

SAP Worksheet #1 - Title and Approval Page

**Final Addendum 1 to the Final Sampling and Analysis Plan
for
Building 503 Sampling and Soil Removal
Former Naval Air Station Moffett Field
Mountain View, California**

December 2013

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Prepared for:

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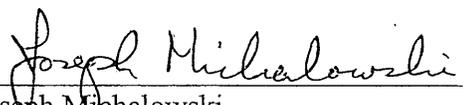
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NAVFAC SW Quality Assurance Officer
Date

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Executive Summary

Purpose:

The purpose of this addendum is to update the *Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for Building 503 Sampling and Soil Removal, Former Naval Air Station Moffett Field, Mountain View, California (SAP)*, dated August 2012 (U.S. Navy, 2012). This SAP addendum will be used in conjunction with the Final SAP. All policies and procedures set forth in the Final SAP that are not modified in this addendum will remain in effect for the duration of the project where applicable.

Background:

Soil and groundwater sampling was conducted in October 2012 to assess the nature and extent of total petroleum hydrocarbons as hydraulic oil (TPH-HO) and as motor oil (TPH-MO), and lead previously detected in soil in the vicinity of previously excavated hydraulic lifts, associated waste oil lines, and a waste oil clarifier at Building 503. The October 2012 samples were also analyzed for other metals, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). The investigation also looked for evidence of separate-phase hydrocarbons (SPH) which were observed in one borehole during the prior hydraulic lift excavation. Results of this investigation were reported in the *Final Technical Memorandum for Building 503 Soil and Groundwater Sampling, Former Naval Air Station Moffett Field, Mountain View, California* (U.S. Navy, 2013).

Analytical results of soil collected during the October 2012 investigation did not detect concentrations of TPH-HO, TPH-MO, total metals, or PCBs above their respective cleanup standards. One PAH target analyte, benzo(a)pyrene, was detected in one soil sample slightly above its cleanup standard, but surrounding sample results indicated that this contamination was very limited in extent.

Borings were advanced below the water table and were left open long enough to allow time for groundwater and/or SPH to accumulate. No SPH was observed in any of the borings, indicating that the SPH initially observed in the one boring was very limited in extent.

Groundwater results reported TPH-HO concentrations in 8 of the 12 groundwater sampling locations at concentrations above the San Francisco Bay Regional Water Quality Control Board (Water Board) Final Groundwater Screening Level of 100 micrograms per liter ($\mu\text{g/L}$), with the highest concentration being 720 $\mu\text{g/L}$. The analytical laboratory reported that these detections did not match the typical fingerprint pattern indicative of hydraulic oil or motor oil. Concentrations detected in the two upgradient sampling locations had similar TPH fingerprint patterns to those at other Building 503 detection locations.

Chlorinated VOCs – primarily *cis*-1,2-dichloroethene, *trans*-1,2-dichloroethene, trichloroethylene, and vinyl chloride – were detected in groundwater at concentrations consistent with concentrations reported in samples from the surrounding and underlying regional groundwater VOC plume. Trace concentrations were detected in some soil samples, but these data appeared to be more indicative of influence from the underlying VOC plume than a release

from the Building 503 hydraulic lift systems or the water oil line/clarifier. Therefore, it was concluded that detected VOCs were not a result of releases from the Building 503 hydraulic lift system or waste oil lines/clarifier.

Following the submittal of the Final Technical Memorandum, the Navy and the Water Board (the lead regulatory agency) agreed that corrective action for soil was not necessary in vicinity of Building 503. However, further characterization of TPH-HO and TPH-MO in groundwater, based on sampling conducted from properly installed monitoring wells, would be required prior to proposing No Further Action. This investigation is to include the following work elements:

1. Redevelopment and groundwater sampling from existing monitoring well WT41A-1, including analysis with and without silica gel cleanup preparation. This is to assess concentrations from a properly-constructed well (as opposed to grab sampling from open borings) and to evaluate the degree to which non-TPH polar compounds may have been incorporated into TPH concentration reporting from the October 2012 investigation.
2. Collection of groundwater elevation measurements from seven groundwater monitoring wells to confirm local groundwater flow direction.
3. Subsequent installation and development of new groundwater monitoring wells upgradient and downgradient of Building 503.
4. One year of quarterly sampling from these new groundwater monitoring wells and select existing groundwater monitoring wells along with water elevation measurements.
5. Destruction of the new groundwater monitoring wells upon receiving notice of No Further Action from the Water Board.

This SAP addendum provides updates to relevant worksheets from the Final SAP to address the pending scope of work. More specifically, this SAP addendum:

- Incorporates updated project personnel information
- Amends the conceptual site model to incorporate result of initial sampling conducted in October 2012 (performed in accordance with the Final SAP and reported in the July 2013 Final Technical Memorandum)
- Presents Data Quality Objectives specific to the pending scope
- Refines and presents procedures for groundwater sampling, well installation, and development
- Reduces the list of groundwater analytical groups to just TPH residual fuels
- Provides a schedule for the scope of work under this SAP addendum including No Further Action.

The list of amended worksheets is presented in the Table of Contents. A note is provided on each SAP worksheet indicating if it is to be a stand-alone worksheet for this phase of work or if it should be used in conjunction with the corresponding Final SAP work sheet.

APPENDIX A TO THE:

FINAL
WORK PLAN
FOR SAMPLING AND SOIL REMOVAL
BUILDING 503

DATED 01 AUGUST 2012

IS RECORD NO. N00296_003761

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Acronyms, Abbreviations, and Initializations

µg/L	micrograms per liter
APPL	Agriculture and Priority Pollutants Laboratories, Inc.
bgs	below ground surface
°C	degrees Celsius
CAS	Chemical Abstract System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIH	Certified Industrial Hygienist
CO	Contracting Officer
COC	chain-of-custody
DOT	Department of Transportation
DQI	data quality indicator
DQO	data quality objective
DWR	California Department of Water Resources
ELAP	Environmental Laboratory Accreditation Program
EMAX	EMAX Analytical Laboratories, Inc.
GC-FID	gas chromatography-flame ionization detector
GC/MS	gas chromatography / mass spectroscopy
IDW	investigation-derived waste
JV	Joint Venture
LCS	laboratory control sample
LDC	Laboratory Data Consultants, Inc.
LOD	limit of detection
LOQ	limit of quantitation
MB	method blank
mg/kg	milligrams per kilogram
ml	milliliter
ml/min	milliliters per minute
MS	matrix spike
MSD	matrix spike duplicate
NASA	National Aeronautics and Space Administration
Navy	United States Department of the Navy
NELAP	National Environmental Laboratory Accreditation Program
NAVFAC	Naval Facilities Engineering Command
NIRIS	Naval Installation Restoration Information System
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
pH	hydrogen ion index
QAM	Quality Assurance Manager
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	quality control
QCSR	Quality Control Summary Report
RPM	Remedial Project Manager

Acronyms, Abbreviations, and Initializations

ROICC	Resident Officer in Charge of Construction
SAP	Sampling and Analysis Plan
SCVWD	Santa Clara Valley Water District
SSHO	Site Safety and Health Officer
SOP	standard operating procedure
SpC	specific conductance
SPH	separate-phase hydrocarbons
TBD	to be determined
TPH	total petroleum hydrocarbons
TPH-HO	total petroleum hydrocarbons as hydraulic oil
TPH-MO	total petroleum hydrocarbons as motor oil
UFP	Uniform Federal Policy
U.S. EPA	United States Environmental Protection Agency
VOA	volatile organic analysis
VOCs	volatile organic compounds
Water Board	San Francisco Bay Regional Water Quality Control Board
WS	worksheet

