Comprehensive Long-Term Environmental Action Navy (CLEAN) II
Contract No. N62742-94-D-0048
Contract Task Order No. 0068

Final Work Plan

# Preliminary Assessment, Building 307

## Marine Corps Air Station, El Toro, California

Prepared for:

Department of the Navy
Commander, Southwest Division
Naval Facilities Engineering Command
San Diego, California 92132-5190

Prepared by:

EARTH TECH, Inc.
700 Bishop Street, Suite 900
Honolulu, Hawaii 96813

August 2001

**DEPARTMENT OF THE NAVY**
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5190

5090
Ser 06CC.DG/0928
6 September 2001

Ms. Triss Chesney
California Environmental Protection Agency
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630-4700

Subj: FINAL WORK PLAN, PRELIMINARY ASSESSMENT,
BUILDING 307, MARINE CORPS AIR STATION (MCAS) EL TORO

Dear Ms. Chesney:

Please find enclosed the Final version of the subject document. This Work Plan has been revised and finalized in accordance with comments received from the BRAC Cleanup Team in June and July 2001. As recently discussed with you as well, we are hopeful that this effort can be incorporated into the documents for the larger IR Sites 18 & 24 effort, without delaying that timeline. As you know, the Settlement Agreement is currently with DOJ for final review. We would like to do our initial fieldwork and have preliminary data back and complete a Draft Report for inclusion in the administrative record before the Sites18 & 24 Proposed Plan is published for public comment (see enclosure (1)). While the schedule shows the Draft Report going out before the formal Navy and BCT review, the BCT will be apprised of the sampling results in advance as they become available. To meet this objective will require support from us all. The next step for this to be a success would be for an expedited (roughly one week) review by the BCT of enclosure (2). We believe this to be possible, as all previously submitted comments have been responded to favorably, and are willing to have a conference call to help facilitate. Should significant contamination be found, our plans would need to change. Please contact either Mr. Don Whittaker at (619) 532-0791 or myself at (619) 532-0765 should you have any questions, or need additional information, and thank you for your support in the resolution of this issue.

Sincerely,

DEAN GOULD
Base Realignment and Closure
Environmental Coordinator
By direction of the Commander

Enclosure: 1. Building 307 Schedule
2. Final Work Plan, Preliminary Assessment, Building 307

5090
Ser 06CC.DG/0928
6 September 2001

Copy to: (w/encl)
Ms. Nicole Moutoux, U.S. EPA
Ms. Patricia Hannon, Cal RWQCB, Santa Ana Region
Mr. Greg Hurley, RAB Community Co-Chair
Ms. Marcia Rudolph, RAB Subcommittee Chair
Ms. Polin Modanlou, LRA
Mr. Wayne Lee, COMCABWEST

**DEPARTMENT OF THE NAVY**
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5090
Ser 06CC.DG/0928
6 September 2001

Ms. Patricia Hannon
California Regional Water Quality Control Board
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Remedial Project Manager
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Subj: FINAL WORK PLAN, PRELIMINARY ASSESSMENT,
BUILDING 307, MARINE CORPS AIR STATION (MCAS) EL TORO

Dear Ms. Hannon:

Please find enclosed the Final version of the subject document. This Work Plan has been revised and finalized in accordance with comments received from the BRAC Cleanup Team in June and July 2001. As recently discussed with you as well, we are hopeful that this effort can be incorporated into the documents for the larger IR Sites 18 & 24 effort, without delaying that timeline. As you know, the Settlement Agreement is currently with DOJ for final review. We would like to do our initial fieldwork and have preliminary data back and complete a Draft Report for inclusion in the administrative record before the Sites18 & 24 Proposed Plan is published for public comment (see enclosure (1)). While the schedule shows the Draft Report going out before the formal Navy and BCT review, the BCT will be apprised of the sampling results in advance as they become available. To meet this objective will require support from us all. The next step for this to be a success would be for an expedited (roughly one week) review by the BCT of enclosure (2). We believe this to be possible, as all previously submitted comments have been responded to favorably, and are willing to have a conference call to help facilitate. Should significant contamination be found, our plans would need to change. Please contact either Mr. Don Whittaker at (619) 532-0791 or myself at (619) 532-0765 should you have any questions, or need additional information, and thank you for your support in the resolution of this issue.

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Base Realignment and Closure
Environmental Coordinator
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Copy to: (w/encl)
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Mr. Greg Hurley, RAB Community Co-Chair
Ms. Marcia Rudolph, RAB Subcommittee Chair
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Mr. Wayne Lee, COMCABWEST

**DEPARTMENT OF THE NAVY**
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
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5090
Ser 06CC.DG/0928
6 September 2001

Ms. Nicole Moutoux
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San Francisco, CA 94105-3901

Subj: FINAL WORK PLAN, PRELIMINARY ASSESSMENT,
BUILDING 307, MARINE CORPS AIR STATION (MCAS) EL TORO

Dear Ms. Moutoux:

Please find enclosed the Final version of the subject document. This Work Plan has been revised and finalized in accordance with comments received from the BRAC Cleanup Team in June and July 2001. As recently discussed with you as well, we are hopeful that this effort can be incorporated into the documents for the larger IR Sites 18 & 24 effort, without delaying that timeline. As you know, the Settlement Agreement is currently with DOJ for final review. We would like to do our initial fieldwork and have preliminary data back and complete a Draft Report for inclusion in the administrative record before the Sites18 & 24 Proposed Plan is published for public comment (see enclosure (1)). While the schedule shows the Draft Report going out before the formal Navy and BCT review, the BCT will be apprised of the sampling results in advance as they become available. To meet this objective will require support from us all. The next step for this to be a success would be for an expedited (roughly one week) review by the BCT of enclosure (2). We believe this to be possible, as all previously submitted comments have been responded to favorably, and are willing to have a conference call to help facilitate. Should significant contamination be found, our plans would need to change. Please contact either Mr. Don Whittaker at (619) 532-0791 or myself at (619) 532-0765 should you have any questions, or need additional information, and thank you for your support in the resolution of this issue.

Sincerely,

DEAN GOULD
Base Realignment and Closure
Environmental Coordinator
By direction of the Commander

Enclosure: 1. Building 307 Schedule
2. Final Work Plan, Preliminary Assessment, Building 307

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Ser 06CC.DG/0928
04 September 2001

Copy to: (w/encl)
Ms. Triss Chesney, DTSC
Ms. Patricia Hannon, Cal RWQCB, Santa Ana Region
Mr. Greg Hurley, RAB Community Co-Chair
Ms. Marcia Rudolph, RAB Subcommittee Chair
Ms. Polin Modanlou, LRA
Mr. Wayne Lee, COMCABWEST

**Reference addresses**

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# DOCUMENT TRANSMITTAL

**Contract No. N62742-94-D-0048**

To: Remedial Project Manager
Naval Facilities Engineering Command
Southwest Division
Don Whittaker 06CC.DW
1230 Columbia Street, Suite 1100
San Diego, CA 92101

DATE: August 31, 2001
CTO #: 068
LOCATION: MCAS El Toro

FROM: Crispin G. Wanyoike

DESCRIPTION: Final Work Plan - Preliminary Assessment, Building 307

TYPE: ___ Contract Deliverable (Cost) ___✔ CTO Deliverable (Technical) ___ Other

VERSION: _____ REVISION #s: _____

ADMIN RECORD: Yes ___ No ___ Category ___ Confidential ___
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**Final Work Plan**
**Preliminary Assessment, Building 307**
**MCAS El Toro, California**

**Contract No. N62742-94-D-0048**
**Contract Task Order No. 0068**

Reviews and Approvals:

Crispin Wanyoike, P.E.
CTO Manager
Earth Tech, Inc.

Date: August 23, 2001

Ken Vinson, P.E.
Program Quality Manager
Earth Tech, Inc.

Date: August 21, 2001

Narciso Ancog
Quality Assurance Officer
U.S. Naval Facilities Engineering Service Command
Southwest Division

Date: 8/24/01

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## CONTENTS



## ATTACHMENT 1

## FIGURES



## TABLES

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| °C | degrees Celsius |
| µg/L | micrograms per liter |
| %R | percent recovery |
| 1,1-DCE | 1,1-dichloroethene |
| BCT | BRAC Cleanup Team |
| bgs | below ground surface |
| BNI | Bechtel National, Inc. |
| BRAC | Base Realignment and Closure |
| CCR | California Code of Regulations |
| CDM | CDM Federal Programs Corporation |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| CLEAN | Comprehensive Long-Term Environmental Action Navy |
| CLP | Contract Laboratory Program |
| COC | chain of custody |
| COPCs | chemicals of potential concern |
| CPT | cone penetrometer test |
| CRWQCB | California Regional Water Quality Control Board |
| CTO | contract task order |
| DHS | (California) Department of Health Services |
| DON | Department of the Navy |
| DOT | Department of Transportation |
| DTSC | Department of Toxic Substances Control |
| DQO | data quality objective |
| Earth Tech | Earth Tech, Inc. |
| EDDs | electronic data deliverables |
| ELAP | Environmental Laboratory Accreditation Program |
| ELCD | electrolytic conductivity detector |
| EPA | Environmental Protection Agency |
| EWI | Environmental Work Instructions |
| FFA | Federal Facilities Agreement |
| FOST | Finding of Suitability to Transfer |
| FS | feasibility study |
| FSP | field sampling plan |
| HSP | health and safety plan |
| ID | identification |
| IDW | investigation-derived waste |
| IRP | Installation Restoration Program |
| JEG | Jacobs Engineering Group, Inc. |
| LCS | laboratory control sample |
| LDPE | low-density polyethylene |
| MCAS | Marine Corps Air Station |
| MCLs | maximum contaminant levels |
| MS | matrix spike |
| MSAs | master services agreements |
| MSD | matrix spike duplicate |
| NA | not applicable |

