGROUND STORAGE TANK
**SOURCE:**
GOOGLE MAPS AERIAL IMAGE

N

GRAPHIC SCALE
0 5 10 20
( IN FEET )
1 INCH = 10 FEET

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH
DETACHMENT FALLBROOK
FALLBROOK, CALIFORNIA

# FIGURE 3

PROPOSED SAMPLE LOCATION

TREVET

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# Appendix A: Addendum Sampling and Analysis Plan

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FINAL

# Addendum 1
# Sampling and Analysis Plan
# Remedial Investigation at IR Sites 34b and 34d

## Naval Weapons Station Seal Beach Detachment Fallbrook
## Fallbrook, California

**March 2016**

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**San Diego, California 92126**

## SAP Worksheet #1 — Title and Approval Page

**FINAL**
**ADDENDUM 1**
**SAMPLING AND ANALYSIS PLAN**
**(Field Sampling Plan and Quality Assurance Project Plan)**

**March 2016**

**Remedial Investigation at**
**IR Sites 34b and 34d**
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**In Coordination with:**
**Trevet**

Reviewed By: _____ 3/3/2016

Gerald Tamashiro
Quality Control Manager
Trevet

Date

Approved By: SOLOMON.JUDITH.A.1461885000

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Date: 2016.03.08 11:04:25 -05'00'

Judy Solomon
Acting Quality Assurance Officer
NAVFAC SW

Date

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## Executive Summary

In association with Trevet, CB&I Federal Services [CFS] has prepared this Addendum to the Final Sampling and Analysis Plan (SAP) for Remedial Investigation at IR Sites 34b and 34d to address the investigation and planned removal of an anomaly that was identified during the geophysical investigation, which was conducted as part of the remedial investigation (RI) at Installation Restoration (IR) Program Site 34d. The original SAP was prepared under the contract number N62473-10-D-4009 (Document Control Number [DCN] CBI-4009-0096-2146).

The anomaly encountered during the geophysical investigation is indicative of an underground storage tank (UST) that previously, and may still contain, petroleum fuel used to heat a former boiler at the site. The anomaly is anticipated to be a UST due to the anomaly shape, size, and observed pipes that extended from a concrete pad to the anomaly. This SAP Addendum was prepared to include the sampling and analysis of up to 24 soil samples to characterize the extent of potential impacts associated with the suspected UST and piping. If groundwater is encountered during excavation of the UST, a groundwater sample will be collected to determine if the groundwater has been impacted by the UST.

This addendum will be used in conjunction with the original SAP. All policies and procedures set forth in the original SAP that are not modified in this addendum will remain in effect.

The following worksheets (WS) have been updated and are included in this Addendum1:

- SAP WS #10 – Conceptual Site Model
- SAP WS #11 – Project Quality Objectives/Systemic Planning Process Statements
- SAP WS #14 – Summary of Project Tasks
- SAP WS #15 – Reference Limits and Evaluation Table
- SAP WS #17 – Sampling Design and Rationale
- SAP WS #18 – Sampling Locations/IDs, Sample Depths, Sample Analyses, and Sampling Procedures Table
- SAP WS #20 – Field Quality Control Sample Summary Table
- SAP WS #24 – Analytical Instrument Calibration Table
- SAP WS #25 – Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table
- SAP WS #27 – Sample Custody Requirements Table
- SAP WS # 28 – Laboratory Quality Control Samples Table
- SAP WS #30 – Analytical Services Table
- SAP WS #36 – Analytical Data Validation (Step IIa and IIb) Summary Table

## Executive Summary (continued)

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## SAP Worksheets Page#



## List of Figures



## Attachments:

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## Acronyms and Abbreviations

| | |
|---|---|
| CAS | Chemical Abstract Service |
| CCV | continuing calibration verification |
| CFS | CB&I Federal Services |
| CLP | Contract Laboratory Program |
| COD | coefficient of determination |
| DCN | document control number |
| DL | detection limit |
| DQO | data quality objective |
| Emax | EMAX Laboratories, Inc. |
| ESL | Environmental Screening Level |
| FID | flame ionization detector |
| GC | gas chromatography |
| ICAL | initial calibration |
| ICV | initial calibration verification |
| IR | Installation Restoration |
| LDC | Laboratory Data Consultants, Inc. |
| LOD | limit of detection |
| LOQ | limit of quantitation |
| NFG | National Functional Guidelines |
| PAHs | polycyclic aromatic hydrocarbons |
| QSM | Quality Systems Manual |
| RI | Remedial Investigation |
| RSD | relative standard deviation |
| RSL | Regional Screening Level |
| SAP | Sampling and Analysis Plan |
| SIM | selective ion monitoring |
| SOP | standard operating procedure |
| TPH | total petroleum hydrocarbons |
| TPH-d | total petroleum hydrocarbon as diesel |

## Acronyms and Abbreviations (continued)

| | |
|---|---|
| TPH-e | total petroleum hydrocarbon extractable |
| TPH-mo | total petroleum hydrocarbon as motor oil |
| U.S. EPA | U.S. Environmental Protection Agency |
| UST | underground storage tank |
| WS | worksheet |

# SAP Worksheet #10 — Conceptual Site Model

## 10.1 Problem Definition

During the geophysical investigation, which was conducted under the scope of work for the original Remedial Investigation (RI) Work Plan (CB&I Federal Services [CFS] 2015), a large anomaly was detected to the north of the concrete slab for former Building 341. This anomaly is suspected to be an underground storage tank (UST) that may have previously contained, and may still contain, fuel used to heat a former boiler at the site. Heavy hydrocarbons or diesel fuel was commonly used for heating at military installations in similar settings. The anomaly is consistent with the configuration of a UST in its shape, size, and observed pipes that extended from a concrete pad to the anomaly.

The suspected UST will be removed, and soil adjacent to the suspected UST and associated piping will be inspected to evaluate the extent of potential petroleum contamination.