SAP Worksheet #3 - Distribution List

SAP Recipients	Title	Organization	Telephone Number (optional)	Email Address or Mailing Address
Wilson Doctor	Navy Remedial Project Manager (RPM)	Naval Facilities Engineering Command (NAVFAC) Southwest	619-532-0930	wilson.doctor@navy.mil
Joseph Michalowski	NAVFAC Southwest Quality Assurance Officer (QAO)	NAVFAC Southwest	619-532-4125	joseph.michalowski@navy.mil
Elizabeth Wells	Project Manager (non-CERCLA)	Water Board	510-622-2440	ewells@waterboards.ca.gov
Penny Reddy	Project Manager (CERCLA)	U.S. EPA	415-972-3108	Reddy.Pennyepa.gov
Robert Ferry	Program Manager	CE2-Kleinfelder JV	925-872-7264	rferry@ce2corp.com
Tom Berry	Project Manager	CE2-Kleinfelder JV	925-918-3532	berry@ce2corp.com
Jim Dill	Deputy Project Manager	CE2-Kleinfelder JV	949-400-3009	jdill@kleinfelder.com
Mohammad Abri	Program Quality Assurance Manager (QAM)	CE2-Kleinfelder JV	925-373-9606	mabri@ce2corp.com
Stacie Wissler	Project QAO	CE2-Kleinfelder JV	858-320-2263	swissler@kleinfelder.com
Brandon Connelly	Project Chemist	CE2-Kleinfelder JV	510-982-9385	bconnelly@kleinfelder.com
Riley Cotter	Data Manager	CE2-Kleinfelder JV	510-628-9000	rcotter@kleinfelder.com
Diane Anderson	Analytical Laboratory Project Manager	Agriculture and Priority Pollutants Laboratory, Inc. (APPL)	559-275-2175	danderson@applinc.com
Richard Amano	Analytical Data Validation/ Principal Chemist	Laboratory Data Consultants, Inc. (LDC)	760-634-0437	ramano@lab-data.com

SAP Worksheet #3 - Distribution List

SAP Recipients	Title	Organization	Telephone Number (optional)	Email Address or Mailing Address
Bruce Rucker	Field Manager and Site Safety and Health Officer (SSHO) – well installation and destruction	CE2-Kleinfelder JV	510-872-6819	rucker@ce2corp.com
Shannon MacKenzie	Field Manager and Site Safety and Health Officer (SSHO) – well development and sampling	CE2-Kleinfelder JV	510-453-8143	SMacKenzie@kleinfelder.com

Notes:

This SAP addendum worksheet supersedes Final SAP Worksheet #3 for work being performed under Addendum 1.

SAP Worksheet #4 - Project Personnel Sign-Off Sheet

Name	Organization/Title/Role	Telephone Number (optional)	Signature/email receipt	SAP Section Reviewed	Date SAP Read
Wilson Doctor	NAVFAC Southwest/RPM	619-532-0930			
Robert Ferry	CE2-Kleinfelder JV/Program Manager	925-872-7264			
Tom Berry	CE2-Kleinfelder JV/Project Manager	925-918-3532			
Jim Dill	CE2-Kleinfelder JV/Deputy Project Manager	949-400-3009			
Stacie Wissler	CE2-Kleinfelder JV/Project QAO	858-320-2263			
Brandon Connelly	CE2-Kleinfelder JV/Project Chemist	510-982-9385			
Riley Cotter	CE2-Kleinfelder JV/Data Manager	510-628-9000			
Diane Anderson	APPL/Project Manager	559-275-2175			
Richard Amano	LDC/Principal Chemist	760-634-0437			
Bruce Rucker	CE2-Kleinfelder JV/Field Manager & Site Safety and Health Officer (SSHO) – well installation and destruction	510-872-6819			
Shannon MacKenzie	CE2-Kleinfelder JV/Field Manager & Site Safety and Health Officer (SSHO) – well development and sampling	510-453-8143			
TBD ¹	CE2-Kleinfelder JV/Sampling personnel	Not applicable			

Notes:

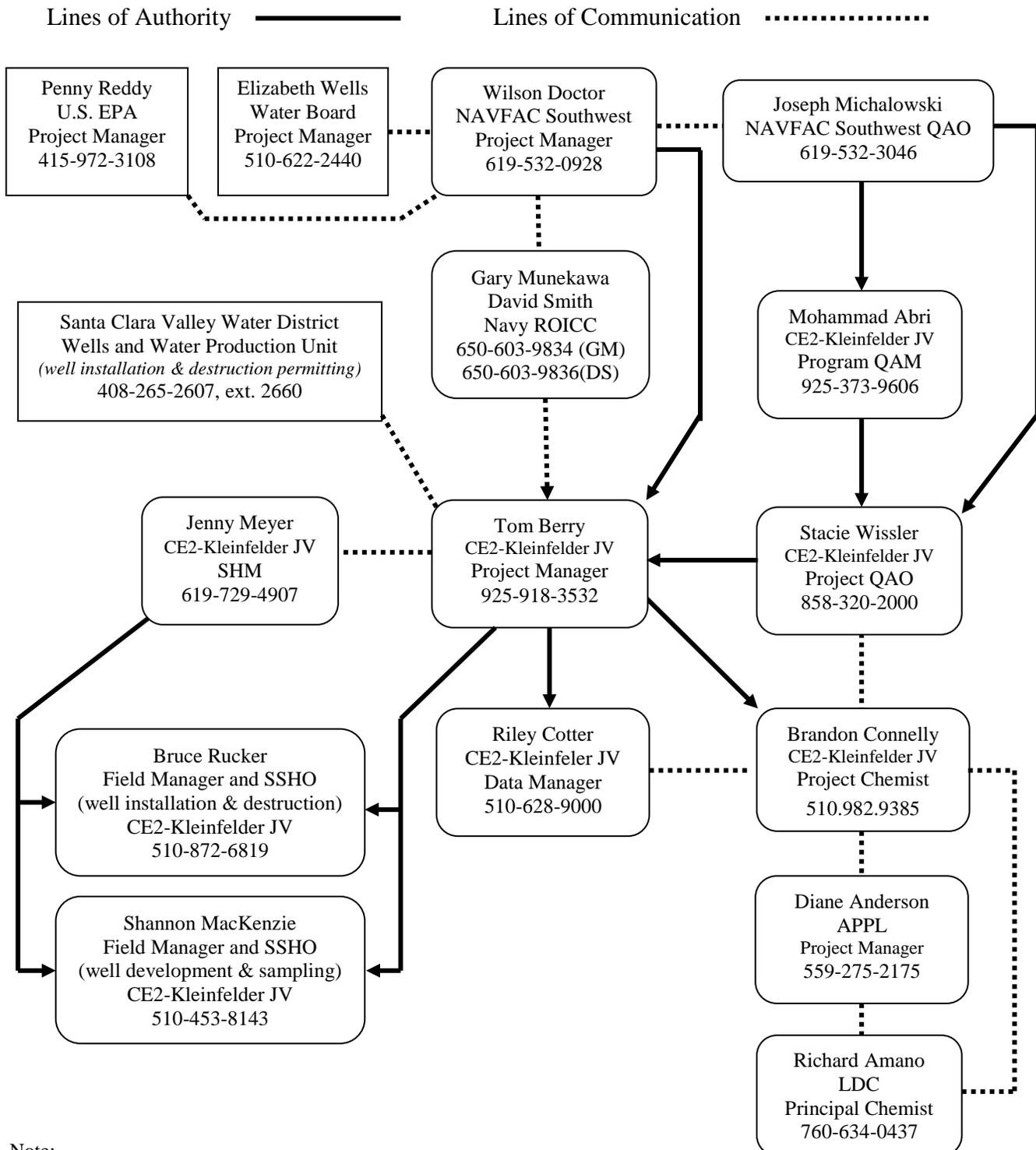
This SAP addendum worksheet supersedes Final SAP Worksheet #3 for work being performed under Addendum 1.

This sign-off sheet indicates that key personnel have read and understand the relevant sections of this SAP. This sign-off sheet will be maintained in project files and in the field by the Field Manager.

¹ To be determined. The sampling personnel will read the appropriate sections before performing activities related to this SAP. The completed Worksheet will be maintained in the CE2-Kleinfelder JV project file.

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SAP Worksheet #5 - Project Organizational Chart



Note:

This SAP addendum worksheet supersedes Final SAP Worksheet #3 for work being performed under Addendum 1.

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SAP Worksheet #6 - Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (Timing, Pathway To/From, etc.)
Regulatory Agency Interface	Navy RPM NAVFAC Southwest	Wilson Doctor	619-532-0930	Navy RPM is the point of contact with the regulatory agencies.
Authorization for CE2-Kleinfelder JV to initiate field work	Navy RPM NAVFAC Southwest	Wilson Doctor	619-532-0930	CE2-Kleinfelder JV Program Manager communicates either verbally or by email the earliest schedule possible for field work to commence. Navy RPM provides CE2-Kleinfelder JV Program Manager with written instruction to proceed, upon completing coordination with Contracting Officer (CO), and Resident Officer in Charge of Construction (ROICC).
Water Board point of contact with Navy RPM Manager	Water Board	Elizabeth Wells	510-622-2440	Reports and other project-related information are submitted by the Navy RPM for review and comments by the agency.
U.S. EPA point of contact with Navy RPM Project Manager	U.S. EPA	Penny Reddy	415-972-3108	Reports and other project-related information are submitted by the Navy RPM for review and comments by the agency.
Filed progress Reports and CE2-Kleinfelder JV point of contact with Navy RPM	Project Manager CE2-Kleinfelder JV	Tom Berry	925-918-3532	Materials and information about the project are forwarded to the Navy RPM by the Project Manager.
CE2-Kleinfelder JV point of contact with Navy QAO	Program QAM CE2-Kleinfelder JV	Mohammad Abri	925-373-9606	Quality-related materials and information about the project are forwarded to the Project and Navy QAOs by the Program QAM.
SAP/WP Changes prior to Field/Laboratory work	Program QAM CE2-Kleinfelder JV	Mohammad Abri	925-373-9606	Any changes to the SAP are submitted in writing to the Navy QAO, who must approve the changes prior to implementation.