| | |
|---|---|
| NCP | National Contingency Plan |
| NEDTS | Naval Environmental Data Transfer System |
| NEESA | Naval Energy and Environmental Support Activity |
| NFESC | Naval Facilities Engineering Service Center |
| NPL | National Priorities List |
| PACNAVFACENGCOM | Pacific Division, Naval Facilities Engineering Command |
| PCE | tetrachloroethene |
| pH | negative log of the hydrogen ion concentration |
| PPE | personal protective equipment |
| PRGs | preliminary remediation goals |
| QA | quality assurance |
| QAO | quality assurance officer |
| QAPP | quality assurance project plan |
| QC | quality control |
| RCRA | Resource Conservation and Recovery Act |
| RI | remedial investigation |
| ROD | Record of Decision |
| RPD | relative percentage of difference |
| RPM | remedial project manager |
| SARA | Superfund Amendments and Reauthorization Act |
| SOP | standard operating procedure |
| SOW | statement of work |
| SVE | soil vapor extraction |
| SW | solid waste |
| SWDIV | Southwest Division, Naval Facilities Engineering Command |
| SWAT | solid waste assessment test |
| SVE | soil vapor extraction |
| TCE | trichloroethene |
| U.S. | United States |
| VOCs | volatile organic compounds |
| WP | work plan |

# 1. INTRODUCTION

This work plan details the objectives and procedures to conduct a Preliminary Assessment in and around Building 307 located at the Installation Restoration Program (IRP) Site 24, Volatile Organic Compounds (VOCs) Source Area, at the Marine Corps Air Station (MCAS), El Toro, California.

This work plan (WP) was prepared for the Southwest Division Naval Facilities Engineering Command (SWDIV) as authorized by the U.S. Navy, Pacific Division, Naval Facilities Engineering Command (PACNAVFACENGCOM) under contract task order (CTO) no. 0068 of the Comprehensive Long-Term Environmental Action Navy (CLEAN) II program, contract number N62742-94-D-0048. It complies with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) in Title 40 of the Code of Federal Regulations (CFR), Part 300 and California Health and Safety Code, Section 6.8.

## 1.1 PURPOSE AND SCOPE OF THE WORK PLAN

The purpose of this WP is to identify and characterize the possible presence of tetrachloroethene (PCE) in the environment (soil and groundwater) as a result of laundry and dry cleaning operations at Building 307. This assessment will be performed to confirm the results of the Phase II Remedial Investigation (RI) that was performed at Site 24 and reported in the *Draft Final Phase II Vadose Zone Remedial Investigation Report (RI Report), Operable Unit 2A – Site 24* (BNI 1997a). The scope of this WP is to collect data to assess shallow and deep subsurface conditions. These data will then be evaluated to determine the response actions required.

This WP includes the field sampling plan (FSP) and presents the elements of the quality assurance project plan (QAPP) as recommended in the Environmental Protection Agency (EPA) document, *Requirements for Quality Assurance Project Plans for Environmental Data Operations, QA/R-5* (EPA 1999).

## 1.2 MCAS EL TORO-DESCRIPTION AND BACKGROUND

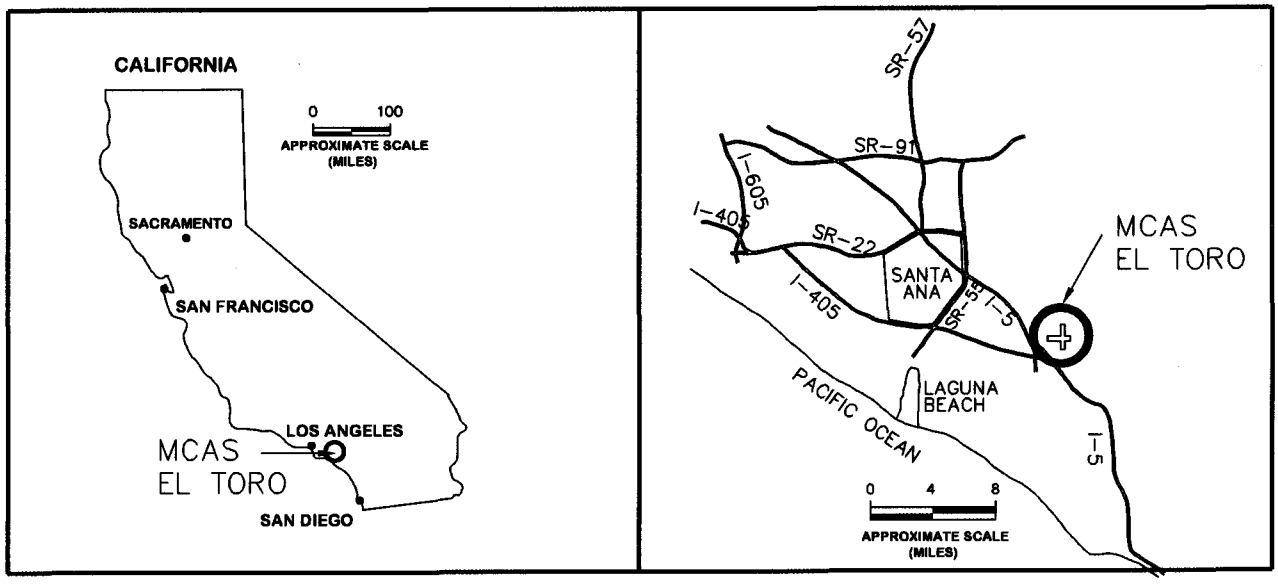
MCAS El Toro is located in a semi-urban, agricultural area of southern California, approximately 8 miles south of Santa Ana and 12 miles northeast of Laguna Beach (Figure 1-1). MCAS El Toro covers approximately 4,740 acres. Land use around the MCAS includes commercial, light industrial, and residential. MCAS El Toro closed on 2 July 1999, in accordance with the Base Realignment and Closure (BRAC) Act.

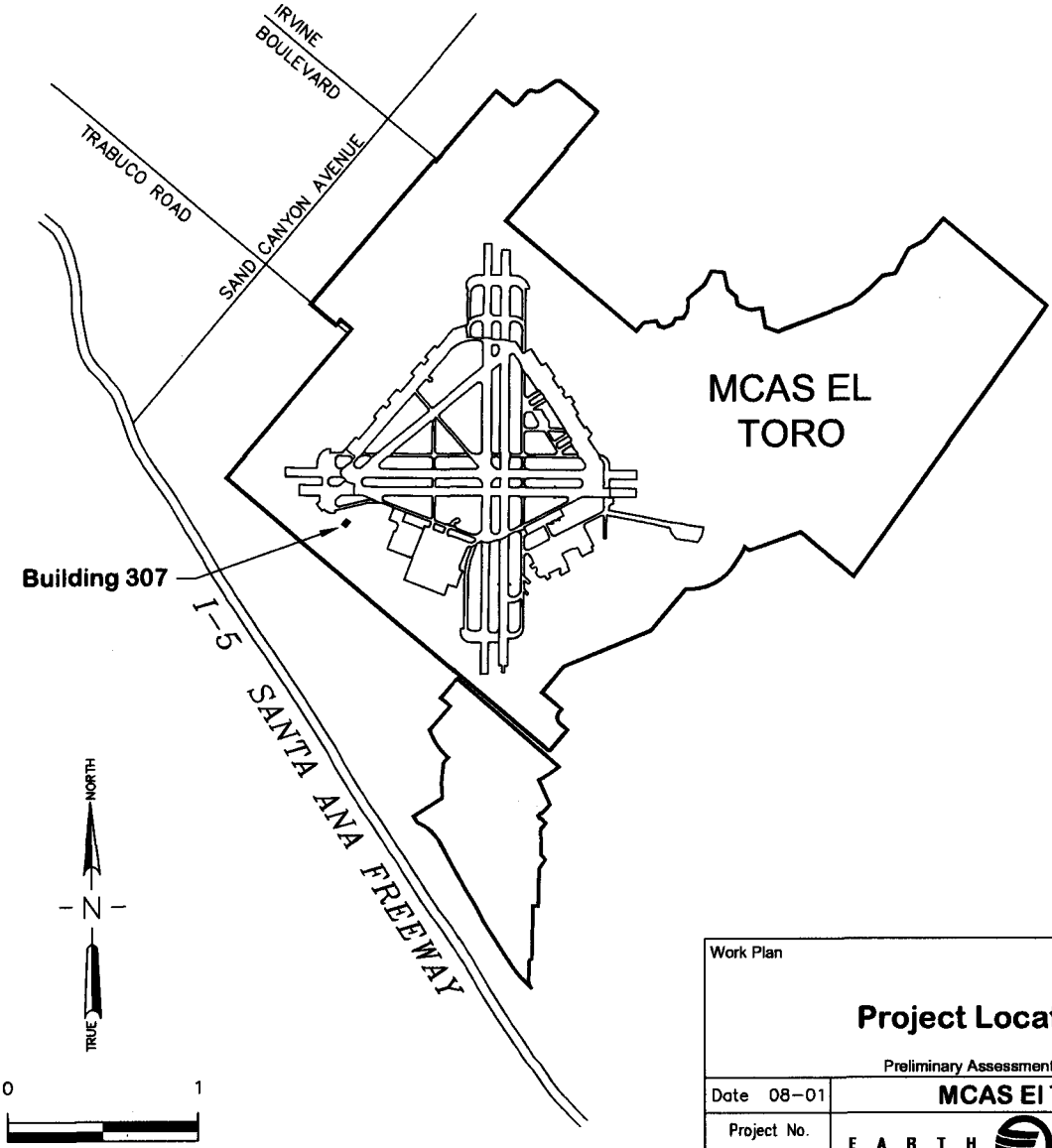
Initial work conducted by the Department of the Navy (DON) at MCAS El Toro included an *Initial Assessment Study* during 1985 (Brown and Caldwell 1986) and a *Site Inspection Plan of Action* during 1987 and 1988 (James Montgomery 1988).