### 10.2.1 IR Site 34d

The following text is added to Section 10.2.1:

On April 30, 2015, Trevet and CFS staff were on site to mark out the planned excavations at Installation Restoration (IR) Sites 34b and 34d and to further review the large anomaly adjacent to former Building 341 that was identified during the geophysical survey as a suspected UST. The geophysical survey identified the anomaly as a buried metallic structure with two pipes extending from it to the concrete slab of former Building 341. During the visual review of the anomaly, both Trevet and CFS staff observed two pipes extending from the concrete slab and the paint marks placed on the ground during the geophysical survey that identified the location of the pipes underground. An attempt to expose the pipes adjacent to the slab was conducted to determine pipe depth but the soil was compacted and refusal by shovel was encountered. Both of the pipes extending from the slab were capped with threaded caps and one of the caps was able to be removed and a diesel odor was identified coming from the pipe. This odor combined with standard uses of diesel or heavy end hydrocarbons for heating purposes led both Trevet and CFS to assume the anomaly is a UST that previously contained diesel or a similar carbon chain heating oil that was formerly used to fuel the boiler in former Building 341 and the pipes were used to convey the fuel from the suspected UST to the boiler.

The UST and associated piping (detected during the geophysical investigation) are located to the north, northwest of the former Building 341 concrete slab. The piping can be observed exiting the concrete slab and was detected underground positioned in a north, northwest direction and

## SAP Worksheet #10 (continued)

toward the suspected UST. The UST was detected approximately 25 feet to the northwest of the former Building 351 concrete slab (Figure 2).

# SAP Worksheet #11 — Project Quality Objectives/Systematic Planning Process Statement

The following text has been added for the characterization of the suspected UST and associated piping at IR Site 34d.

## 11.1 State the Problem

A large geophysical anomaly that is suspected to be a UST and the associated piping will be removed. Soil adjacent to and under the suspected UST and associated piping will be collected and analyzed to characterize the extent of petroleum hydrocarbon contamination. If groundwater is encountered during the UST excavation then a sample will be collected and analyzed to determine if a release from the UST has impacted groundwater.

## 11.2 Identify the Goals for the Study

The primary decision question for this investigation are:

Is the soil adjacent to the UST and associated piping impacted with petroleum hydrocarbons (TPH) as diesel (TPH-d) and TPH-motor oil (TPH-mo), volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAHs) including naphthalene at concentration above screening criteria?

If groundwater is encountered during excavation of the UST, has groundwater been impacted by a release from the UST?

## 11.3 Identify Information Inputs

Inputs necessary to resolve decision question include the following information resources:

- Validated soil and groundwater (if encountered) data collected from this characterization effort
- Screening criteria listed in WS #15 of the original SAP and this Addendum

## 11.4 Define the Boundaries of the Study

The approximate extent of the suspected UST excavation is 13 feet by 7 feet by 8 feet deep. The excavations will be limited to the depth and width required to remove the UST and associated piping only.

## SAP Worksheet #11 (continued)

### 11.5 Develop the Decision Rules

If the concentrations of TPH-d, TPH-mo, VOCs, or PAHs exceed the project action limits listed in WS #15, then soil surrounding the UST and associated piping will be considered impacted and additional investigation will recommended. Otherwise, no further action will be recommended for the UST and associated piping.

If concentrations of TPH-d or TPH-mo are detected exceeding the project quantification limit as listed in WS#15, then the groundwater will be considered impacted and additional review of the data will be conducted to determine if any additional investigation will be recommended. If VOCs in groundwater exceed the project action limits listed in WS#15, then the groundwater will be considered impacted and additional investigation will be recommended.

### 11.7 Develop the Plan for Obtaining Data

Sampling rationale is discussed in WS #17 of this SAP Addendum.

# SAP Worksheet #14 — Summary of Project Tasks

This worksheet summarizes the project tasks for this characterization.

## 14.1 Major Tasks

The following task is added for the characterization of suspected UST and associated piping at IR Site 34d.

- UST removal
- Soil sampling
- Groundwater sampling (if groundwater is encountered)

## 14.2 UST and Associated Piping Removal

The technical approach for this investigation is designed to remove remnant fuel (if any) from the suspected UST and associated piping; clean the tank and associated piping of residual product prior to disposal; remove and dispose of the UST, associated piping, the concrete from the former building 341 slab, and the concrete from the nearby three-stage sump.

## 14.7 Soil and Sediment Sampling

Section 14.7.4 is added for soil and groundwater sampling during UST removal.

### 14.7.4 UST Removal Soil and Groundwater Sampling

Soil samples will be collected from adjacent to and under the UST and associated piping. A total of up to 24 soil samples will be collected and analyzed for TPH extractable range (TPH-e) which will be reported as TPH-d and TPH-mo. One sample with the highest concentrations of TPH-d or TPH-mo from each from the UST excavation and the piping excavation will be analyzed for PAHs including naphthalene. U.S. EPA method 8260B will be added to a single sample collected from the area of the UST excavation, and a single sample from the removal of the piping system. A combination of visual screening and use of a PID will determine the sample from each area most likely to contain volatile contamination. The excavator bucket will be utilized to bring soil from desired locations to ground surface at the UST excavation. The sampler will then collect soil from the excavator bucket using a disposable plastic scoop to transfer into a laboratory-supplied container. This method is anticipated to be used for the UST excavation only since it is anticipated to be greater than 4 feet in depth. Sidewall samples are not planned but may be taken at the discretion of the field team. If sidewall samples are collected they may be taken from the excavator bucket or directly from the sidewall with a disposable

## SAP Worksheet #14 (continued)

plastic scoop, depending upon the depth of the excavation. Samples are anticipated to be collected from within the excavation using disposable plastic scoops to transfer soil into a laboratory-supplied container for the piping excavation since this excavation is anticipated to be less than 4 feet in depth.

If groundwater is encountered in the UST excavation, a sample will be collected using a new disposable bailer and analyzed for TPH-e by U.S. EPA method 8015B, PAHs by U.S. EPA method 8270C SIM , and VOCs by U.S. EPA method 8260B.

Sample containers will be properly labeled, placed into a resealable plastic bag, and place the sample in a cooler with ice. Then, record the sample number, date, time, and required analyses on the chain-of-custody form and in the field logbook. All entries will be written in indelible blue or black ink.