SAP Worksheet #6 - Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (Timing, Pathway To/From, etc.)
SAP amendment approvals	NAVFAC Southwest QAO	Joseph Michalowski	619-532-4125	Issues final approval of SAP amendments to Program QAM via signed approval form (portable document format [pdf] is acceptable). Review time frame is typically 10 business days, but approval time frame is dependent on degree of edits being made.
Field or analytical corrective actions	Program QAM CE2-Kleinfelder JV	Mohammad Abri	925-373-9606	The need for corrective actions is assessed by the Program QAM, who notifies the Project QAO by phone or email, within 2 business days. Project QAO notifies Project Manager and Field Manager (field issues) or Project Chemist (analytical issues) by phone or email within 2 business days.
Approval of grading permit prior to implementing excavation-based corrective action	Project Manager CE2-Kleinfelder JV	Tom Berry	925-918-3532	Project Manager submits and coordinates approval of grading permit with Santa Clara County Planning Department (408-299-5770) and acts as liaison for any requested site inspections.
Approval of well permit prior to installing groundwater monitoring wells	Project Manager CE2-Kleinfelder JV	Tom Berry	925-918-3532	Project Manager submits and coordinates approval of well permit with Santa Clara Valley Water District (408-265-2607) and acts as liaison for any requested site inspections.
Field implementation of SAP changes	Field Manager CE2-Kleinfelder JV	Bruce Rucker (well installation & destruction)	510-872-6819	Project Manager notifies Field Manager by phone and email of changes at least 2 days prior to field implementation.
		Shannon MacKenzie (well development & sampling)	510-453-8143	

SAP Worksheet #6 - Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (Timing, Pathway To/From, etc.)
Stop work issues	NAVFAC Southwest QAO	Joseph Michalowski	619-532-4152	Navy QAM has the authority to stop work if noncompliance to field QC protocols as specified in the UFP-SAP is observed. Field Manager notifies Project Manager about any stopped work that occurs. All field personnel have stop work authority based on the Accident Prevention Plan and Site-specific Safety and Health Plan.
	Field Manager CE2-Kleinfelder JV	Bruce Rucker (well installation & destruction)	510-872-6819	
		Shannon MacKenzie (well development & sampling)	510-453-8143	
Release of soil and groundwater sampling and excavation/backfill field data for use in assessment technical memorandum and closure report	Field Manager CE2-Kleinfelder JV	Bruce Rucker (well installation & destruction)	510-872-6819	Soil and groundwater sampling and excavation/backfill field data are reviewed by the Field Manager, and are transmitted by email or hard-copy shipping to the Project Manager.
		Shannon MacKenzie (well development & sampling)	510-453-8143	
Field deviations from the SAP	Field Manager CE2-Kleinfelder JV	Bruce Rucker (well installation & destruction)	510-872-6819	Field Manager notifies Project Manager by phone or email within 2 days of the SAP deviation (nature of deviation and technical justification).
		Shannon MacKenzie (well development & sampling)	510-453-8143	
Analytical deviations from the SAP, or reporting analytical data quality issues	APPL (subcontractor)	Diane Anderson	559-275-2175	Laboratory notifies Project Chemist by phone or email, and documents SAP deviations in the validated data report (data validation not required for analysis of non-target analytes).

SAP Worksheet #6 - Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (Timing, Pathway To/From, etc.)
Reporting Data Validation Issues	LDC (subcontractor)	Richard Amano	760-634-0437	Analytical data validation firm notifies Project Chemist within 2 business days and documents issues in the data validation report.
Release of analytical data	Project Chemist/ Data Manager CE2-Kleinfelder JV	Brandon Connelly/ Riley Cotter	510-982-9385/ 510-628-9000	Analytical data for target analytes cannot be released until third-party validated analytical data are approved by the Project Chemist and Project QAO. Analysis for non-target analytes does not require validation, but does require verification by the Project Chemist.
Report submittal to regulatory agencies	Navy RPM NAVFAC Southwest	Wilson Doctor	619-532-0930	Navy RPM receives report(s) from CE2-Kleinfelder JV and submits them to Water Board and also provides copies as appropriate to other Navy contractors, NASA Ames, and Navy Exchange.
Response to regulatory comments	Navy RPM NAVFAC Southwest	Wilson Doctor	619-532-0930	Navy RPM receives regulatory comments on submitted documents and coordinates responses with CE2-Kleinfelder JV as necessary.
Sample Receipt Variances	APPL (subcontractor)	Diane Anderson	559-275-2175	Laboratory notifies Project Chemist by phone or email, and documents sample receipt variances in the validated data report (data validation not required for analysis of non-target analytes)
Reporting Lab Quality Variances	APPL (subcontractor)	Diane Anderson	559-275-2175	Laboratory notifies Project Chemist by phone or email, and documents lab quality variances in the validated data report (data validation not required for analysis of non-target analytes)

Note:

This SAP addendum worksheet supersedes Final SAP Worksheet #3 for work being performed under Addendum 1.

SAP Worksheet #7 - Personnel Responsibilities and Qualifications Table

Title/Role	Organizational Affiliation	Responsibilities
NAVFAC Southwest QAO	Navy	<ul style="list-style-type: none">• Provides governmental oversight of the project Quality Assurance (QA) Program.• Provides quality-related directives through Contracting Officer Representative.• Provides technical and administrative oversight of surveillance audit activities.• Acts as point of contact for matters concerning QA and the Navy's Laboratory QA Program.• Coordinates training on matters pertaining to generation and maintenance of quality of data.• Authorizes the suspension of project execution if QA requirements are not adequately followed.

Note:

This SAP addendum worksheet removes "Acting" from the title of the QAO initially included in Final SAP Worksheet #7. The remainder of Final SAP Worksheet #7 remains applicable.

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SAP Worksheet #10 - Conceptual Site Model

This supplements information provided in the Final SAP Worksheet #10.

Results of October 2012 Investigation

Soil and groundwater sampling was conducted at Building 503 in October 2012 under the *Final Sampling and Analysis Plan for Building 503 Sampling and Soil Removal, Former Naval Air Station Moffett Field, Mountain View, California* (U.S. Navy, 2012). Results of that investigation were reported in the *Final Technical Memorandum for Building 503 Soil and Groundwater Sampling, Former Naval Air Station Moffett Field, Mountain View, California* (U.S. Navy, 2013). Figures 10-A1-1 and 10-A1-2 show the results of the soil and groundwater sampling, respectively.

Soil and groundwater sampling borings were advanced several feet below the water table to facilitate observation of potential SPH accumulation. No SPH was observed in any of the borings indicating that the SPH initially observed in boring NEX-HL-05 was very limited in extent.