MCAS El Toro was added to the National Priorities List (NPL) of the Superfund Program on 15 February 1990, due to VOC contamination at the MCAS boundary and in the agricultural wells west of MCAS. A Federal Facilities Agreement (FFA) was signed by the Marine Corps/DON in October 1990 with EPA Region IX, California Department of Health Services (DHS) (part of which is currently the Department of Toxic Substances Control [DTSC]), and the California Regional Water Quality Control Board, Santa Ana Region (CRWQCB).

In March 1993, MCAS El Toro was placed on the list of military facilities scheduled for closure under the BRAC Act. A BRAC Cleanup Team (BCT), including representatives from the SWDIV, EPA, DTSC, and CRWQCB was formed to oversee implementation of the FFA.

Implementation of the FFA at MCAS El Toro included a Phase I RI, a Phase II RI/Feasibility Study (FS), and various site-specific investigations and studies. Groundwater sampling is conducted station-wide on a routine basis by the Navy (BNI 1998, 1999a, 1999b, and CDM Federal Programs Corporation [CDM] 2000a, 2000b, and 2001).




| | | |
|---|---|---|
| Work Plan | | Final |
| **Project Location Map** | | |
| Preliminary Assessment, Building 307 | | |
| Date 08-01 | **MCAS El Toro** | Figure 1-1 |
| Project No. 29307 | EARTH TECH<br>A tyco INTERNATIONAL LTD. COMPANY | |

# 2. SITE BACKGROUND AND SETTING

## 2.1 LOCATION

Building 307 is located in the southwest quadrant of MCAS El Toro (see Figure 1-1). The building was historically used as a laundry and dry cleaning facility (see Figure 2-1).

## 2.2 LAND USE AND NATURAL RESOURCES

A majority of the land immediately surrounding MCAS El Toro has been used for plant nursery and agricultural activities. Areas located to the south, southeast, and southwest have been developed for commercial, light industrial, and residential uses.

According to the Santa Ana Region Basin Plan, the groundwater beneath MCAS El Toro has potential beneficial uses as a municipal water supply (CRWQCB 1995), an agricultural resource, an industrial supply, and an industrial process supply. Groundwater in the vicinity of MCAS El Toro is mostly used for irrigation of agricultural and greenbelt areas (i.e., parkways and parks). Potable water in the area is imported from various sources, and the remainder comes from local resources, including groundwater.

## 2.3 PREVIOUS WORK

**Phase I and Phase II RI.** The Phase I RI sampling and analysis program demonstrated that soil-gas sampling was the most effective way to characterize the nature and extent of VOCs in the vadose zone. Phase I sampling concentrated on shallow soil-gas sampling up to 30 feet below ground surface (bgs) and effectively characterized the nature and extent of VOCs to that depth. The Phase II investigation extended the Phase I soil-gas survey from approximately 30 feet bgs to the groundwater.

As part of these investigations, one soil-gas well, (24CPT56) located on the north-northeast side of Building 307, with three sample points up to 96 feet deep, showed undetected levels (<1 micrograms per liter [µg/L]) of PCE (see Figure 2-1). In addition, groundwater well 12UGMW31 located on the southeast side and cross-gradient of Building 307 was reported with a PCE concentration of 4µg/L and a trichloroethene (TCE) concentration of 22µg/L (BNI 1997a). There are no other groundwater wells in close proximity to the building. The nearest downgradient groundwater well (18BGMW101) is located approximately 2,300 feet away.

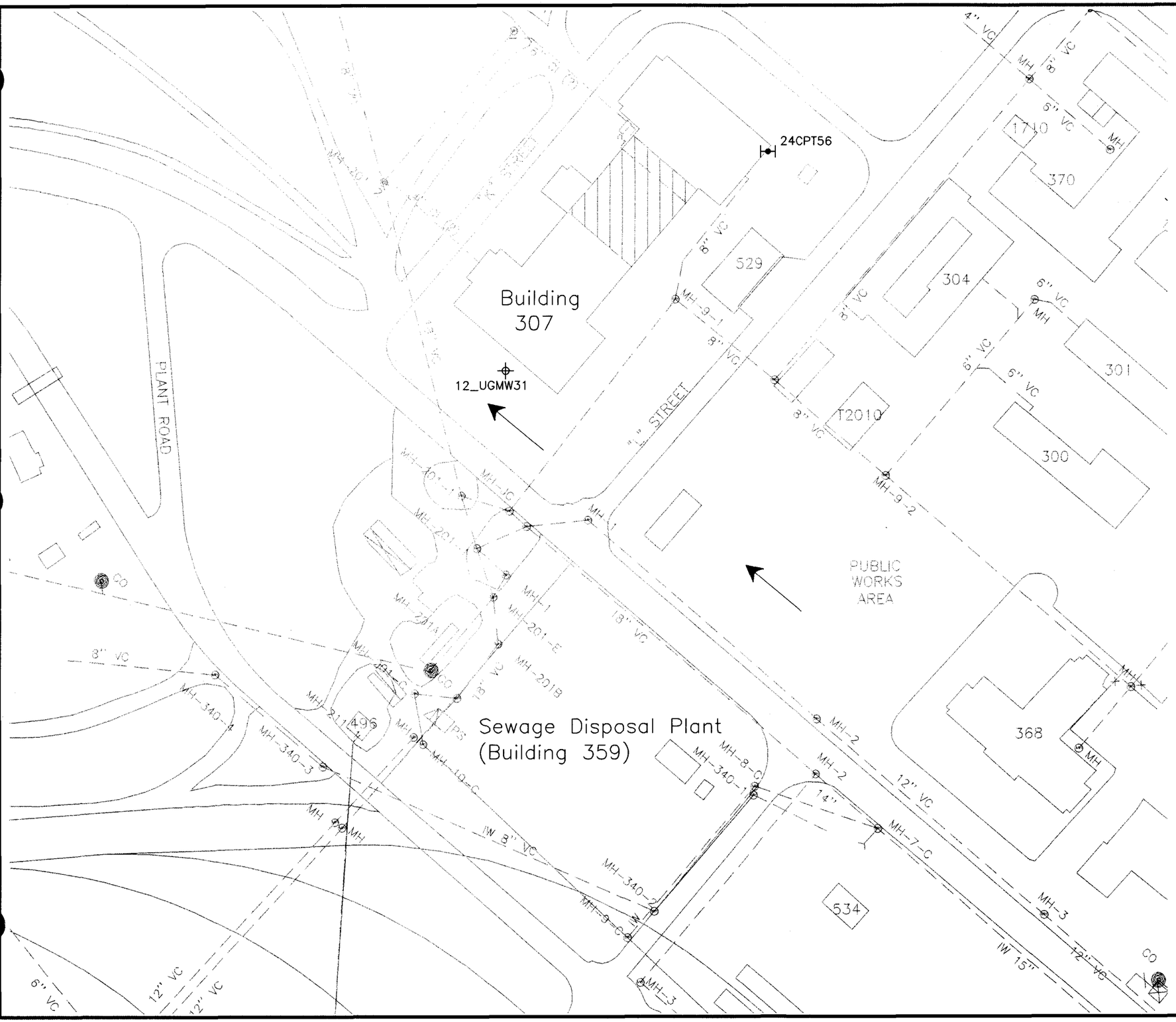
## 2.4 GEOLOGY AND HYDROGEOLOGY

Subsurface lithology at Building 307 consists of three units of alluvial fan deposition. Coarse-grained stream channel deposits (sands and gravels) are interbedded with intermediate-grained (silty sand and clayey sand) and fine-grained (silts and clays) overbank deposits to approximately 300 feet bgs (Herndon and Reilly 1989).

Building 307 is located within the Irvine subbasin forebay, designated by the CRWQCB, Santa Ana Region, as a public water supply source (CRWQCB 1995). The regional aquifer beneath Building 307 is not currently a source of municipal drinking water; however, groundwater near the station is used for agricultural purposes. Groundwater is found in two aquifers separated by an intermediate zone of fine-grained alluvial sediments approximately 90 feet thick and with a vertical hydraulic conductivity several orders of magnitude lower than the two water-bearing zones (BNI 1997b).

The shallow aquifer is encountered at approximately 85 feet to 120 feet bgs and appears to be laterally continuous across the site with an estimated northwesterly flow direction (see Figure 2-1). It is greater than 100 feet thick; the upper 40 feet to 50 feet of which is relatively sandy with interbedded fine-grained materials. The lower portion is increasingly interbedded with finer-grained sediments. The deeper aquifer (principal aquifer) is part of the early Pleistocene San Pedro Formation and is the main water-production zone for the Irvine area. Near Building 307, depth to groundwater is estimated to be approximately 91 feet bgs (CDM 2000b).