# SAP Worksheet #15 — Reference Limits and Evaluation Table

**Laboratory: Emax**
**Matrix: Soil**
**Analytical Group: TPH-e**

| Analyte | CAS Number | Project Action Limit (mg/kg) | Project Screening Level Reference | Project Quantitation Limit Goal (mg/kg) | Laboratory-Specific (mg/kg) | | |
|---|---|---|---|---|---|---|---|
| | | | | | LOQ | LOD | DL |
| TPH-d | -3527 [1] | 100 | ESL | 10 | 10 | 5 | 2.5 |
| TPH-mo | -3528 [1] | 100 | ESL | 10 | 10 | 5 | 2.5 |

ESL – Environmental Screening Level based on San Francisco Water Board (Water Board, 2013)

1. This analyte is not registered in the Chemical Abstract Service system. Therefore, The DON assigned a number with the "-" prefix to be used for the Naval Electronic Data Deliverable.

## SAP Worksheet #15 (continued)

**Laboratory: EMAX Laboratory**
**Matrix: Soil**
**Analytical Group: PAHs – U.S. EPA Method 8270C SIM**

| Analyte | CAS Number | Project Screening Level [1] (µg/kg) | Project Screening Level Reference | Project Quantitation Limit Goal (µg/kg) | Laboratory-Specific (µg/kg) | | |
|---|---|---|---|---|---|---|---|
| | | | | | LOQ | LOD | DL |
| 2-Methylnaphthalene | 91-57-6 | 16,000 | LANL | 10 | 10 | 2.5 | 1.25 |
| Acenaphthene | 83-32-9 | 250 | LANL | 10 | 10 | 2.5 | 1.25 |
| Acenaphthylene | 208-96-8 | 120,000 | LANL | 10 | 10 | 2.5 | 1.25 |
| Anthracene | 120-12-7 | 6,800 | LANL | 10 | 10 | 2.5 | 1.25 |
| Benzo[a]anthracene | 56-55-3 | 160 | RSL | 10 | 10 | 2 | 2.45 |
| Benzo[b]fluoranthene | 205-99-2 | 160 | RSL | 10 | 10 | 2.5 | 1.25 |
| Benzo[k]fluoranthene | 207-08-9 | 88 | Cal Modified PRG | 10 | 10 | 2.5 | 1.25 |
| Benzo[g,h,i]perylene | 191-24-2 | 24,000 | LANL | 10 | 10 | 2.5 | 1.25 |
| Benzo[a]pyrene | 50-32-8 | 16 | RSL | 10 | 10 | 2.5 | 1.25 |
| Chrysene | 218-01-9 | 2,400 | LANL | 10 | 10 | 5 | 2.2 |
| Dibenz(a,h)anthracene | 53-70-3 | 16 | RSL | 10 | 10 | 2.5 | 1.25 |
| Fluoranthene | 206-44-0 | 10,000 | LANL | 10 | 10 | 2.5 | 1.25 |
| Fluorene | 86-73-7 | 3,700 | LANL | 10 | 10 | 2.5 | 1.25 |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 160 | RSL | 10 | 10 | 2.5 | 1.25 |
| Naphthalene | 91-20-3 | 1,000 | LANL | 10 | 10 | 2.5 | 1.25 |
| Phenanthrene | 85-01-8 | 5,500 | LANL | 10 | 10 | 2.5 | 1.25 |

## SAP Worksheet #15 (continued)

**Laboratory: EMAX Laboratory**
**Matrix: Soil**
**Analytical Group: PAHs – U.S. EPA Method 8270C SIM**

| Analyte | CAS Number | Project Screening Level [1] (µg/kg) | Project Screening Level Reference | Project Quantitation Limit Goal (µg/kg) | Laboratory-Specific (µg/kg) | | |
|---|---|---|---|---|---|---|---|
| | | | | | LOQ | LOD | DL |
| Pyrene | 129-00-0 | 10,000 | LANL | 10 | 10 | 2.5 | 1.25 |

Background – Background threshold values are from Basewide Metals Background Soil Study (SES-TECH 2012)
Cal Modified PRG – California modified Preliminary Remediation Goal based on DTSC HHRA Note 3 (DTSC 2015)
DTSC – Department of Toxic Substances Control
ESL – Ecological Screening Level
HHRA – Human Health Risk Assessment
LANL – Los Alamos National Laboratory ESL (LANL 2012)
RSL - Regional Screening Level based on U.S. EPA Region 9 Soil criteria (USEPA 2015)

## SAP Worksheet #15 (continued)

**Laboratory: EMAX Laboratory**
**Matrix: Groundwater**
**Analytical Group: TPH-E (diesel and motor oil ranges)**

| Analyte | CAS Number | Project Screening Level (µg/L) | Project Screening Level Reference | Project Quantitation Limit Goal (µg/L) | Laboratory-Specific (µg/L) | | |
|---|---|---|---|---|---|---|---|
| | | | | | LOQ | LOD | DL |
| TPH-diesel range | -3527* | 100 | ESL | 100 | 100 | 50 | 25 |
| TPH-motor oil range | -3528* | 100 | ESL | 500 | 500 | 100 | 50 |

* This analyte is not registered in the Chemical Abstract Service system. Therefore, the DON assigned a number with the "- "prefix to be used for the Naval Electronic Data Deliverable.

** There are no applicable screening criteria for TPH.

ESL – Environmental Screening Level for San Francisco Bay Regional Water Quality Control Board

Na – not applicable.