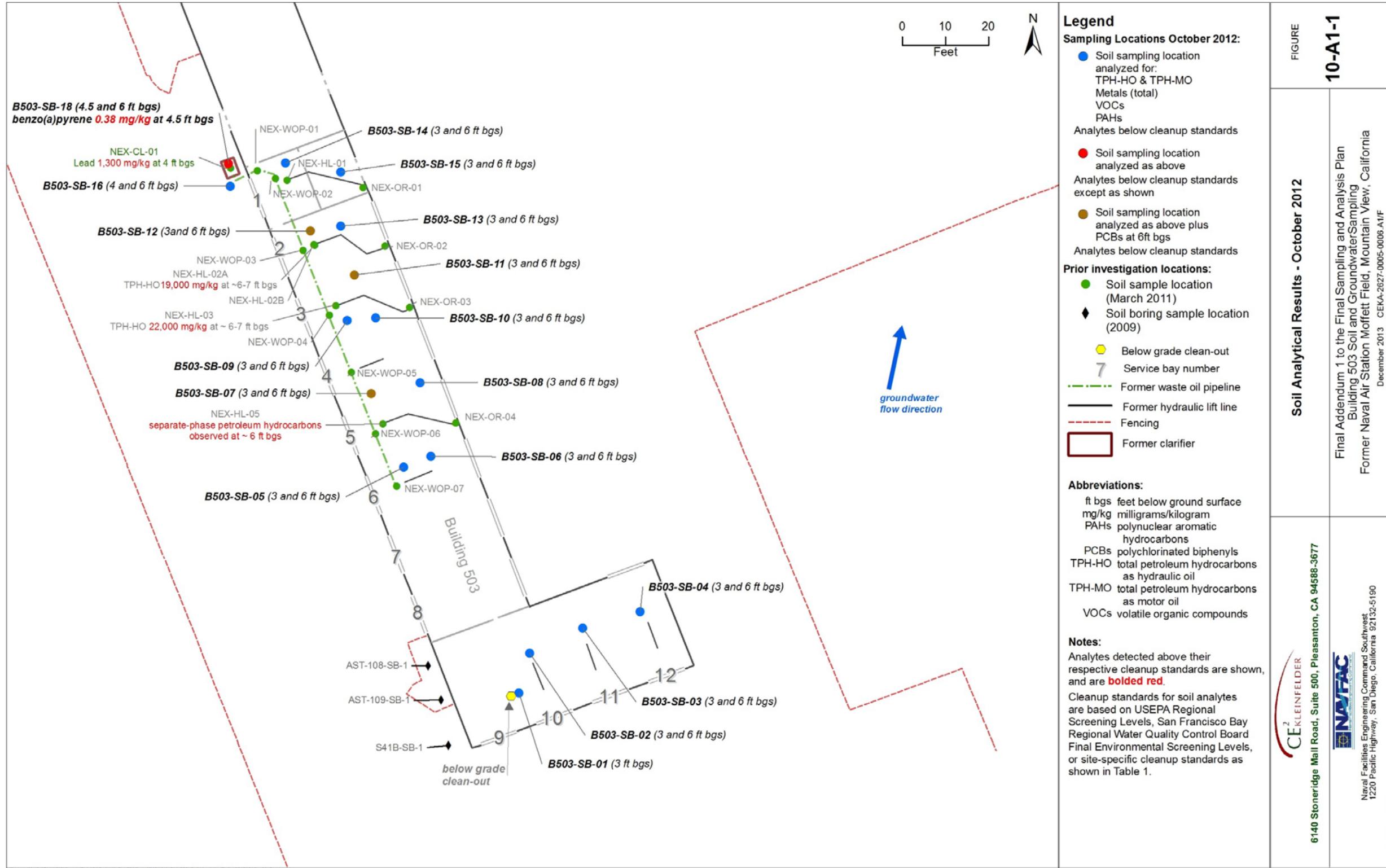
Groundwater results reported TPH-HO concentrations in 8 of the 12 groundwater sampling locations at concentrations above the groundwater screening level of 100 micrograms per liter ($\mu\text{g/L}$), with the highest concentration being 720 $\mu\text{g/L}$. The analytical laboratory reported that these detections did not match the typical fingerprint pattern indicative of hydraulic oil or motor oil. However, similar concentrations with similar TPH fingerprint patterns were detected in the two upgradient groundwater sampling locations.

Chlorinated VOCs – primarily *cis*-1,2-dichloroethene, *trans*-1,2-dichloroethene, trichloroethene, and vinyl chloride – were detected in groundwater at concentrations consistent with concentrations reported in samples from the surrounding and underlying regional groundwater VOC plume. Trace concentrations were detected in some soil samples, but these data appear to be more indicative of influence from the underlying VOC plume than as a source from the Building 503 hydraulic lift systems or the water oil line/clarifier.

Following submittal of the Final Technical Memorandum, the Navy and the San Francisco Bay Regional Water Quality Control Board (Water Board), agreed that corrective action for soil was not necessary in the vicinity of Building 503. However, further characterization of TPH-HO and TPH-MO in groundwater would be required prior to proposing No Further Action.

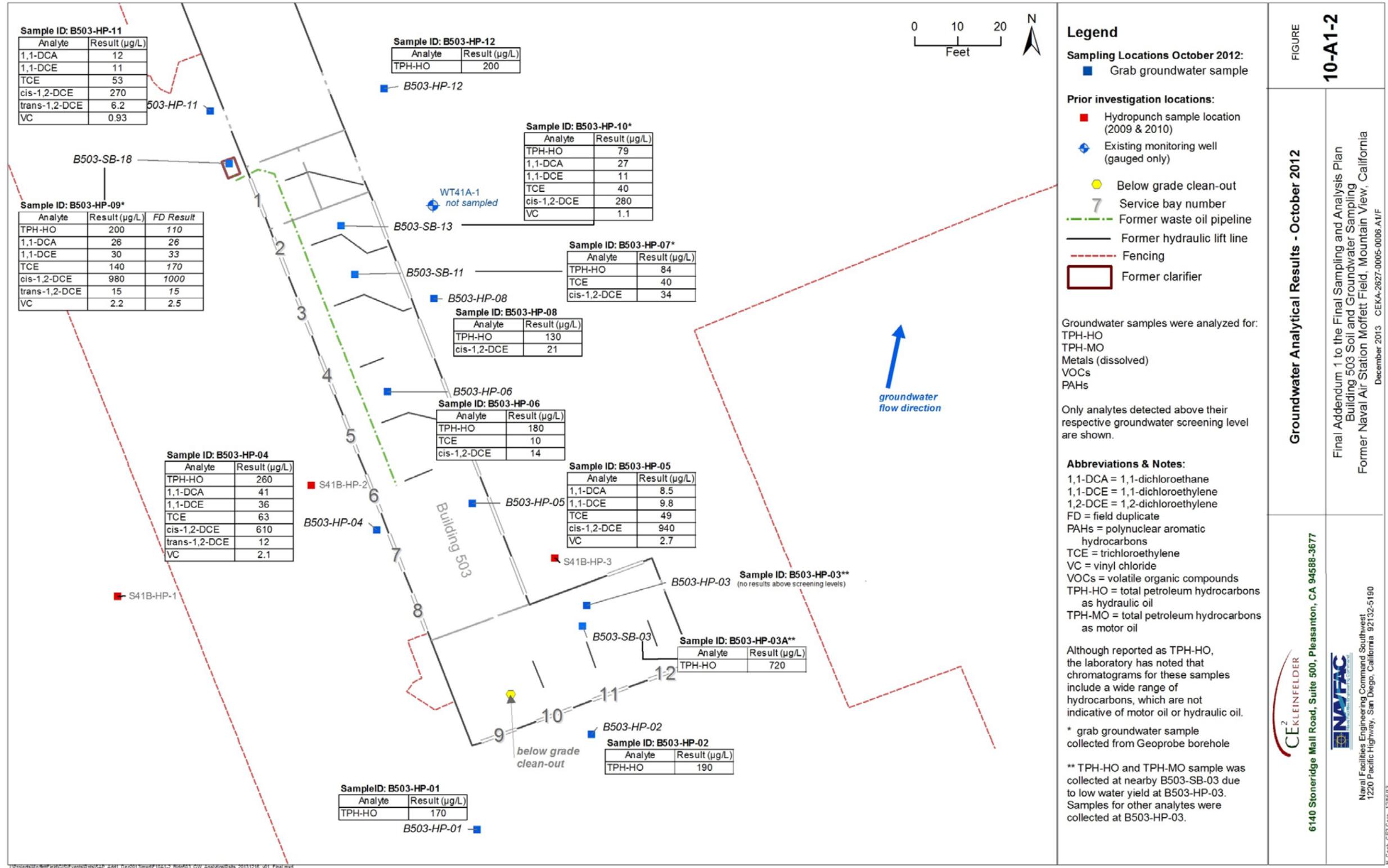
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Figure 10-A1-1. Soil Analytical Results – October 2012.



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Figure 10-A1-2. Groundwater Analytical Results – October 2012.



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SAP Worksheet #11 - Project Quality Objectives/Systematic Planning Process Statements

This worksheet amendment provides data quality objectives (DQOs) information relevant to work being performed under Amendment 1.

DQO Step 1. State the problem:

Sufficient data was collected in October 2012 to conclude that corrective action for soil and SPH is not necessary for closure of the Building 503 hydraulic lift and associated waste oil piping and clarifier system. Therefore, DQOs related to soil and SPH corrective actions are no longer applicable for future work at Building 503. Additionally, because no excavation is necessary, application of oxygen release compound via that excavation is no longer applicable.