PRIMARY SOURCE OF MAP INFORMATION
DRAFT FINAL ENGINEERING
DESIGN REPORT (BECHTEL)




EXPLANATION

| | |
|---|---|
| 307 | BUILDING |
| | FORMER LAUNDRY/DRY CLEANING AREA |
| | SANITARY SEWER LINE |
| MH | MANHOLE |
| | EXISTING GROUNDWATER WELL |
| | EXISTING SOIL-GAS WELL |
| CI | CAST-IRON PIPE |
| VC | VITRIFIED CLAY PIPE |
| IW | IRRIGATION WATER |
| PS | PUMP STATION |
| MH-JC | MANHOLE JUNCTION |
| CO | CLEAN-OUT |
| CPT | CONE PENETROMETER TEST |
| UGMW | UPGRADIENT MONITORING WELL |
| | GROUNDWATER FLOW DIRECTION |

NORTH

0 50 100

SCALE: 1" = 100'

| | |
|---|---|
| Work Plan | Final |
| Site Plan | |
| Preliminary Assessment, Building 307 | |
| Date 08-01 | MCAS El Toro |
| Project No. 29307 | EARTH TECH, A tyco INTERNATIONAL LTD. COMPANY |
| Figure 2-1 | |

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# 3. WORK PLAN APPROACH

## 3.1 DATA QUALITY OBJECTIVES

This work plan was developed in accordance with the EPA guidance for the data quality objectives (DQO) process (EPA 2000).

### 3.1.1 Problem Statements

Laundry and dry cleaning operations were conducted at Building 307 approximately between 1944 and 1977. PCE was used in dry cleaning, and its potential presence in the subsurface has not been adequately evaluated. A conceptual site model is shown on Figure 3-1.

### 3.1.2 Project Decisions

**Study Question.** Is there any soil and/or groundwater contamination at Building 307 and its vicinity resulting from previous industrial laundry and dry cleaning operations? If contamination is found, is further investigation or a remedial response, consistent with CERCLA and the Navy's IRP/BRAC process, required?

To resolve the principal study question, the following decision questions will be considered:

1. Are concentrations of chemicals of potential concern (COPCs), that is, volatile organic compounds, present in the soil-gas that indicate the presence of a previously unidentified release in or around Building 307?
2. If the soil-gas shows evidence that vadose zone soils have been impacted, is there evidence the contamination extends to the groundwater?

### 3.1.3 Decision Inputs

In the course of this assessment, analytical results from sampling performed at Building 307 will be used to resolve the study question. The critical data that will serve as input to the decision are listed below.

1. The laboratory reporting limits will be used as an initial screening tool in determining the presence or absence of COPCs in both the soil-gas and the groundwater samples.
2. Decision threshold values used for the target analytes (that is, PCE, TCE, and 1,1-dichloroethene [1,1-DCE]) will equal the method reporting limit of 1$\mu$g/L.
3. Threshold values for the target analytes (PCE, TCE, 1,1-DCE) in the groundwater will correspond to state MCLs, which are 5$\mu$g/L, 5$\mu$g/L, and 6$\mu$g/L respectively.
4. Regulatory review comments on the sampling results will be discussed and appropriately incorporated into the decision.

### 3.1.4 Study Boundaries

The lateral extent of the investigation will be focused within Building 307 in the areas where laundry and dry cleaning was performed and along the lateral sewer line and main trunk line from the building to the sewage disposal plant (Building 359 [see Figure 2-1]). The vertical extent of the assessment will extend to the first encountered groundwater interface. These areas are shown on Plate 1, which is included as Attachment 1.

### 3.1.5 Decision Rules

Decision rules to be followed are presented below:

1. ***If*** COPCs are detected at 5 feet or 10 feet bgs during shallow soil-gas sampling, ***then*** a 15-foot-bgs sample will be collected (decision question 1). However, at sampling locations along the sewer line soil gas samples will be collected at 5 feet and 10 feet below the sanitary sewer pipe (estimated to be in the range of five to eight feet deep).

   Analytical data from soil-gas samples collected during this and previous investigations will be evaluated against the decision thresholds, which are specified in the QAPP as the laboratory reporting limits. The presence of target analytes in the soil-gas or groundwater will result in further evaluation of the source.

2. ***If*** the results of the shallow (0–15 feet bgs) soil-gas samples indicate that COPCs are present below 15 feet bgs, ***then*** up to five such locations, additional soil-gas samples will be collected to three depths per location (45 feet, 60 feet, and approximately 90 feet bgs). These additional samples will be used to investigate the vertical extent of contamination (decision question 2).

   However, should shallow (0–15 feet bgs) soil-gas samples indicate that COPCs are not present below 15 feet bgs, ***then*** at a minimum, at least two sample locations inside the building (access permitting) and two along the sewer line will be selected for soil-gas sample collection to a maximum depth of 60 feet.

3. ***If*** the contamination does not extend to groundwater, ***then*** the groundwater will not be considered to have been impacted (decision question 2).

4. ***If*** the soil-gas results indicate detectable concentrations extending to groundwater, ***then*** groundwater Hydropunch samples of the first-encountered groundwater will be collected and sampled to complete the preliminary evaluation of the impact. (decision question 2).

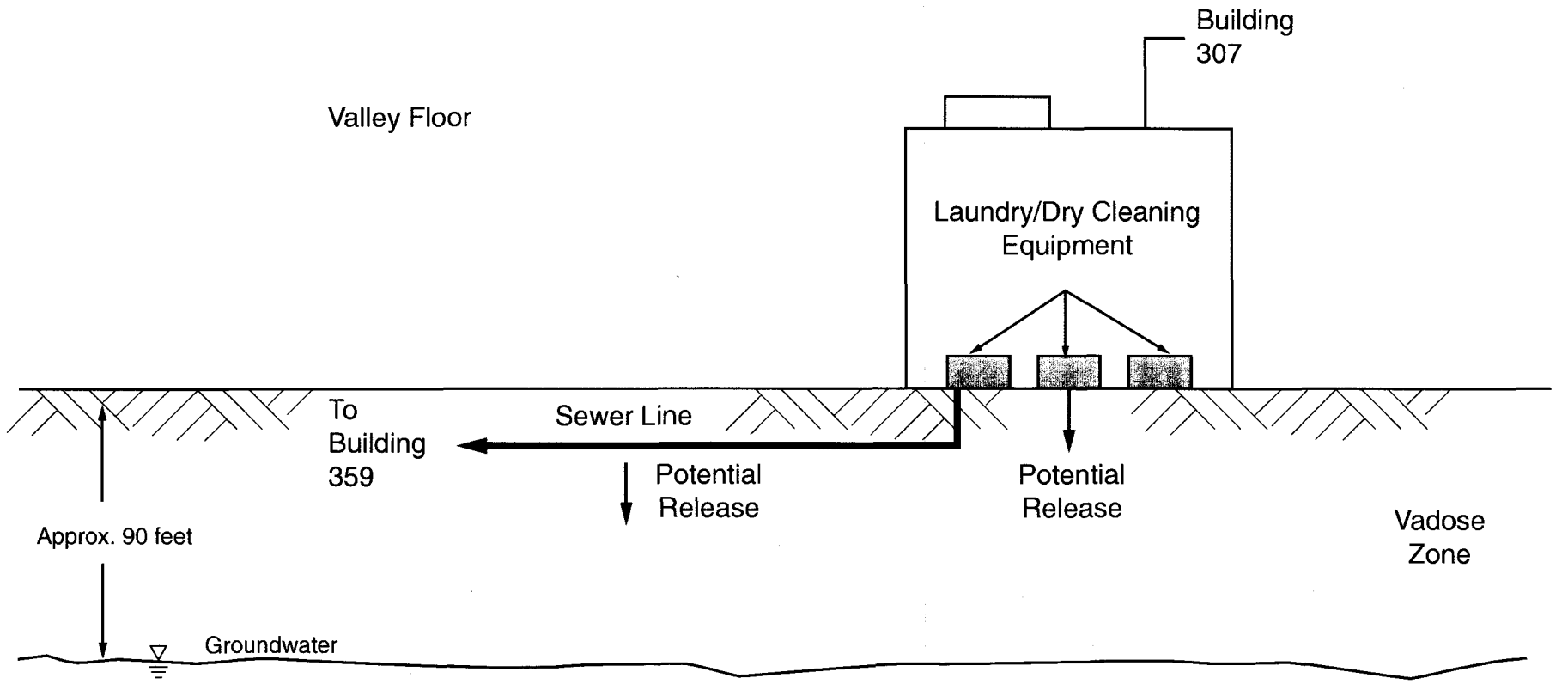
### 3.1.6 Decision Error Limits

Decision errors focus on the potential causes for either finding contamination where none exists or not finding contamination when it is actually present. The estimate of the potential for decision error of a judgmental sampling design is qualitative. However, the discussion of potential for error in the design can be presented, and the strategies to control that error (and the resultant decision error) incorporated into the design.

Since the configuration of the facility is known, the locations of the sampling points will be selected based on the facility plans and drawings. Sample points will be located along alignments of the sewer lines and other points of potential release. Error in the sampling design will be mitigated by proper use of subsurface utility locations, field verification of as-built drawings, and accurate mapping of sampling locations and target areas.

The analytical methods selected will be documented and will include appropriate verification and validation. Field and fixed laboratory data packages will be independently reviewed for compliance with the methods and specifications of the sampling design. Sampling methods will include field duplicates to assess repeatability and representativeness of the sampling procedures. Sampling methods will follow established operating procedures and be independently documented by field supervisors.

The following potential qualitative decision errors are identified and are presented in Table 3-1.