## SAP Worksheet #15 (continued)

**Laboratory: EMAX Laboratory**
**Matrix: Groundwater**
**Analytical Group: Low Level PAHs – U.S. EPA Method 8270C**

| Analyte | CAS Number | Project Screening Level [1] (µg/L) | Project Screening Level Reference | Project Quantitation Limit Goal (µg/L) | Laboratory-Specific (µg/L) | | |
|---|---|---|---|---|---|---|---|
| | | | | | LOQ | LOD | DL |
| 2-Methylnaphthalene | 91-57-6 | 36 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Acenaphthene | 83-32-9 | 5,300 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Acenaphthylene | 208-96-8 | 30 | ESL | 0.02 | 0.02 | 0.01 | 0.005 |
| Anthracene | 120-12-7 | 1,800 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Benzo[a]anthracene | 56-55-3 | 0.012 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Benzo[b]fluoranthene | 205-99-2 | 0.034 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Benzo[k]fluoranthene | 207-08-9 | 0.034 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Benzo[g,h,i]perylene | 191-24-2 | 0.01 | ESL | 0.02 | 0.02 | 0.01 | 0.005 |
| Benzo[a]pyrene | 50-32-8 | 0.034 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Chrysene | 218-01-9 | 3.4 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Dibenz(a,h)anthracene | 53-70-3 | 0.0034 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Fluoranthene | 206-44-0 | 800 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Fluorene | 86-73-7 | 290 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 0.034 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Naphthalene | 91-20-3 | 0.17 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |
| Phenanthrene | 85-01-8 | 4.6 | ESL | 0.02 | 0.02 | 0.01 | 0.005 |

## SAP Worksheet #15 (continued)

**Laboratory: EMAX Laboratory**
**Matrix: Groundwater**
**Analytical Group: Low Level PAHs – U.S. EPA Method 8270C**

| Analyte | CAS Number | Project Screening Level [1] (µg/L) | Project Screening Level Reference | Project Quantitation Limit Goal (µg/L) | Laboratory-Specific (µg/L) | | |
|---|---|---|---|---|---|---|---|
| | | | | | LOQ | LOD | DL |
| Pyrene | 129-00-0 | 120 | RSL | 0.02 | 0.02 | 0.01 | 0.005 |

ESL – Environmental Screening Level for San Francisco Bay Regional Water Quality Control Board
RSL – Region 9 Risk Based Screening Table. The listed level is based on the tapwater screening values.

## SAP Worksheet #17 — Sampling Design and Rationale

After the removal of UST and associated piping has been completed, soil samples from the excavations will be inspected to determine, within reason, the extent of diesel contamination.

A total of up to 24 soil samples are anticipated to be collected from both UST and pipe excavations at IR Site 34d for characterization. At least five soil samples will be collected from the UST excavation and six soil samples will be collected from the pipe excavation. Of the five samples collected from the UST excavation, one sample will be collected from each of the four sides of the tank and one from the middle of the tank footprint. The proposed sample locations are shown on Figure 2.

In addition, up to 13 samples may be collected in areas believed to have been impacted by a release based on visual, olfactory, or results from the photoionization detector.

All soil samples will be analyzed for TPH-e using U.S. EPA method 8015B. One sample with the highest concentrations of TPH-d or TPH-mo each from the UST excavation and the pipe excavation will be analyzed for PAHs (including naphthalene) using U. S. EPA method 8270C selective ion monitoring (SIM). U.S. EPA method 8260B will be added to a single sample collected from the area of the UST excavation, and a single sample from the removal of the piping system. A combination of visual screening and use of a PID will determine the sample from each area most likely to contain volatile contamination. If groundwater is encountered in the UST excavation, a sample will be collected using a new disposable bailer and analyzed for TPH by U.S. EPA method 8015B, PAHs by U.S. EPA method 8270C SIM and VOCs by U.S. EPA method 8260B.

## SAP Worksheet #17 (continued)

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# SAP Worksheet #18 — Sampling Locations/IDs, Sample Depths, Sample Analyses and Sampling Procedures Table

| Sampling Location/ ID Number* | Matrix | Depth (feet) | Analytical Group[1] | Sampling SOP Reference |
|---|---|---|---|---|
| 34d-UST-FL-1 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-UST-FL-2 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-UST-FL-3 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-UST-FL-4 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-UST-FL-5 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-P-FL-1 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-P-FL-2 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-P-FL-3 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-P-FL-4 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-P-FL-5 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo) | SAP Worksheet #14 |

## SAP Worksheet #18 (continued)

| Sampling Location/ ID Number* | Matrix | Depth (feet) | Analytical Group[1] | Sampling SOP Reference |
|---|---|---|---|---|
| | | | One sample with highest TPH-e from each excavation will be analyzed for PAHs | |
| 34d-P-FL-6 | Soil | TBD | TPH-e (reported as TPH-d and TPH-mo)<br>One sample with highest TPH-e from each excavation will be analyzed for PAHs | SAP Worksheet #14 |
| 34d-UST-GW-1 | Groundwater | TBD (if encountered) | VOCs, TPH-e (reported as TPH-d and TPH-mo), and PAHs. | SAP Worksheet #14 |

* - Up to 13 additional soil samples may be collected based on field observation of potential contamination.

[1] - U.S. EPA method 8260B will be added to a single sample collected from the area of the UST excavation, and a single sample from the removal of the piping system. A combination of visual screening and use of a PID will determine the sample from each area most likely to contain volatile contamination.

TBD - Actual depth of soil samples collected from the excavation will be determined in the field based on observations. Soil samples collected from underneath the pipeline are anticipated to be shallower than 4 feet bgs.

## SAP Worksheet #19 — Analytical Methods, Containers, Preservatives, and Holding Times Table

| Matrix | Analytical Group | Analytical and Preparation Method/SOP Reference | Containers (number, size, and type) | Preservation Requirements (chemical, temperature, etc.) | Maximum Holding Time (preparation/ analysis) |
|---|---|---|---|---|---|
| Soil | TPH-e | U.S. EPA Method 8015B EMAX-8015D | One 8 ounce Jar | Cool, 2 to 6°C | 14 days for extraction/40 days for analysis |
| Soil | PAHs | U.S. EPA Method 8270C SIM EMAX-8270SIM | | | 14 days for extraction/40 days for analysis |
| Soil | VOCs | U.S. EPA Method 5030/8260B EMAX-8260 | Three 5-gram Encore samplers | Cool, 2 to 6°C | 14 days for analysis |
| Groundwater (if encountered) | TPH-e | U.S. EPA Method 8015B EMAX-8015D | Two 1-liter glass amber | Cool, 2 to 6°C | 7 days extraction/40 days for analysis |
| Groundwater (if encountered) | PAHs | U.S. EPA Method 8270C SIM EMAX-8270SIM | Two 1-liter glass amber | Cool, 2 to 6°C | 7 days extraction/40 days for analysis |
| Groundwater (if encountered) | VOCs | U.S. EPA Method 5030/8260B EMAX-8260 | Three 40-milliliter VOA vials | HCL to pH<2, Cool, 2 to 6°C | 14 days for analysis |