However, additional groundwater analytical data collected from groundwater monitoring wells, both existing and new, have been requested by the Water Board to delineate the nature and extent of dissolved TPH-HO and TPH-MO to evaluate eligibility for Building 503 to be issued a No Further Action letter.

DQO Step 2. Identify the Goals of the Study:

The overall goal of this phase of the investigation is to obtain sufficient groundwater analytical and flow direction data to support No Further Action for Building 503 by the Water Board. The goals for the investigation are to answer the follows questions:

1. Is groundwater flow direction in the immediate vicinity of Building 503 generally to the north (as anticipated)?
2. To what extent are analytic results indicating concentrations of TPH-HO and TPH-MO, if detected, an artifact of naturally occurring polar compounds that may be interpreted as TPH-range constituents?
3. What is the extent of TPH-HO and TPH-MO in groundwater detected at concentrations above the Water Board Final Groundwater Screening Level (See Worksheet #15f)?
4. Is TPH-HO or TPH-MO present in groundwater immediately upgradient of Building 503?
5. Are TPH-HO and TPH-MO concentrations in groundwater stable and/or declining?

DQO Step 3. Identify the Information Inputs:

The information inputs used to accomplish the goal of the investigation are:

- Water elevations from shallow groundwater wells in the immediate vicinity of Building 503.

- Analytical data from groundwater samples to be collected under this investigation, as discussed in Worksheets #17 and #18, as amended.
- Visual observations for evidence of SPH.
- Historical soil and groundwater analytical data (Worksheet #13, as amended).
- Water Board Final Groundwater Screening Level for TPH as residual fuels (100 µg/L) in groundwater.

DQO Step 4. Define the Boundaries of the Study:

The lateral boundary of this phase of the investigation is the immediate vicinity surrounding Building 503 extending up to approximately 100 feet south of the building, 300 feet on east and west of the building and 200 feet north of the building.

The vertical boundary is:

- Approximately 20 feet below ground surface (bgs) (total depth of anticipated new groundwater monitoring wells).

The temporal boundaries are anticipated to be as follows:

- Sampling of one existing well and one round of water elevation measurements to be conducted in February 2014, followed by discussion of results with the Water Board in April 2014.
- Quarterly groundwater sampling of new and existing wells and water elevation measurements beginning with new well installation coordination and implementation in April 2014 through June 2014. The first quarterly sampling would follow new well installation and development (by the end of June 2014) and the final (fourth) quarter sampling and water elevation measurements would be conducted in the first calendar quarter of 2015.
- Results and well installation information will be reported in a Closure Report following receipt of the fourth quarter of sampling anticipated to be completed including Water Board review by the end of 2015.
- New wells installed for this work would subsequently be properly destroyed during the Spring of 2016.

Scheduling for Amendment 1 scope of work is presented in Worksheet #16, as amended.

Seasonal variations such as changes in weather conditions and animal migration and breeding seasons, will not affect the project schedule. Additionally, the site is paved and therefore not subject to vegetative growth.

DQO Step 5. Develop the Analytic Approach:

The sampling and analytical approach discussed in this SAP addendum has been designed to meet the goals of the investigation. The decision rules related to the numerical goal questions in DQO Step 2 are as follows:

1. If the groundwater flow direction is not generally north, as anticipated, then new monitoring well locations and associated monitoring network will be proposed for concurrence by the Water Board.
2. If groundwater analytical results from the initial sampling of groundwater monitoring well WT41A-1 do not indicate removal of naturally occurring polar compounds using silica gel cleanup, then it will be concluded that naturally occurring polar compounds are not present in groundwater at sufficient concentrations to cause falsely high TPH-HO/TPH-MO results.
3. If groundwater analytical results from the initial sampling monitoring well WT41A-1 detect TPH-HO or TPH-MO (after silica gel cleanup) at or below the Water Board Final Groundwater Screening Level of 100 µg/L and no measureable SPH is observed, then the Navy would recommend installation of one groundwater monitoring well, upgradient of Building 503, and one groundwater monitoring well immediately downgradient of Building 503. Quarterly monitoring would be proposed to the Water Board to include sampling of the two new wells, and existing well WT41A-1 along with water elevation measurements of surrounding wells (Figure 11-A1-1).

If groundwater analytical results from the initial sampling of groundwater monitoring well WT41A-1 detect TPH-HO or TPH-MO (after silica gel cleanup) above the Water Board Final Groundwater Screening Level of 100 µg/L and no SPH is observed, then the Navy would recommend installation of one groundwater monitoring well upgradient of Building 503, and one groundwater monitoring well further downgradient (approximately 100 feet) of Building 503. Quarterly monitoring would be proposed to the Water Board to include sampling of the two new wells, and existing wells WT41A-1 and 66A along with water elevation measurements of surrounding wells (Figure 17-A1-1). Note that the final groundwater monitoring network, including number and locations of wells, will be determined in conjunction with direction from the Water Board.

4. If concentrations of TPH-HO and/or TPH-MO are detected in groundwater samples from upgradient wells, then it will be concluded that detected concentrations in wells downgradient and adjacent to Building 503 (if any) may be in part or in whole from an upgradient source not related to operation of the Building 503 hydraulic lift and waste oil systems.
5. If analytical results from one year of quarterly groundwater monitoring indicate that TPH-HO and TPH-MO concentrations are stable or declining, do not indicate measurable SPH, or are from an upgradient source, then the Navy will apply for No Further Action of the Building 503 hydraulic lifts and associated waste oil piping and clarifier. This No Further Action would include both soil and groundwater and be followed by permitted destruction of the new groundwater monitoring wells installed for this work.

If analytical results do not meet these criteria, then Navy will discuss further actions with the Water Board.

DQO Step 6. Specify the Performance or Acceptance Criteria:

No change from Final SAP.

DQO Step 7. Develop the Plan for Obtaining Data:

In order to obtain No Further Action of Building 503 from the lead regulatory agency (i.e., the Water Board), this phase of work will be performed in the following steps:

- Redevelop and sample existing groundwater monitoring well WT41A-1 including sample analysis with and without silica gel cleanup. Determine local groundwater flow direction by taking water elevation measurements from nearby shallow monitoring wells.
- Provide data from the above step and confer with the Water Board to get agreement on number and location of new groundwater monitoring wells.
- Install and develop new groundwater monitoring wells as agreed to with the Water Board.
- Conduct one year of quarterly monitoring and water elevation measurements analyzing groundwater for TPH-HO and TPH-MO. Samples will be prepared with silica gel cleanup prior to analysis.
- Submit data from this phase of work and a summary of prior data in a report. Include a request for issuance of a No Further Action letter if analytical results indicate stable or declining concentrations, no measureable SPH, or an upgradient source.
- Upon receipt of the No Further Action letter, properly destroy the new groundwater monitoring wells and submit a well destruction letter.

SAP Worksheet #12 - Measurement Performance Criteria Table – Field QC Samples

QC Sample	Analytical Group	Frequency	Data Quality Indicators (DQIs)	Measurement Performance Criteria
Field Duplicate ¹	TPH-residual fuels ¹	One per every groundwater sampling event and no less than one per 10 groundwater samples ²	Precision	≤ 30 relative percent difference (RPD)
Equipment Rinsate Blank	TPH-residual fuels ¹	One per field team per set of non-dedicated equipment per day	Accuracy/Bias	No target compounds ≥ LOQ

Notes:

This frequency modification replaces Final SAP Worksheet #12 for work being performed under Addendum 1.

¹ TPH-residual fuels applies to total petroleum hydrocarbons as hydraulic oil and as motor oil for this project.

² Field duplicate to be collected for submittal with and without silica get cleanup for initial sampling of monitoring well WT41A-1. One field duplicate is to be collected for each subsequent quarterly sampling event.

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SAP Worksheet #13 - Secondary Data Criteria and Limitations Table

Secondary Data	Data Source (originating organization, report title and date)	Data Generator(s) (originating organization, data types, data generation / collection dates)	How Data Will Be Used	Limitations on Data Use
Soil and groundwater data	U.S. Navy, <i>Final Technical Memorandum for Building 503 Soil and Groundwater Sampling, Former Naval Air Station Moffett Field, Mountain View, California, July 2013</i>	U.S. Navy, soil and groundwater data from direct push borings collected in October 2012	Information supports No Further Action request for soil, narrows list of constituents of concern to TPH-HO and TPH-MO, and groundwater data will be used to compare against future groundwater samples.	Grab groundwater samples are not considered by the Water Board as being reliable for site closure as ones collected from properly installed monitoring wells. Lack of silica gel cleanup prior to analysis may have resulted in polar compounds leading to higher TPH-HO and TPH-MO detections.