Pathways:

Potential Release

Not to Scale

| | | |
|---|---|---|
| Work Plan | | Final |
| **Conceptual Site Model**<br>Preliminary Assessment, Building 307 | | |
| Date 08-01 | MCAS El Toro | Figure<br>**3-1** |
| Project No.<br>29307 | EARTH TECH<br>A Tyco INTERNATIONAL LTD. COMPANY | |

PAGE NO. 3-4

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**Table 3-1: Qualitative Analysis of Decision Errors and Tolerances, Building 307**

| Rule | Possible Decision Errors | Associated Consequences | Gray Areas | Methods to Control Error |
|---|---|---|---|---|
| 1 | Concluding that no release occurred when in fact a release did occur. | Failure to take appropriate corrective action.<br>Distortion of models and assumptions at related sites. | Uncertainty associated with sample locations and the measurement of analyte concentrations. | Sampling design, standardized analytical processes, a quality management system. |
| | Concluding a release occurred when no release did occur. | Unnecessary corrective action or further investigation. | | |
| 2 | Concluding the groundwater is not impacted by a release from Building 307 when it is. | Failure to initiate subsequent investigation. | Uncertainty associated with sampling locations relative to contamination and the measurement of analyte concentrations. | Sampling design, standardized analytical processes, a quality management system. |
| | Concluding a release to groundwater occurred when no release did occur. | Unnecessary investigation or corrective action. | | |

### 3.1.7 Sampling Design

The sampling design selected is a judgmental sampling design since information on the locations where cleaning solvents were used or transferred is available. In addition, the location of the sewer line leading to the sewage disposal plant formerly located at Building 359 (see Figure 2-1) is known and will be the focus of the assessment outside the building. However, exact locations of each piece of equipment and their respective functions are not clearly identified within the building.

To comprehensively evaluate the presence (or absence) of a release, the area that has been identified to have encompassed the laundry and dry cleaning operations was divided into grids (see Plate 1 in Attachment 1). The grid size (40-foot by 40-foot) is based on a reasonable grouping of estimated equipment locations and the extent of the area a release could have occurred. Within the grids, sampling locations will be selected based on physical evidence such as machine footprints, concrete-filled channels, floor drains, areas with significant staining and / or (repaired) cracks. Twenty grid locations are proposed within the building for sampling. Fifteen locations are proposed along the lateral sewer line and trunk line to the sewage disposal plant. All sample locations will be offset at least 5 feet from the sewer lines or existing drainage pipes within the building.

Shallow soil-gas field sample results (using an onsite mobile laboratory) will be used to direct locations for deep soil-gas samples, using cone penetrometer testing (CPT) technology and collection of groundwater Hydropunch samples. All samples collected will be analyzed for VOCs.

#### 3.1.7.1 SHALLOW SOIL-GAS SAMPLING

Up to 35 locations have been proposed (see Plate 1 in Attachment 1) for shallow soil-gas sampling to identify any areas of contamination at the site.

At each location within Building 307 soil gas samples will initially be collected at 5 feet and 10 feet bgs. However along the sewer line, the initial samples will be collected at 5 feet and 10 feet below the sewer line. The samples will be analyzed by an onsite mobile laboratory. Sample collection at 15 feet bgs will be dependent on the previous sample yielding a result above the reporting limit for the COPC. If the mobile laboratory analytical results do not indicate the presence of analytes at the 5-foot or the 10-foot interval, then 15-foot samples will not be collected.

#### 3.1.7.2 DEEP SOIL- GAS SAMPLING

Should COPCs be detected in all three shallow intervals, deep soil-gas samples will be collected at up to five locations, using CPT technology. At each of these deep locations, samples will be collected at 45-foot, 60-foot, and 90-foot depths on the condition that COPCs continue to be detected at subsequent depths. At a minimum, two locations inside the building (access permitting) and another two along the sewer line, will be selected for deep soil-gas sampling to a maximum depth of 60 feet. These samples will be analyzed by an onsite mobile laboratory and will be used to determine the locations for collection of groundwater Hydropunch samples.

#### 3.1.7.3 GROUNDWATER HYDROPUNCH SAMPLES

Up to a maximum of five Hydropunch samples will be collected based on the results of the deep soil-gas samples. Only one sample per location will be collected at first-encountered groundwater, and the samples will be used to evaluate the impact to groundwater of any analyte(s) found to have been released to the soil. A fixed-base analytical laboratory will analyze all Hydropunch samples.

# 4. FIELD SAMPLING PLAN

## 4.1 SAMPLING OBJECTIVES

Data gathering objectives for this site assessment include

- Shallow (0 to 15 feet) and deep (greater than 45 feet) soil-gas sampling and analysis for VOCs (specifically halogenated VOCs) to establish presence or absence of COPCs.
- Groundwater Hydropunch sampling to evaluate impact to groundwater.

## 4.2 FIELD METHODS AND PROCEDURES

Fieldwork will be performed in accordance with applicable CLEAN II standard operating procedures (SOPs) (BNI 1999c) and are referenced accordingly. This section describes field methods and procedures pertaining to fieldwork that will be carried out to implement the assessment. Earth Tech field personnel will have copies of all referenced SOPs during the fieldwork. In addition, all activities will be conducted in accordance with *Addendum 2, Preliminary Assessment, Health and Safety Plan, Site 24 SVE Treatment System Operation and Maintenance, Marine Corps Air Station, El Toro, California* (Earth Tech 2001).

### 4.2.1 Geophysical Survey

Project personnel will perform an evaluation of records prior to preliminary field marking of the sampling locations. The evaluation will include review of available site plans, utility layouts, and as-built drawings to identify potential release locations. This survey will be conducted prior to soil-gas or CPT sampling. In addition, a geophysical survey will be conducted prior to any intrusive sampling to identify buried utilities and subsurface anomalies.

### 4.2.2 Soil-Gas and Groundwater Hydropunch Sample Collection

Shallow soil-gas samples will be collected at 5-foot intervals from 5 feet through 15 feet bgs at up to 35 locations in and around Building 307 (see Plate 1 in Attachment 1). These samples will be analyzed by a field mobile laboratory and will be used to identify up to five locations for deep soil-gas sample collection, using CPT equipment at 45 feet, 60 feet, and approximately 90 feet bgs (just above the saturated zone). Ten percent of the samples (duplicate samples) will be analyzed by a fixed-base laboratory.

All equipment will be decontaminated before each use in accordance with CLEAN SOP 11, Decontamination of Equipment (BNI 1999c), and Section 4.2.4 of this document. At each soil-gas sampling location, dedicated sample tubing will be used for sample extraction at each depth (5 feet through 90 feet). A hollow rod with a sampling tip will be pushed to the predetermined depth. The sampling tip will be attached to Teflon tubing. The vacuum pump will be attached to the tubing to withdraw dead air and ensure that the gas in the tubing is from the vadose zone at the sampling tip. After evacuating the tubing, a vacuum chamber will be used for extraction of the soil-gas allowing the gas to collect into the Tedlar bag without passing through the vacuum pump.

Field control samples will include a trip blank for the groundwater VOCs analysis, field blanks, and equipment rinsates of the equipment used to advance to the sampling depths for both soil-gas and groundwater sampling. The sampling and analysis summary is presented in Table 4-1.

Groundwater Hydropunch samples will be collected at the 90-foot bgs (or at first encountered groundwater) locations and analyzed at a fixed-base laboratory. A Hydropunch water sampler, consisting of a wire-wrapped stainless steel screen in a rigid stainless steel outer body, will be

pushed with hollow rods to the specified depth where groundwater is first encountered. At the specified depth, the push rods will be pulled back and groundwater will flow into the system. A stainless steel or Teflon bailer is will be lowered through the rods to collect the sample, and the sample will be transferred to laboratory-supplied vials.

**Table 4-1: Sampling and Analysis Summary**

| Analysis | Number of Soil-Gas Samples | | | Number of Hydropunch Samples | | | Field Control Samples [b] |
|---|---|---|---|---|---|---|---|
| | Field Samples [a] | Field Duplicates | Total | Field Samples | Field Duplicates | Total | |
| VOCs | 120 | 12 | 132 | 5 | 1 | 6 | 6 |

*Notes:*
[a] Maximum number of samples to be analyzed in the field by a mobile laboratory. Shallow and deep samples.
[b] Includes field blanks, equipment rinsates, and a trip blank for both soil-gas and groundwater samples.
VOCs = volatile organic compounds.
All duplicates to be analyzed by a fixed-base laboratory.

### 4.2.3 Investigation-Derived Waste

Investigation-derived waste (IDW) consists of all materials that may be contaminated with constituents of concern during fieldwork. It is anticipated that the field investigation will generate nonhazardous wastes, (based on the prior investigations at Building 307), including but not limited to the following:

- Decontamination water
- Disposable personal protective equipment (PPE), sampling equipment, and miscellaneous debris encountered during the investigation

IDW will be properly classified, labeled, managed, and disposed of in accordance with EPA Guidance and CLEAN SOP 22, IDW Management (BNI 1999c). If the IDW generated during sampling is determined to be regulated by the Resource Conservation and Recovery Act (RCRA), then RCRA storage, transportation, and disposal requirements may apply. In general, proper implementation of IDW procedures requires CTO managers, field managers, and their designees to perform the following tasks:

- Minimize IDW as it is generated.
- Segregate IDW by matrix and source location.
- Follow proper procedures for IDW drum handling and labeling.
- Prepare an IDW drum inventory.
- Update and report changes to the IDW drum inventory.

**Decontamination Water and Purged Groundwater.** Decontamination water will be collected in troughs, buckets, or a decontamination pit constructed on site. Collected decontamination water will be transferred daily to Department of Transportation (DOT)-approved 55-gallon drums. Drums containing liquid IDW will be left with a headspace of 5 percent by volume to allow for expansion of the liquid and volatile contaminants. The drums will be labeled with the date and the well identification (ID) in accordance with CLEAN SOP 22, Investigation Derived Waste Management (BNI 1999c). Drums containing IDW will be inventoried daily, stored on pallets at a designated staging area, and covered with tarps. Upon completion of fieldwork, a final inventory of the drums will be conducted to ensure that they are labeled correctly and that all drums are present.