## SAP Worksheet #19 (continued)

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## SAP Worksheet #20 — Field Quality Control Sample Summary Table

| Matrix | Analytical Group | Analytical/ Preparation SOP Reference | # of Primary Sampling Locations | # of Field Duplicates | # of Matrix Spike/Matrix Spike Duplicates | # of Field Blanks | # of Equip. Rinsates | # of Trip Blanks | Total # of Samples to Lab |
|---|---|---|---|---|---|---|---|---|---|
| Soil | TPH-e | EMAX-8015D | 11* | 0 | 1 | 0 | 0 | 0 | 12 |
| Soil | PAHs | EMAX-8270SIM | 2 | 0 | 1 | 0 | 0 | 0 | 3 |
| Soil | VOCs | EMAX-8260B | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| Groundwater | TPH-e | EMAX-8015D | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Groundwater | PAHs | EMAX-8270SIM | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Groundwater | VOCs | EMAX-8260B | 1 | 0 | 0 | 0 | 0 | 1 | 2 |

* - Up to 13 additional soil samples may be collected based on field observation of potential contamination.

## SAP Worksheet #20 (continued)

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## SAP Worksheet #23 — Analytical SOP References Table

| Laboratory SOP Number [1] | Title, Revision Date, and/or Number | Definitive or Screening Data | Matrix and Analytical Group | Instrument | Organization Performing Analysis | Modified for Project Work? (Y/N) | Laboratory SOP Compliant with QSM? (Y/N) |
|---|---|---|---|---|---|---|---|
| EMAX-8015D | Diesel Range Organics, Revision 6, 9/25/15 | Definitive data | Soil/Water TPH-e | GC-FID | Emax | N | Y |
| EMAX-8270SIM | Semivolatile Organics by GC/MS SIM, Revision 2, 6/15/15 | Definitive data | Soil/Water PAHs | GC/MS | Emax | N | Y |
| EMAX-8260 | Volatile Organics by GC/MS, Revision 10, 6/1/15 | Definitive data | Soil/Water PAHs | GC/MS | Emax | N | Y |

1. Analytical laboratory SOPs will be provided on CD with the final version of the SAP.

FID – flame ionization detector

GC – gas chromatography
TPH – total petroleum hydrocarbons
QSM – Quality System Manual (DoD 2013)

## SAP Worksheet #23 (continued)

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## SAP Worksheet #24 — Analytical Instrument Calibration Table

| Instrument | Calibration Procedure | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| GC | ICAL | Initial calibration prior to sample analysis and as needed. | One of the following options:<br>1) RSD for all analytes ≤20%<br>2) linear – least squares regression r > =0.995<br>3) non-linear – COD > 0.990 (6 points shall be used for second order, 7 points shall be used for third order) | Locate the source of the problem. If expected RSD is not met, check for standard degradation or perform instrument adjustment and/or maintenance to correct the problem then repeat initial calibration | EMAX Analyst | EMAX-8015D |
| GC | ICV | Once after each initial calibration | All project analytes within established retention time windows.<br>GC Methods: All project analytes within ±20% of expected value from ICAL. | Prepare fresh standard and re-analyze ICV to rule out standard degradation or inaccurate injection. If problem persist perform instrument adjustment and/or maintenance to correct the problem and repeat ICAL. | EMAX Analyst | EMAX-8015D |

## SAP Worksheet #24 (continued)

| Instrument | Calibration Procedure | Frequency of Calibration | Acceptance Criteria | Corrective Action (CA) | Person Responsible for CA | SOP Reference |
|---|---|---|---|---|---|---|
| GC | CCV | Daily, before sample analysis, after every 10 field samples, and at the end of analysis sequence. | All project analytes within established retention time windows.<br>GC Methods: All project analytes within ±20% of expected value from ICAL. | Diagnose problem. Prepare fresh standard and re-analyze CCV to rule out standard degradation or inaccurate injection. If problem persist perform instrument adjustment and/or maintenance to correct the problem. Reanalyze all samples since last successful CCV. If problem persists, repeat ICAL. | EMAX Analyst | EMAX-8015D |

CCV – continuing calibration verification
COD – coefficient of determination
ICAL – initial calibration
ICV – initial calibration verification
RSD – relative standard deviation

## SAP Worksheet #25 — Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

| Instrument/ Equipment | Maintenance Activity | Testing Activity | Inspection Activity | Frequency | Acceptance Criteria | Corrective Action | Responsible Person | SOP Reference |
|---|---|---|---|---|---|---|---|---|
| GC | Parameter Setup | Physical check | Example:<br>Check that the autosampler is functioning as expected<br><br>Check that temperature program is set at the most recently determined optimum condition. | Initially; prior to each use | Autosampler must move to the expected position when activated.<br>Refer to instrument optimize temperature program setup. | Reset to SOP set-up, if parameter checks reveal deviations. Notate all adjustments in Daily Maintenance Log.<br><br>Examples:<br>Reset autosampler, if problem persist. Perform autosampler troubleshooting prior to instrument use.<br>Reset to optimized temperature setup, then the instrument setting must be on that condition when checked. | EMAX Analyst | EMAX-8015D |

## SAP Worksheet #25 (continued)

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# SAP Worksheet #27 — Sample Custody Requirements Table

## 27.1 Sample Number

Soil and groundwater (if encountered) samples collected from the UST removal will be uniquely numbered according to the following format:

For UST excavation samples:

- Floor samples: 34d-UST-FL-X

For example, “34d-UST-SW-1”, where “34d” is the site identity, “UST” is UST excavation, “SW-1” is the first sample taken from the sidewall, if sidewall samples are collected.

For pipe excavation samples:

- Floor samples: 34d-P-FL-X

For example, “34d-UST-SW-1”, where “34d” is the site identity, “P” is pipe excavation, “FL-1” is the first sample taken from the floor.