Note:

This supplements Final SAP Worksheet #13.

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SAP Worksheet #14 -- Summary of Project Tasks

Field Tasks

Preparatory Activities: Prior to beginning field work, the Navy RPM, Navy ROICC, and NASA Ames Research Center will be notified. A Construction Permit and Planning Clearance will be issued by NASA Ames Research Center Santa Clara County. A well installation permit will be issued by the Santa Clara Valley Water District (SCVWD) and an inspector will be notified in accordance with that permit prior to installation of new monitoring wells. A well destruction permit will be issued by the SCVWD prior to destruction of monitoring wells. Prior to conducting field activities, field personnel will review the applicable sections of the SAP and SAP Addendum, read the Site-specific Health and Safety Plan, and sign the Project Personnel Sign-off Sheet (WS #4 as amended). Utility clearance will be conducted prior to intrusive subsurface activities.

Mobilization: No change.

Sampling: Groundwater sampling will be conducted consistent with the procedures described in WS #17 as amended. Samples will be collected and submitted consistent with analytical method requirements (i.e., sample volume, container type, preservative) as described in WS #19. Two samples (one being a field duplicate) collected during the initial sampling of monitoring well WT41A-1 will be submitted for analysis without silica gel cleanup. All other groundwater samples, including initial sampling of monitoring well WT41A-1 and all subsequent monitoring well quarterly sampling, will be submitted requesting silica gel cleanup.

Equipment Decontamination: No change.

Soil Excavation, Backfilling, and Contingent ORC Placement: No longer applicable.

Confirmation Soil Sampling: No longer applicable.

Groundwater Monitoring Well Installation and Development: Well installation, development, and subsequent groundwater sampling will be conducted consistent with the procedures described in WS #17 as amended. Samples will be collected and submitted consistent with analytical method requirements (i.e., sample volume, container type, preservative) as described in WS #19.

IDW Management: No change.

Analysis Tasks: Groundwater samples will be analyzed for TPH-HO and TPH-MO.

Quality Control (QC) Samples: The field QC samples to be collected will include the following: temperature blanks, field duplicates (groundwater only), and equipment rinsate blanks. As appropriate to the analytical method, the following laboratory QC analyses will be performed: initial calibrations, continuing calibrations, instrument tuning, method blanks, laboratory control samples, matrix spikes (MS), matrix spike duplicates (MSD), laboratory duplicates, surrogates, internal standards, and other applicable QC consistent with the specific analytical method requirements (see Worksheets #20 and #28).

Secondary Data: No change.

Data Management Tasks: No change.

Documentation and Records: No change.

Assessment/Audit Tasks: No change.

Data Review Tasks: No change.

Data Validation: No change.

Reports: In addition to a summary of data previously submitted in the Final Technical Memorandum (U.S. Navy, 2013), the Closure Report also will include the final data and description of well installation activities and sampling activities conducted under this SAP Addendum. Any deviations from the requirements in this SAP Addendum will be documented in the Closure Report document. A Quality Control Summary Report (QCSR) discussing data limitations and a comparison against the Data Quality Indicators (DQIs) will be included in the Closure Report..

A subsequent letter report will be submitted to document well destruction activities and to provide any outstanding IDW disposal documentation.

SAP Worksheet #16 – Project Schedule/Timeline Table

The planned project schedule for the new work activities to be conducted under Addendum 1 is presented below:

Task	Task Duration (weeks)	Start	Finish
Complete planning documents.	14	11/18/2013	2/14/2014
Redevelop and sample monitoring well WT41A-1 and conduct one round of water elevation measurements.	2	2/17/2014	2/28/2014
Analyze samples, submit results to the Water Board, and finalize quantity and location of new monitoring well installations. <ul style="list-style-type: none"> Assumes Water Board approval occurs within a 2-week period. ¹ 	7	3/3/2014	4/18/2014
Install and develop new monitoring wells.	8	4/21/2014	6/13/2014
Conduct four rounds of quarterly groundwater monitoring (sampling, water elevation measurement, and laboratory analysis).	60	6/16/2014	8/7/2015
Prepare Draft Closure Report.	8	8/10/2015	10/2/2015
Water Board review of Draft Closure Report.	5 ¹	10/5/2015	11/6/2015
Incorporate Water Board comments and prepare Final Closure Report.	6	11/9/2015	12/18/2015
Water Board issues No Further Action letter. ²	5 ¹	12/21/2015	1/22/2016
Destroy new monitoring wells and submit well destruction letter report. ²	10	1/25/2016	4/1/2016

Notes:

- ¹ Timeframe may be longer for Water Board review periods as they are dependent on regulatory case load and available resources not within the control of the Navy. This could delay completion of subsequent tasks.
- ² Issuance of a No Further Action letter and subsequent well destruction assumes TPH-HO and TPH-MO concentrations support a proposal for site closure and Water Board concurrence.

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SAP Worksheet #17 - Sampling Design and Rationale

This worksheet discusses the design and rationale of new work activities under Amendment 1, as well as describing the procedures for field data and sample collection.

PROCEDURES FOR FIELD DATA AND SAMPLE COLLECTION

Monitoring Well WT41A-1 Redevelopment

Monitoring well WT41A-1 has not been sampled for several years, and therefore, it will be redeveloped prior sampling to improve hydraulic conductivity between the well and the surrounding formation so that it is yielding samples representative of current groundwater conditions. It will be redeveloped using techniques such as bailing, surging, and pumping either with a well development rig or manually using the similar techniques. A minimum of 5 well volumes of water will be removed from the well while taking measurements of turbidity and other water quality parameters. Well development will be considered complete if turbidity is less than 50 NTUs and water quality parameters have stabilized, as stated in the low-flow sampling criteria above. If turbidity does not drop below 50 NTUs and/or water quality parameters have not stabilized, purging can be considered complete after removal of 7 well volumes of water.

Groundwater waste will be placed in Department of Transportation (DOT)–approved 55-gallon drums, labeled, transported to the designated investigation-derived waste (IDW) storage area, and profiled for appropriate disposal.

Groundwater Monitoring Well Installation and Development

The quantity and location of groundwater monitoring well installations will be determined through consultation with the Water Board based on sampling results from monitoring well WT41A-1. It is anticipated that installation of no more than five new monitoring wells will be required. The two most likely scenarios are shown in Figure 17-A1-1. The first scenario depicted in the top map on the figure shows the likely proposed monitoring network in the event that TPH-HO and TPH-MO concentrations in the initial samples from well WT41A-1 are less than or equal to 100 µg/L in samples prepared with a silica gel cleanup prior to analysis. The second scenario depicted in the bottom map on the figure shows the likely proposed monitoring network in the event that either TPH-HO or TPH-MO is detected at a concentration greater than 100 µg/L in samples prepared with a silica gel cleanup prior to analysis.

A well installation permit will be obtained from the SCVWD and they shall be notified at least 24 hours prior to sealing the annular space as part of the well completion. If well completion is anticipated to be in less than one day, the SCVWD shall be notified at least 24 hours prior to commencement of drilling and provide the anticipated time to commence the sealing of the annular space.

Each drilling location will be marked and cleared for underground utilities and Underground Service Alert North will be notified at least two full working days in advance of drilling.

NASA Ames Research Center will also be notified in advance and, if required, a Construction Permit will be filed with them.

Wells will be installed and developed consistent with the California Department of Water Resources (DWR) Bulletins 74-81 (DWR, 1981) and 74-90 (DWR, 1991). Groundwater monitoring wells will be installed using hollow-stem auger drilling to a maximum depth of approximately 20 feet bgs. Wells will be installed with 2-inch inner diameter Schedule 40 polyvinyl chloride (PVC) casing, with 0.010-inch Schedule 40 PVC slotted screen extending to the total borehole depth and extending approximately 2 feet above the water table. A solid PVC end cap will be placed on the well bottom and affixed to the well screen either by PVC threading or with stainless steel screws. A filter pack using #2/12 sand or equivalent will be placed adjacent to the well screen and approximately one foot above the screen. The top of the filter pack will be at least 3 feet bgs. Hydrated bentonite pellets will be placed starting at the top of the filter pack and approximately one foot thick. The remaining borehole annulus will be filled with neat Type I or II Portland cement mixed at a ratio of one 94-pound sack of Portland cement to approximately 5 to 6 gallons of 'clean' water. The annular seal may be less than 10 feet total depth due to the shallow depth to groundwater. The wellhead will be closed with a lockable water-tight cap and enclosed in a traffic-rated well vault.