**Disposable Sampling Equipment and PPE.** If, based on the professional judgment of the field manager, the PPE and disposable sampling equipment can be rendered nonhazardous after decontamination procedures, then this equipment will be collected in double plastic bags and disposed off site as municipal waste. Equipment that is potentially contaminated will be stored in drums, labeled, inventoried, and disposed of as hazardous waste. All waste materials generated in the support zone are considered non-IDW trash and will be properly disposed as municipal waste.

**IDW Disposal.** A disposal contractor will dispose all IDW within 90 calendar days of the completion of fieldwork in accordance with the Stationwide IDW Management Plan (*Final Investigation Derived Waste Management Plan for Groundwater Monitoring* CDM 1995). Should hazardous waste disposal be required, an activity-specific IDW disposal report documenting the screening sampling, chemical analysis, and disposal of the waste will be prepared.

### 4.2.4 Equipment Decontamination

All non-consumable equipment that comes into contact with potentially contaminated soil or groundwater will be decontaminated in accordance with CLEAN SOP 11, Decontamination of Equipment (BNI 1999c). Equipment will be decontaminated by steam cleaning or by a non-phosphate detergent scrub, followed by freshwater and distilled or deionized water rinses. Decontamination will take place on pallets or on plastic sheeting. Clean equipment will be stored on plastic sheeting in an uncontaminated area. Equipment stored for an extended period will also be covered by plastic sheeting. New ¼-inch low-density polyethylene (LDPE) tubing will then be connected and the entire system will be leak tested prior to redeployment.

All consumable equipment (e.g., gloves, disposable bailers) and liquid and solid wastes (e.g., decontamination water and soil cuttings) will be treated as potentially hazardous and discarded in accordance with the procedures prescribed in Section 4.2.3.

The field team will perform personnel decontamination prior to leaving the work site at the conclusion of each workday, following procedures described in the *Addendum Health and Safety Plan* (Earth Tech 2001).

### 4.2.5 Sample Containers and Preservation

Table 4-2 and Table 4-3 list the chemical parameters to be tested and the types of containers and preservation methods to be used. These may be modified to accommodate selected laboratory preferences, but will meet the essential requirements of the method.

**Table 4-2: Requirements for Soil-Gas Sample Preservation, Maximum Holding Time, and Containers**

| Analyte | Analytical Method(s) | Preservation | Maximum Holding Time | Number x Sample Container Type |
|---|---|---|---|---|
| Volatile Organic Compounds | EPA 8021B /TO14 (Modified) | ≤25 °C<br>Shade from sunlight | 72 hours[a] | Two Tedlar Bags |

*Notes:*
°C = degrees Celsius
[a] From sample collection to analysis.

**Table 4-3: Requirements for Groundwater Sample Preservation, Maximum Holding Time, and Containers**

| Analyte | Analytical Method(s) | Preservation | Maximum Holding Time | Number x Sample Container Type[b] |
|---|---|---|---|---|
| Volatile Organic Compounds | SW5030B/ SW8260B | HCl to pH<2<br>Cool to 4°C | 14 days[a] | Four 40-ml VOC w/ Teflon-lined septa |

*Notes*:
°C = degrees Celsius
ml = milliliter
HCl = hydrochloric acid
pH = negative log of the hydrogen ion concentration
[a] From sample collection to analysis.
[b] Sample container volumes may be modified to meet laboratory-specific procedures.

### 4.2.6 Sample Packaging and Shipment

Sample lids and caps will be covered with custody seals. All samples will be recorded on chain-of-custody (COC) forms in accordance with CLEAN SOP 10, Sample Custody, Transfer and Shipment (BNI 1999c). Samples will be shipped or delivered within 24 hours to allow the laboratory to meet holding times for analysis.

Two copies of the COC forms will be placed in an adhesive plastic pouch and taped to the inside of each shipment container. The containers will then be sealed with waterproof tape (where possible) and labeled "Fragile," "This End Up" (or with directional arrows pointing up), and with other appropriate notices. Containers will also have custody seals placed on them to prevent tampering.

The laboratory representative will sign the COC form and record the temperature of the samples or cooler on the COC form and on the Sample Condition Upon Receipt form. In case of breakage or discrepancies between the COC form, sample labels, or requested analysis, the sample custodian will notify the laboratory project manager. A nonconformance report will be completed, and the project chemist will be notified within 24 hours. At the time of notification, a corrective action will be chosen. The sample custodian will enter the information into the laboratory system, and a log-in confirmation sheet will be sent to the project chemist within 48 hours. The laboratory will send the project chemist a written declaration of the samples in each sample delivery group.

**Hazardous Materials Shipment.** Hazardous materials, as defined by the DOT, are not expected in the course of this assessment. Shipment of soil samples is not expected to exceed the minimum quantities for hazardous materials handling. The field team leader has been trained to recognize hazardous or dangerous goods and will notify the CTO manager of such issues prior to shipping.

### 4.2.7 Sample Documentation

Sample containers will be labeled as follows:

1. Labels will be written in indelible ink with the following information:
   - Project name or identifier
   - EPA sample identification (ID) number
   - Date and time of collection
   - Initials of the person collecting the sample
   - Method number or name of analysis to be performed

- Preservative (if applicable)

2. A label with adhesive backing will be affixed to each sample container.
3. The label will be covered with clear tape to further secure it to the container and to keep the ink from smearing.

**EPA Sample ID Number.** To facilitate data tracking and storage, all samples will be labeled with a five-character sample ID number, referred to as an EPA ID, in accordance with recordkeeping, sample labeling, and chain-of-custody procedures. The ID number for CTO 0068 is determined as follows:

**LG-zzz**

Where,

**L** The Long Beach Office

**G** CTO 68, El Toro Site 24, Building 307 Preliminary Assessment (Chronological letter designation assigned to this assessment)

**zzz** Chronological number, starting with 001

For example, the EPA number "LG-001" represents the first sample collected for the MCAS El Toro, Building 307, Preliminary Assessment project. Quality control (QC) samples will be included in the chronological sequence. If a sample is lost during shipping, a replacement sample will be assigned a new EPA number. If different containers for the same sample are shipped to the laboratory on different days, a new EPA number must be assigned. All sample identification numbers will be recorded in field logs, records, and a database to ensure traceability of the sample to the designated location or site.

Samples will also be assigned an Earth Tech sample ID, which will be recorded in field logs and databases. A descriptive sample ID number will specify the location, sequence, matrix, and depth, as follows:

**#-bbcc-dde-Dfff**

Where,

**#** IRP site number

**bb** Sample type and matrix (see Table 4-4)

**cc** Location number (numeric, e.g., 01, 02, 03)

**dd** Chronological sample number from a particular sampling location (e.g., 01, 02, 03)

**e** Sample or QC identifier (see Table 4-5)

**D** The letter "D" denotes depth

**fff** Depth of sample in feet bgs. For field blanks and equipment rinsates, the depth field will contain the date of collection.

**Table 4-4: Character Identifiers**

| Identifier | Sample Type | Matrix |
|---|---|---|
| SG | Soil-Gas Sample | Vapor |
| HP | Hydropunch (Groundwater Sample) | Water |
| QV | Field QC | Vapor |
| QW | Field QC | Water |

**Table 4-5: Quality Control Identifiers**

| Identifier | QC Sample Type | Description |
|---|---|---|
| VS | Normal Vapor Sample | All non-field QC samples |
| VSD | Duplicate Vapor Sample | Sample duplicate |
| WS | Normal Water Sample | All non-field QC samples |
| WSD | Duplicate Water Sample | Sample duplicate |
| E | Equipment Rinsate | Water |
| F | Field Blank | Water |

### 4.2.8 Quality Control Samples

Field quality control samples will be submitted in accordance with the referenced standard operating procedures. The results of the analysis will be evaluated in accordance with the QAPP.

**Field Duplicates.** Field duplicate samples will be collected for every 10 samples during both soil-gas and groundwater Hydropunch sampling. Field duplicates will be assigned a unique EPA ID and Earth Tech ID number.

**Field Blanks.** A single field blank per water source will be collected to measure potential contamination resulting from the water used for the final rinse in the decontamination process.

**Equipment Rinsates.** Final rinse water from the decontamination process of reusable equipment will be poured through clean equipment, collected, and submitted for analysis of COPCs for that day.

**Trip Blanks.** Sample containers shipped to the site and returned to the laboratory will be accompanied by a trip blank. The trip blank will be prepared by the laboratory from certified organic-free water and shipped to the field. Each shipment of groundwater samples for VOC analysis will be accompanied by a trip blank, which will be labeled with a unique EPA ID number.

# 5. QUALITY ASSURANCE PROJECT PLAN

The quality assurance plan for the Building 307 assessment has been prepared in accordance with the requirements and specifications of the following DON documents:

- *Environmental Work Instructions* (EWI) (SWDIV 1999)

  EWI #1 *Chemical Data Validation*

  EWI #2 *Review, Approval, Revision, and Amendment of Field Sampling Plan and Quality Assurance Project Plan*

  EWI #3 *Laboratory Quality Assurance Program*

- *Installation Restoration Chemical Data Quality Manual (IRCDQM)*, (NFESC 1999)

## 5.1 PROJECT MANAGEMENT

The project organization chart, Figure 5-1 identifies project team members.

**Remedial Project Manager (RPM).** Provides governmental oversight of technical issues for the project. Interfaces with the BCT, community representatives, and the contractor to meet project objectives.