For groundwater sample (if encountered):

- 34d-UST-GW-1

Where “34d” is the site identity, “GW” is groundwater, “1” is the first groundwater sample taken.

## SAP Worksheet #27 (continued)

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# SAP Worksheet #28 — Laboratory Quality Control Samples Table

| | |
|---|---|
| **Matrix:** | Soil |
| **Analytical Group:** | TPH-e |
| **Analytical Method/SOP Reference:** | USEPA Method 8015B/EMAX-8015D |

| QC Sample | Frequency / Number | Method / SOP QC Acceptance Limits | Corrective Action | Person(s) Responsible for Corrective Action | Data Quality Indicator | Measurement Performance Criteria |
|---|---|---|---|---|---|---|
| Method Blank | One per preparatory batch | No analytes detected > ½ LOQ. For common laboratory contaminants, no analytes detected > LOQ. | Reprepare and reanalyze method blank and all samples processed with the contaminated blank. | EMAX Analyst | Accuracy/ Bias - contamination | No analytes detected > ½ LOQ. For common laboratory contaminants, no analytes detected > LOQ. |
| LCS | One per sample preparation batch | Diesel: 60-150% | Reprepare and reanalyze the LCS and all samples in the associated preparatory batch for failed analytes, if sufficient sample is available. | EMAX Analyst | Accuracy.Bias | Diesel: 60-150% |
| MS/MSD | Project designated sample matrix QC | Diesel: 50-140% | If result is indicative of matrix interference, discuss in case narrative. Otherwise, check for possible source of error, and extract / reanalyze the sample. | EMAX Analyst | Interferences – Accuracy/Bias-Precision | Diesel: 50-140% |
| Surrogate | Every analytical sample | Bromobenzene: 50-130%<br>Hexacosane: 60-140% | For QC and field samples, correct problem, then reprepare/reanalyze all failed samples for failed surrogates in the associated preparatory batch if sufficient sample material is available. | EMAX Analyst | Accuracy/Bias | Bromobenzene: 50-130%<br>Hexacosane: 60-140% |

## SAP Worksheet #28 (continued)

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## SAP Worksheet #30 — Analytical Services Table

| Matrix | Analytical Group | Sample Locations/ID Number | Analytical Method | Data Package Turnaround Time | Laboratory/Organization (name and address, contact person and telephone number) | Backup Laboratory/ Organization (name and address, contact person and telephone number) |
|---|---|---|---|---|---|---|
| Soil | TPH-e<br>PAHs | See Worksheet #18 | U.S. EPA 8015B<br>U.S. EPA 8270C SIM | 21 days | EMAX Laboratories<br>1835 W. 205th Street<br>Torrance, CA 90501<br>Contact: Ye Myint<br>(310) 618-8889 | ALS Environmental<br>1317 S. 13th Avenue<br>Kelso, WA 98626<br>Contact: Greg Salata<br>(360) 577-7222 |
| Water | TPH-e<br>VOCS<br>PAHs | See Worksheet #18 | U.S. EPA 8015B<br>U.S. EPA 8260B<br>U.S. EPA 8270C SIM | 21 days | EMAX Laboratories<br>1835 W. 205th Street<br>Torrance, CA 90501<br>Contact: Ye Myint<br>(310) 618-8889 | ALS Environmental<br>1317 S. 13th Avenue<br>Kelso, WA 98626<br>Contact: Greg Salata<br>(360) 577-7222 |

## SAP Worksheet #30 (continued)

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## SAP Worksheet #36 — Analytical Data Validation (Steps IIa and IIb) Summary Table

| Step IIa/IIb | Matrix | Analytical Group | Validation Criteria | Data Validator (title and organizational affiliation) |
|---|---|---|---|---|
| IIa | Soil | TPH-e, VOCs, PAHs | CLP NFG[1], U.S. EPA SW 846[2], and this UFP-QAPP Addendum DoD Stage III for 90% of data and DoD Stage IV for 10% of data | PM, LDC |
| IIb | Soil | TPH-e, VOCs, PAHs | CLP NFG[1], U.S. EPA SW 846[2], and this UFP-QAPP Addendum DoD Stage III for 90% of data and DoD Stage IV for 10% of data | PM, LDC |
| IIa | Water | TPH-e, VOCs, PAHs | CLP NFG[1], U.S. EPA SW 846[2], and this UFP-QAPP Addendum DoD Stage III for 90% of data and DoD Stage IV for 10% of data | PM, LDC |
| IIb | Water | TPH-e, VOCs, PAHs | CLP NFG[1], U.S. EPA SW 846[2], and this UFP-QAPP Addendum DoD Stage III for 90% of data and DoD Stage IV for 10% of data | PM, LDC |

1. USEPA National Functional Guidelines (NFG) for Superfund Organic Method Data Review, August 2014.
2. U.S. EPA SW 846, Third Edition, Test Methods for Evaluation of Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; update IV, January 2008.

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## References

CB&I Federal Services (CFS). 2015. Final Work Plan. Remedial Investigation IR Site 34b and 34d Naval Weapons Station Seal Beach Detachment Fallbrook, California. May.

California Regional Water Quality Control Board, San Francisco Bay Region. 2013. Environmental Screening Levels. Available online at: http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml

DTSC (California Department of Toxic Substances Control). 2015. Human Health Risk Assessment Note Number 3. October.

U. S. Environmental Protection Agency (U.S. EPA). 2014. National Functional Guidelines for Superfund Organic Methods Data Review. OSWER 9355.0-132; EPA-540-R-014-002. Office of Superfund Remediation and Technology Innovation (OSRTI). August.

U.S. EPA. 2015. Regional Screening Levels for Chemical Contaminants at Superfund Sites. November. Available online at: http://www.epa.gov/region09/superfund/prg/index.html.