The new monitoring wells will be developed according to the same procedures as the redevelopment of WT41A1.

Soil and groundwater waste will be placed in DOT-approved 55-gallon drums, labeled, transported to the designated IDW storage area, and profiled for appropriate disposal.

A California-licensed surveyor will survey the top-of-casing elevation relative to mean sea level using both the 1929 and 1988 North American Vertical Datum and the horizontal location using both the 1927 and 1983 North American Datum, State Plane Coordinate System (U.S. feet), California, Zone III. Survey coordinates will be tied into existing National Aeronautics and Space Administration Ames Research Center monuments as a control. If directed by the Water Board, surveying coordinates will be uploaded into the GeoTracker data base.

Groundwater Sampling

Groundwater samples will initially be collected from groundwater monitoring well WT41A-1. A one-year program of quarterly monitoring from a select number of wells in the vicinity of Building 503, including newly installed wells, will be subsequently implemented. The network of wells to be monitored, including the number and location of new groundwater monitoring wells, will be determined through consultation with the Water Board after receiving results from the initial sampling of monitoring well WT41A-1.

Groundwater samples will be submitted to a Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)-accredited and California-certified ELAP analytical laboratory, under chain of custody (COC) procedures, for the following analysis:

- TPH-MO and TPH-HO by U.S. EPA Method 8015B-Low Level.

Silica gel cleanup will be requested on the COC record for both a groundwater sample and field duplicate sample collected for the initial sampling of groundwater monitoring well WT41A-1 and for each groundwater sample collected under the quarterly monitoring program. An additional sample and field duplicate sample will be collected from groundwater monitoring well WT41A-1 during initial sampling where the COC record will specify no silica gel cleanup. The rationale for this is to evaluate whether polar constituents are present that could have inflated prior investigation TPH-HO and TPH-MO analytical results reported from previously sampled groundwater monitoring wells.

Groundwater monitoring well samples will be collected using low-flow purging methodologies as described below:

Low-flow purging and sampling will be conducted at monitoring wells using portable bladder pumps. The sampling tube will be new, clean polyethylene tubing dedicated to a specific well to minimize the potential for cross-contamination. If future sampling of the well is anticipated and dedicated pumps are installed, the dedicated tubing should be drained, coiled, and double-bagged in clean plastic bags (large garbage bags are suitable for this purpose). The sealed plastic bags would be labeled to identify the well and stored in a secure onsite location that does not have the potential for contaminant exposure until required for further sampling. Alternatively, the tubing can be suspended from the well cap and lowered back down the well casing.

The objective of low-flow purging is to remove water from the monitoring well screened interval at a rate that is comparable to the ambient groundwater flow rate in the aquifer to minimize drawdown in the well and limit the mixing of water within the screened interval with overlying stagnant water in the well casing. Low-flow purging allows for collection of representative groundwater samples with minimal disturbance and low turbidity. The method requires placement of the sampling pump below the water table within the screened interval of the well. Typically, the pump is positioned near the middle of the saturated part of the screened interval in the well.

Before purging begins, an initial water-level measurement will be taken and recorded on the well purging record in the field logbook. The pump-system volume (i.e. internal volume of the pump and discharge tubing) will be calculated and recorded in the field notebook. The pump-system volume will be based on the manufacturer's pump dimensions and the length and inner diameter of the discharge tubing. When lowering the pump into the water column, care will be taken to slowly lower the pump into the well and then wait approximately 15 minutes for the well to equilibrate. When the pump is started, continuous water-level monitoring will be conducted. Water-level measurements will be recorded on the well purging record at approximately 5-minute intervals throughout purging, just prior to sample collection, and immediately after sampling is complete. A pumping rate of between 100 and 500 milliliters per

minute (ml/min) will be maintained during purging. The rate will be recorded on the well purging record at approximately 5-minute intervals during purging.

The purge rate will be specific to each well and will be selected so that little or no drawdown or mixing of stagnant and formation water occurs. The purge rate will be selected to achieve drawdown in the well of approximately 0.3 foot or less. However, if the minimal drawdown that can be achieved even at a minimum purge rate of approximately 100 ml/min exceeds 0.3 foot but remains stable, purging will continue until the field monitoring parameters have stabilized. If the formation recharge rate to the well is lower than the minimum purging rate capabilities of the bladder pump and the well is essentially dewatered during purging, the well will be sampled as soon as the water level has recovered sufficiently to meet the sample volume requirements, even if the indicator parameters have not stabilized. If adjustments to the purge rate are required to maintain a stable drawdown, these adjustments will also be recorded on the well purging record in the field logbook.

During purging, water quality parameters (i.e., hydrogen ion concentration [pH], specific conductance [SpC], and dissolved oxygen [DO]) will be measured and recorded at approximately 5-minute intervals on the well purging record in the field logbook. Purging will continue until three consecutive measurements of the water quality parameters have been recorded within the following ranges:

- pH = plus or minus (\pm) 0.2.
- SpC = \pm 3 percent.
- DO = \pm 10 percent or 0.2 mg/L (whichever is greater).

Purging will be considered complete when two conditions are met:

- a) The water quality parameters have stabilized as described above.
- b) The total volume of purged water is greater than one pump-system volume.

Sample containers for TPH-HO and TPH-MO analysis will be filled at a purge rate of approximately 500 ml/min or less.

Groundwater sample containers will be labeled and placed in a cooler with ice, to be maintained at temperature of less than or equal to 6 degrees Celsius ($^{\circ}$ C) (but not frozen).

Groundwater Monitoring Well Destruction

Upon receiving notice of Building 503 site closure from the Water Board, monitoring wells installed specifically for this investigation will be destroyed in compliance with SCVWD requirements.

A well destruction permit will be acquired from the SCVWD in advance and they will be notified at least 24 hours prior to well destruction. If well destruction is anticipated to be in less than one day, the SCVWD will be notified at least 24 hours prior to commencement of well destruction activities.

Wells will be pressure grouted to within five feet of ground surface. The well vault and top five feet of casing and associated annular material will be drilled out and then backfilled with grout. Ground surface will be repaired in kind with the surrounding surface (typically asphalt).

Field Equipment Decontamination

No change.

Management of Investigation-Derived Waste

No change.

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Figure 17-A1-1. Proposed Groundwater Monitoring Network Scenarios