**Quality Assurance Officer (QAO).** Provides governmental oversight of contractor's quality assurance (QA) program. Provides quality-related directives through the RPM. Has authority to suspend project execution if QA requirements are not adequately met.

**BRAC Cleanup Team (BCT).** Representatives from local, state, and federal regulatory agencies who provide input to the Navy.

**Contract Task Order (CTO) Manager.** Responsible for day-to-day management of project budgets, staffing, deliverables, and schedule. Communicates with the RPM on technical issues.

**CLEAN II Program Manager.** Provides management oversight of execution of the task order in compliance with the program contract.

**Pacific Division Contracting Officer.** Represents the government in all contractual, cost, and scheduling issues. Interfaces with the RPM on performance and execution of the task order.

**Program Quality Manager (QA).** Responsible for executing the contractor's QA program. Responsible for ensuring that technical standards and specifications are met for each deliverable to the client. Coordinates the peer and technical review of project deliverables and ensures that standards and QA requirements are met.

**Health and Safety Manager.** Ensures that all field operations are conducted in accordance with safe operating practices and in compliance with federal and state requirements.

**Project Chemist.** Manages analytical laboratory services for the project. Prepares planning documents, technical specifications, and quality assurance plans for collection of data. Oversees technical performance of laboratory subcontractors.

**Laboratory Subcontractor.** Provides laboratory services in accordance with project specifications and subcontract statement of work.

**Data Validation Subcontractor.** Provides data validation services in accordance with project specifications and subcontract statement of work.

**Project Geologist.** Responsible for overseeing field operations that relate to soil-gas and groundwater sampling and evaluation of technical data. Oversees technical performance of subcontractors.

**Project Engineer.** Responsible for overseeing field activities and evaluating technical data in conjunction with the project hydrogeologist. Prepares planning documents for collection of data. Conducts data analysis and evaluation and prepares technical reports.

**Special Training Requirements.** Training requirements applicable to this project are as follows:

All field personnel will have current health and safety training in accordance with the Field Health and Safety Manual *(FHSM)* (Earth Tech 1998) and the *HSP* (Earth Tech 1999). This includes the initial 40-hour training and current 8-hour refresher training. The onsite health and safety manager will also have an additional 8 hours of supervisor training.

### 5.1.1 Task Organization

Tasks associated with the investigation are summarized in Table 5-1 and described in the following subsections.

**Table 5-1: Task Summary**

| Data Review and Project Planning | Field Activities | Data Evaluation and Report Preparation |
|---|---|---|
| Task 20 Project Planning<br>Task 22 Work Plan<br>Task 24 Health and Safety Plan | Task 30 Field Activities<br>Task 46 Offsite Laboratory Analysis and Oversight | Task 50 Data Validation<br>Task 51 Data Evaluation<br>Task 67 Report Preparation |
| Meetings | Purchasing Support | Project Management |
| Task 11 Meetings<br>Task 42 BCT/RAB Support | Task 12 Purchasing and Subcontract Administration | Task 10 Project Management |

*Notes:*
BCT= BRAC Cleanup Team
RAB = Restoration Advisory Board

#### *5.1.1.1 Data Review and Project Planning*

Existing data will be compiled and reviewed, and technical statements of work (SOWs) will be prepared. Planning documents, include this work plan consisting of the FSP and QAPP, and *Addendum 2 – Soil-gas Survey, Building 307 Health and Safety Plan (HSP), Site 24 SVE Treatment System Operation and Maintenance* (Earth Tech 2001). Coordination and scheduling with subcontractors will be completed per section 5.1.2. Site access will be secured, and pre-work meetings will also be conducted per section 5.1.2.

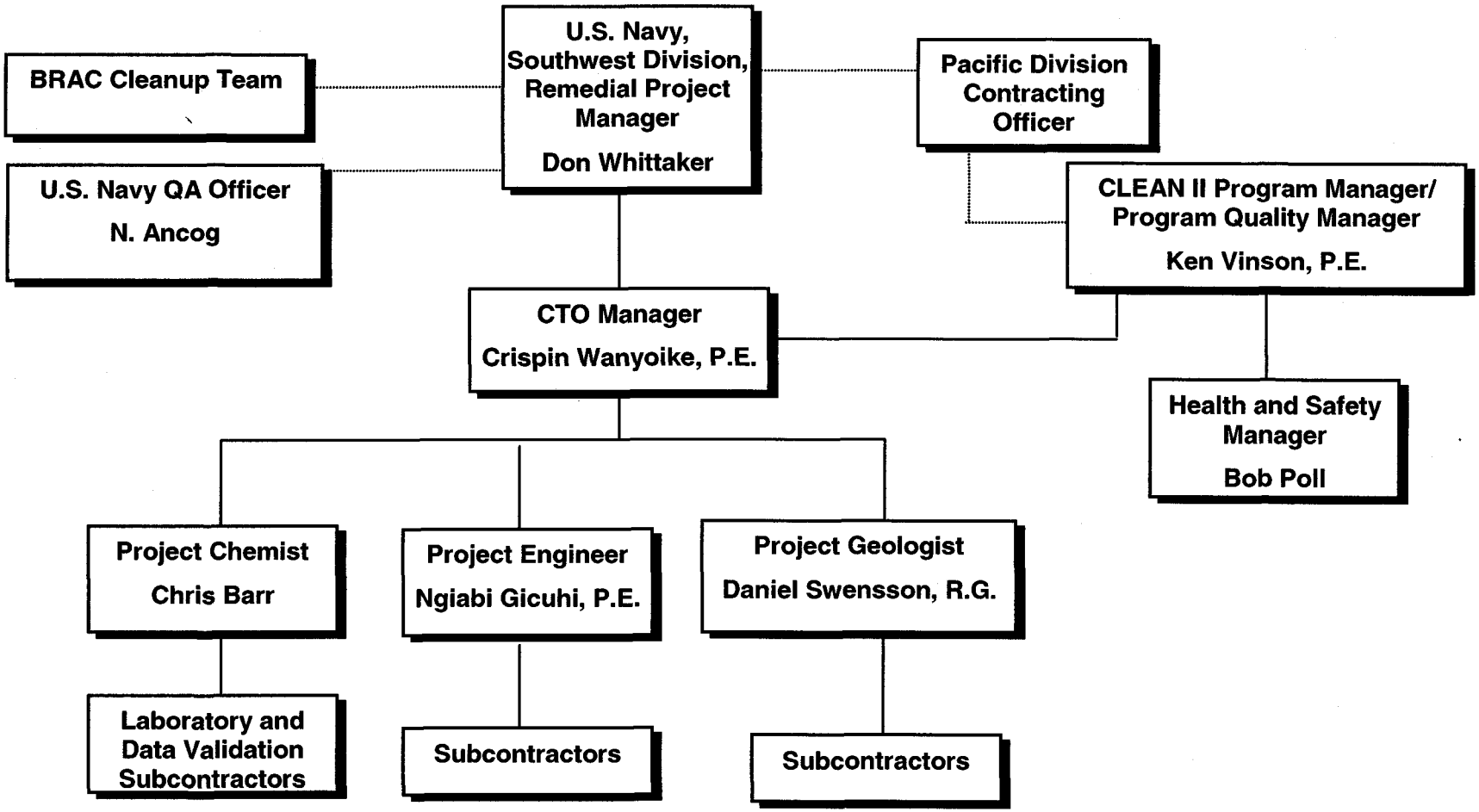


Figure 5-1: Project Organization Chart

PAGE NO. 5-4

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#### 5.1.1.2 Field Activities

Soil-gas and groundwater Hydropunch samples will be collected in accordance with the plan presented in the field sampling portion of this document.

#### 5.1.1.3 Data Evaluation and Report Preparation

Project staff will review all laboratory reports for contract and method compliance and data usability. Laboratory data packages will be subject to independent, third party validation when the data will be used to assess human or ecological risk or substantiate recommendations regarding the status site.

Data will be presented in a relational database, using the conventions and structure of the Naval Environmental Data Transfer System (NEDTS). Electronic data will be verified for consistency with hard copy laboratory data reports.

Data collected during fieldwork, and pertinent previously reported data will be presented in a technical memorandum. The technical memorandum will present analytical results with recommendations for a further course of action, if applicable.

#### 5.1.1.4 Meetings

Earth Tech personnel will participate in periodic BRAC Cleanup Team/Restoration Advisory Board (BCT/RAB) meetings and provide technical support when applicable, including briefing packages and fact sheets documenting project progress.

#### 5.1.1.5 Purchasing Support

Materials, supplies, and subcontractor services will be procured, and subcontracts will be administered in accordance with the specifications and requirements of this plan.

#### 5.1.1.6 Project Management

The CTO manager will coordinate with the Navy RPM to ensure that project objectives are accomplished in a timely and effective manner. Monthly progress reports summarizing project status will be prepared.

### 5.1.2 Schedule

The preliminary assessment will span approximately 9 months (see Figure 5-2). The schedule shown is for planning purposes only and will be revised as needed.

### 5.1.3 Data Quality Objectives

The EPA's seven-step DQO process (EPA 2000) has been followed to develop the work plan as discussed in Section 3.1.

### 5.1.4 Documentation and Deliverables

Project records and documentation will be maintained in accordance with the procedures established for this program.

**Field Documentation.** Records will be kept in accordance with CLEAN SOP 17, Logbook Protocols (BNI 1999c). All sampling locations will be recorded in the field notebook for the CTO.