## References (continued)

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# Figures

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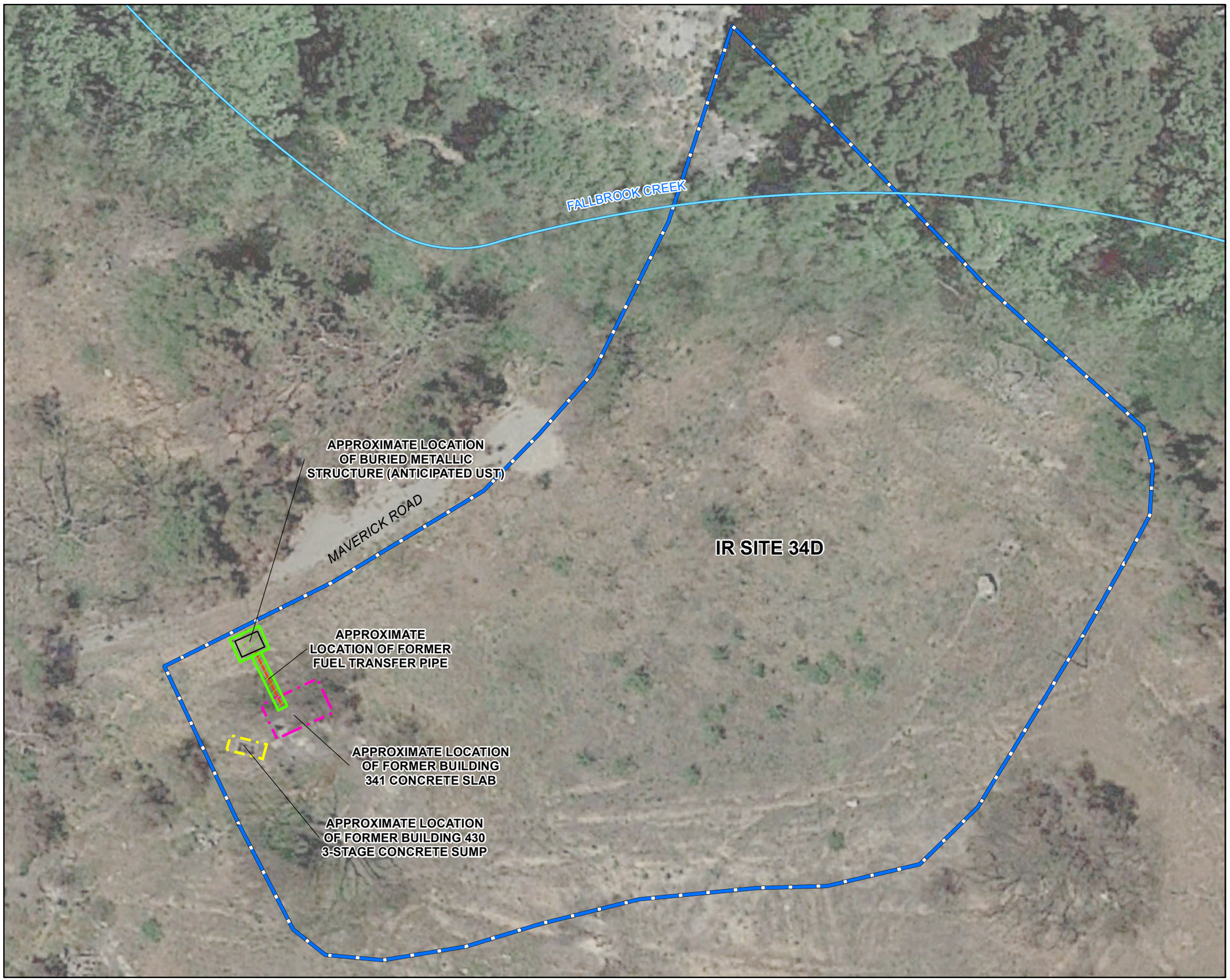



**LEGEND**

- APPROXIMATE EXTENT OF PROPOSED EXCAVATION
- APPROXIMATE LOCATION OF BURIED METALLIC STRUCTURE (ANTICIPATED UST)
- APPROXIMATE LOCATION OF FORMER BUILDING
- APPROXIMATE LOCATION OF FORMER BUILDING 430 3-STAGE CONCRETE SUMP
- APPROXIMATE LOCATION OF FORMER FUEL TRANSFER PIPE
- IR SITE 34D BOUNDARY

**NOTES:**
IR - INSTALLATION RESTORATION
UST - UNDERGROUND STORAGE TANK
**SOURCE:**
GOOGLE MAPS AERIAL IMAGE

N

GRAPHIC SCALE
0 20 40 80
( IN FEET )
1 INCH = 40 FEET

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA
NAVFAC Naval Facilities Engineering Command NAVFAC SOUTHWEST

NAVAL WEAPONS STATION SEAL BEACH
DETACHMENT FALLBROOK
FALLBROOK, CALIFORNIA

# FIGURE 1

PROPOSED EXCAVATION LOCATIONS AT IR SITE 34D

TREVET

DATE: DECEMBER 2015

CONTRACT NO.: N62473-10-D-4009
DELIVERY ORDER: 0096

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MAVERICK ROAD

APPROXIMATE LOCATION OF BURIED METALLIC STRUCTURE (ANTICIPATED UST)

IR SITE 34D

APPROXIMATE LOCATION OF FORMER FUEL TRANSFER PIPE

APPROXIMATE LOCATION OF FORMER BUILDING 341 CONCRETE SLAB

APPROXIMATE LOCATION OF FORMER BUILDING 430 3-STAGE CONCRETE SUMP


**LEGEND**

- APPROXIMATE EXTENT OF PROPOSED EXCAVATION
- APPROXIMATE LOCATION OF BURIED METALLIC STRUCTURE (ANTICIPATED UST)
- APPROXIMATE LOCATION OF FORMER BUILDING
- APPROXIMATE LOCATION OF FORMER BUILDING 430 3-STAGE CONCRETE SUMP
- APPROXIMATE LOCATION OF FORMER FUEL TRANSFER PIPE
- IR SITE 34D BOUNDARY
- APPROXIMATE LOCATION OF PROPOSED SOIL SAMPLES