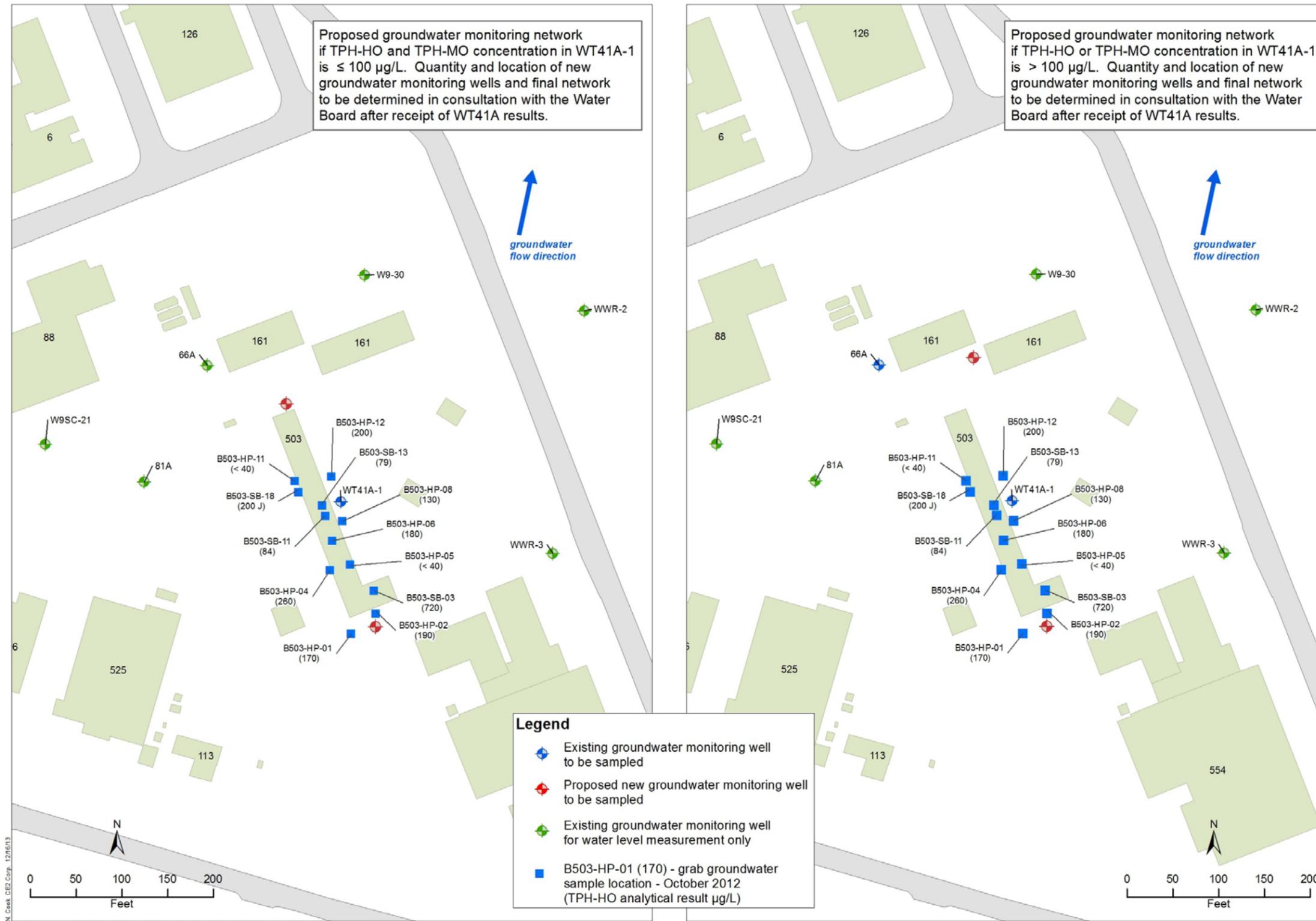


FIGURE	17-A1-1
Proposed Groundwater Monitoring Network	
Final Addendum 1 to the Final Sampling and Analysis Plan Building 503 Soil and Groundwater Sampling Former Naval Air Station Moffett Field, Mountain View, California December 2013 CEKA-2627-0005-0006.A1/F	
 6140 Stoneridge Mall Road, Suite 500, Pleasanton, CA 94568-3677	 Naval Facilities Engineering Command Southwest 1220 Pacific Highway, San Diego, California 92132-5190

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SAP Worksheet #18 - Sampling Locations and Methods/SOP Requirements Table

Sampling Location/ID Number ¹	Matrix	Depth ¹ (feet bgs)	Analytical Group	Number of Samples (identify field duplicates) ²	Sampling SOP Reference
Initial Sampling of WT41A-1					
Monitoring Well WT41A-1/ B503-MW-WT41A-1-DDMMYY ³	Water	10	<ul style="list-style-type: none"> • TPH-residual fuels 	Total of 4 ⁴ <ul style="list-style-type: none"> • two for silica gel cleanup (one of which is a field duplicate) • two without silica gel cleanup (one of which is a field duplicate) 	See WS 17
Quarterly Monitoring Phase					
Quarterly Groundwater Monitoring Well / B503-MW-AA-DDMMYY ⁵	Water	10	<ul style="list-style-type: none"> • TPH-residual fuels 	1 per analytical group (field duplicates to be taken at frequency of at least 1 per quarter and at least 1 per 10 samples per quarter)	See WS 17

Notes:

¹ Depths of groundwater samples are approximate, and may change based on field conditions.

² Field duplicates are discussed in WS#20. Locations selected for field duplicate collection may change due to field conditions (e.g., well has insufficient water for sampling).

³ DDMMYY = the two-digit representations of the day, month, and year the sample is collected.

⁴ Groundwater analysis for initial sampling of WT41-A will be conducted on rush turnaround.

⁵ Groundwater samples will be collected quarterly from groundwater monitoring wells per the monitoring network approved by the Water Board based on results from initial sampling of WT41A-1. Sample IDs will be completed in the field based on the following convention: B503-MW-AA-DDMMYY where AA = the assigned monitoring well number, and DDMMYY = the two-digit representations of the day, month, and year the sample is collected.

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SAP Worksheet #19 - Field Sampling Requirements Table

Matrix	Analytical Group	Analytical and Preparation Method / SOP Reference	Containers (number, size, and type)	Sample volume (units)	Preservation Requirements (chemical, temperature, light protected)	Maximum Holding Time (preparation / analysis)
Water	TPH-residual fuels (TPH-Low Level motor oil and hydraulic oil only)	U.S. EPA 8015B and 3510C <i>ANA8015 and SEP011</i>	(3) 500-ml amber glass bottle	1000 ml	Cool to ≤ 6 °C (not frozen)	7 days extraction/ 40 days analysis

Note:

This SAP addendum worksheet supersedes Final SAP Worksheet #3 for work being performed under Addendum 1.

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

Matrix	Analytical Group	Number of Sampling Locations	Number of Field Duplicates	Number of MS/MSDs	Number of Field Blanks	Number of Equipment Blanks	Number of VOA Trip Blanks	Number of Proficiency Testing Samples	Total Number of Samples to Lab
Initial Sampling of Monitoring Well WT41A-1									
Water	TPH-residual fuels (TPH-Low Level motor oil and hydraulic oil only))	1	1	1/1	0	1	Not applicable	0	5
Quarterly Groundwater Monitoring for One Year (per quarterly event)									
Water	TPH-residual fuels (TPH-Low Level motor oil and hydraulic oil only))	TBD ¹ (≤5 locations)	1	1/1	0	1	0	0	TBD

Notes:

These changes supersede Final SAP Worksheet #12 for work being performed under Addendum 1.

List of target analytes for analytical groups is provided in Worksheet #18.

¹ Number of samples locations and total number of samples will depend on final monitoring network to be agreed upon with the Water Board upon receipt of analytic results from initial groundwater sampling of monitoring well WT41A-1.

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SAP Worksheet #23 - Analytical SOP References Table

Lab SOP Number	Title, Revision Date, and / or Number	Definitive or Screening Data	Matrix and Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? (Y/N)
ANA8015	Determination of Total Extractable Petroleum Hydrocarbons (TPH) in Water, Sludges and Soils by GC-FID. (Revision 4, 05/2013)	Definitive	Water TPH-residual fuels (TPH-Low Level motor oil and hydraulic oil only)	GC-FID	APPL	Water: Y

Notes:

Laboratory analytical SOPs are provided in the Final SAP Appendix A.

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SAP Worksheet #29 - Project Documents and Records Table

DOCUMENT	WHERE MAINTAINED
Santa Clara Valley Water District well destruction permit	Project file, Santa Clara Valley Water District, NAVFAC Southwest Administrative Record
Addendum 1 to the Final SAP	Project file, NAVFAC Southwest Administrative Record
Addendum to the Accident Prevention Plan and Site-specific Safety and Health Plan (APP/SSHP) (if required)	Project file, Navy ROICC, NAVFAC Southwest Administrative Record
Well destruction letter report	Project file, NAVFAC Southwest Administrative Record

Note:

This updated worksheet supplements Final SAP Worksheet #29.

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SAP Worksheet #30 - Analytical Services Table

Matrix	Analytical Group	Sample Locations / ID Number	Analytical SOP	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)
Water	TPH-residual fuels	See WS #18	<i>ANA8015 and SEP011</i>	28 days ¹	APPL 908 North Temperance Ave. Clovis, CA 93611 Diane Anderson 559-275-2175	EMAX 1835 W. 205th Street Torrance, CA 90501 Jim Carter 310-618-0818

Notes:

Laboratories will be accredited by the California Department of Health Services ELAP, DOD ELAP, and NELAP to perform required analyses.

¹ Groundwater samples collected during initial sampling of monitoring well WT41A-1 will be analyzed on rush turnaround (per WS #18).

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References

California Department of Water Resources (DWR), 1981. *Water Well Standards: State of California Bulletin 74-81*. December.

DWR, 1991. *California Well Standards: Bulletin 74-90*. June.

San Francisco Bay Regional Water Quality Control Board (Water Board), 2008. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*. November 2007, revised May 2013.

U.S. Navy, 2012. *Final Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan) for Building 503 Sampling and Soil Removal, Former Naval Air Station Moffett Field, Mountain View, California, DCNL CEKA-2627-0005-0006*. August.

U.S. Navy, 2013. *Final Technical Memorandum for Building 503 Soil and Groundwater Sampling, Former Naval Air Station Moffett Field, Mountain View, California, DCNL CEKA-2627-0005-0009*. July.

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