**NOTES:**
IR - INSTALLATION RESTORATION
UST - UNDERGROUND STORAGE TANK

**SOURCE:**
GOOGLE MAPS AERIAL IMAGE

GRAPHIC SCALE
0 5 10 20
( IN FEET )
1 INCH = 10 FEET

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
SAN DIEGO, CALIFORNIA

NAVAL WEAPONS STATION SEAL BEACH
DETACHMENT FALLBROOK
FALLBROOK, CALIFORNIA

# FIGURE 2

PROPOSED SAMPLE LOCATION

TREVET

DATE: DECEMBER 2015

CONTRACT NO.: N62473-10-D-4009
DELIVERY ORDER: 0096

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## Attachment 3: Analytical Laboratory Standard Operating Procedures

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# Appendix B: Response to Agency Comments

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**RESPONSE TO AGENCY COMMENTS**
**DRAFT WORK PLAN ADDENDUM 1, REMEDIAL INVESTIGATION, IR SITES 34b AND 34d**
**NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT FALLBROOK, CALIFORNIA**
**Work Plan Addendum 1 Document Dated January 2016 – Water Board Comments**

| | |
|---|---|
| **Ms. Beatrice Griffey, Engineering Geologist, Northern Cleanup Unit**<br>**Received by Email February 5, 2016**<br>**California Regional Water Quality Control Board, San Diego Region**<br>**2375 Northside Drive, Suite 100, San Diego, CA 92108** | **RE:T10000004377:BGriffey for IR Site 34b**<br>**RE:T10000004381:BGriffey for IR Site 34d** |
| **Water Board General Comments** | |
| 1. The contractor conducting the activities must have a hazardous substances removal certificate. | 1. CB&I will be conducting the excavation and removal activities. The CB&I hazardous substances removal certificate license number is 998883. This information will be added to Section 1 of the Work Plan Addendum. |
| 2. The entity transporting and disposing of the UST must be a licensed hazardous waste hauler. | 2. Section 3.4 will be updated to indicate that all hazardous waste generated and disposed of under this Work Plan will be transported by a licensed hazardous waste hauler. |
| 3. Documentation of disposal of the UST at an appropriate facility is required in the forthcoming report. | 3. Section 3.4 will be revised to state "Waste manifests documenting the disposition of all hazardous wastes generated will be included in the forthcoming RI report for the site. If the tank is recycled, documentation of that recycling will be provided." |
| 4. A California Uniform Hazardous Waste Manifest must be completed and provided to document that the UST has been appropriately decontaminated. | 4. Please see the response to comment 3 above. |

**RESPONSE TO AGENCY COMMENTS**
**DRAFT WORK PLAN ADDENDUM 1, REMEDIAL INVESTIGATION, IR SITES 34b AND 34d**
**NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT FALLBROOK, CALIFORNIA**
**Work Plan Addendum 1 Document Dated January 2016 – Water Board Comments**

| | |
|---|---|
| 5. Fifteen pounds of dry ice per 1000 gallons of UST capacity is required to achieve inert atmospheric conditions within the UST. | 5. Noted. Section 3.4 will be updated to state "Calculations will be conducted once the UST is excavated to determine the size of the UST. If potentially explosive atmospheric conditions are noted during monitoring with a combustible gas indicator, then the tank will be inerted using dry ice. A conversion of 15 pounds of dry ice per 1000 gallons (UST size) will be used to initially determine the quantity of dry ice needed to inert the atmosphere within the UST, and atmospheric monitoring will be used to assure that the tank remains inert." |
| 6. The combustible gas indicator used to monitor the atmospheric conditions within the UST must be appropriately calibrated immediately prior to use at the Site. | 6. Section 3.1 will be revised to state "a combustible gas indicator will be calibrated according to manufactures specifications on a daily basis and be used to monitor the UST and head space for hazardous environments." |
| 7. The appropriate fire department should be informed of the proposed activities to cut the UST piping prior to conducting the activities. | 7. Section 3.2 will be updated to indicate that the NWS Seal Beach Detachment Fallbrook fire department will be notified prior to cutting the UST piping. |
| 8. During the UST closure activities, please ensure all ignition sources are removed from the Site. | 8. Section 3.4 will be updated to state that "Prior to removing the UST, a site walk will be conducted to ensure there are no ignition sources present." |

**RESPONSE TO AGENCY COMMENTS**
**DRAFT WORK PLAN ADDENDUM 1, REMEDIAL INVESTIGATION, IR SITES 34b AND 34d**
**NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT FALLBROOK, CALIFORNIA**
**Work Plan Addendum 1 Document Dated January 2016 – Water Board Comments**

| | |
|---|---|
| 9. The proposed stockpiles need to be bermed to contain liquid waste within the stockpile and prevent surface water from entering the stockpile. Additionally, the stockpiles need to be covered during rain events to prevent the rain from entering the stockpile, to the maximum extent possible. | 9. Section 3.4 will be revised to state "Stockpile areas will be bermed with soil and covered in plastic sheeting prior to placement of a stockpile. Additionally, the stockpiles will be covered with plastic to prevent rain from entering the stockpile. Alternatively soil and/or concrete may be loaded directly into containers (drums or rolloff bins for characterization, rather than stockpiled." |
| 10. The Soil Analytical Plan needs to be expanded to include EPA Analytical Method 8260. | 10. Section 3.4.1 will be revised to state "USEPA Method 8260B will be added to a sin.gle sample collected from the area of the UST excavation, and a single sample from the removal of the piping system. A combination of visual screening and use of a PID will determine the sample from each area most likely to contain volatile contamination." |
| 11. In the unlikely event that groundwater is encountered in the UST excavation, a groundwater sample needs to be collected and analyzed for TPH, PAHs, and VOCs. | 11. Section 3.4.1 will be revised to state "If groundwater is encountered in the UST excavation, a sample will be collected using a new disposable bailer and analyzed for TPH, PAH, and VOCs." |
| 12. The proposed decontamination of the excavator bucket involving pressure washing can be eliminated if visible soil adhering to the bucket is physically removed and the soil sample is collected from the center of the soil mass within the bucket. Such an alternative decontamination approach will reduce the volume of generated investigation derived waste, reduce water use, and should be considered. | 12. Section 3.6 will be revised to only include a one stage decontamination procedure, physical removal of soil. |

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