In accordance with CLEAN SOP 17, Logbook Protocols (BNI 1999c), a bound field notebook with consecutively numbered, water-repellent pages will be maintained. The logbook will be clearly identified with the name of the activity, the person assigned responsibility for maintenance of the logbook, and the beginning and ending dates of the entries. Data forms, with predetermined formats for logging field data, will be incorporated into the logbook. This logbook will serve as the primary record of field activities. Logbooks will allow a reviewer to reconstruct applicable events from entries made in chronological order and in sufficient detail. The logbook will be maintained in a clean area and used only when outer gloves have been removed. Entries on the data forms and in the logbook will meet the same requirements. Entries will be made in indelible ink. Information recorded in the logbook will include the following:

1. The logbook will reference data maintained in other logs.
2. Corrections to entry records will be made by drawing a single line through the incorrect entry, initialing, and dating the change. An explanation will be included if more than a simple mistake is made.
3. Entries will be signed or initialed by the individual making the entry at the end of each day.
4. Page numbers will be entered on each logbook page.
5. The preparer will photocopy completed pages weekly. The field manager will conduct a technical review of the logbook.

**Laboratory Documentation.** The laboratory will provide Level IV data packages for all results as required to perform validation in accordance with EPA guidance for data review (EPA 1994a and EPA 1994b). Level IV validation is intended to identify if any significant, systematic errors are present in the laboratory procedures or processes. If the Level IV validation identifies systematic errors, the laboratory will be required to initiate corrective action and ensure that such errors are corrected. The data packages will include a case summary, report forms, QC sample analysis results, acceptance criteria, calculations, chromatograms, and applicable bench logs and preparation notes. The laboratory will also provide data deliverables in a specified electronic format compatible with the project database, developed in compliance with NEDTS. All laboratory deliverables will be submitted within 30 calendar days of receipt of samples.

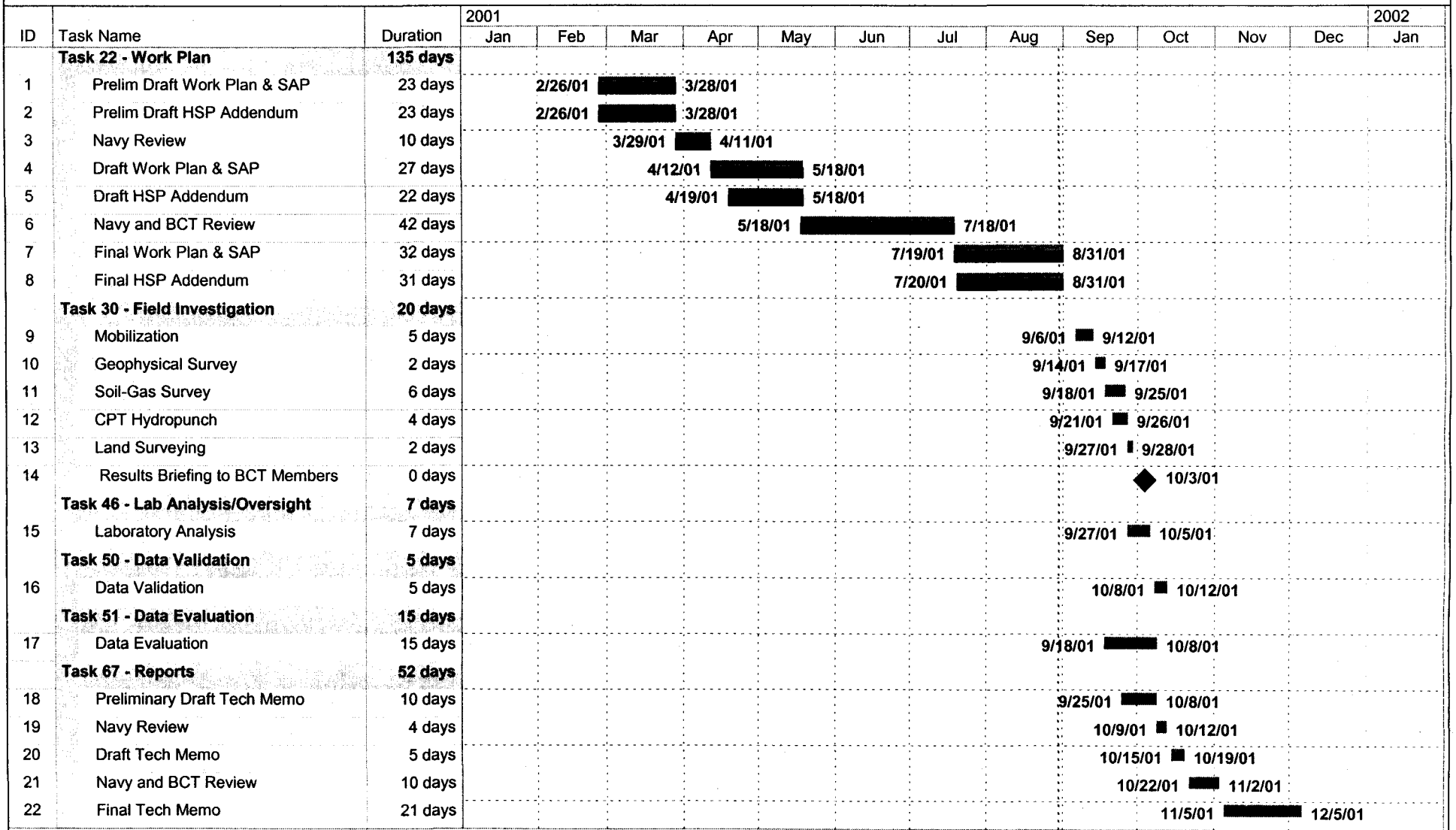
## 5.2 MEASUREMENT AND DATA ACQUISITION

All samples will be collected in accordance with Navy *CLEAN II Program Procedures Manual* (BNI 1999c), except as modified to meet project specific requirements and as presented in this QAPP.

### 5.2.1 Field Sampling Quality Assurance Measurements

Field sampling will include quality control samples that will characterize the contribution of sample collection and handling procedures on the results and provide an assessment of the quality of the data collected. Samples will be collected in accordance with the frequency presented in Table 4-1. The results of the quality assessment will be reflected in the conclusions and recommendations of the investigation.

# . Figure 5-2
# Preliminary Assessment - Building 307
# MCAS El Toro




| ID | Task Name | Duration |
|---|---|---|
| | **Task 22 - Work Plan** | **135 days** |
| 1 | Prelim Draft Work Plan & SAP | 23 days |
| 2 | Prelim Draft HSP Addendum | 23 days |
| 3 | Navy Review | 10 days |
| 4 | Draft Work Plan & SAP | 27 days |
| 5 | Draft HSP Addendum | 22 days |
| 6 | Navy and BCT Review | 42 days |
| 7 | Final Work Plan & SAP | 32 days |
| 8 | Final HSP Addendum | 31 days |
| | **Task 30 - Field Investigation** | **20 days** |
| 9 | Mobilization | 5 days |
| 10 | Geophysical Survey | 2 days |
| 11 | Soil-Gas Survey | 6 days |
| 12 | CPT Hydropunch | 4 days |
| 13 | Land Surveying | 2 days |
| 14 | Results Briefing to BCT Members | 0 days |
| | **Task 46 - Lab Analysis/Oversight** | **7 days** |
| 15 | Laboratory Analysis | 7 days |
| | **Task 50 - Data Validation** | **5 days** |
| 16 | Data Validation | 5 days |
| | **Task 51 - Data Evaluation** | **15 days** |
| 17 | Data Evaluation | 15 days |
| | **Task 67 - Reports** | **52 days** |
| 18 | Preliminary Draft Tech Memo | 10 days |
| 19 | Navy Review | 4 days |
| 20 | Draft Tech Memo | 5 days |
| 21 | Navy and BCT Review | 10 days |
| 22 | Final Tech Memo | 21 days |



Project: Building 307, Preliminary Assessment
Print Date: Thu 8/30/01
Contract No: N62742-94-D-004/CTO68

Task Progress Milestone

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FINAL WORK PLAN PRELIMINARY ASSESSMENT
BUILDING 307

THE ABOVE IDENTIFIED SHEET
IS NOT AVAILABLE.

EXTENSIVE RESEARCH WAS PERFORMED BY SOUTHWEST DIVISION TO LOCATE THIS SHEET. THIS PAGE HAS BEEN INSERTED AS A PLACEHOLDER AND WILL BE REPLACED SHOULD THE MISSING ITEM BE LOCATED.

QUESTIONS MAY BE DIRECTED TO:

**DIANE C. SILVA**
**RECORDS MANAGEMENT SPECIALIST**
**SOUTHWEST DIVISION**
**NAVAL FACILITIES ENGINEERING COMMAND**
**1220 PACIFIC HIGHWAY**
**SAN DIEGO, CA 92132**

**TELEPHONE: (619) 532-3676**

#### 5.2.1.1 TRIP BLANK

Trip blanks will be shipped with each package of water samples submitted for analysis of volatile organic compounds. The trip blank will be assigned a unique EPA ID and submitted for analysis. The results of the measurements will be used to assess the potential contribution of the shipping process to analytes found in the samples. Trip blanks with detectable concentrations of target analytes may be used to qualify the findings and results of associated samples.

#### 5.2.1.2 TEMPERATURE BLANK

A temperature blank will be submitted with each package in which samples are cooled and measured upon receipt at the laboratory. The acceptance criteria ($4^{\circ}C \pm 2$) will be used to qualify the results of associated samples in accordance with applicable guidance.

#### 5.2.1.3 FIELD DUPLICATES

Duplicate samples will be used to characterize the variability of the soil-gas and groundwater Hydropunch sampling process. Results will be compared to the laboratory variability criteria for laboratory duplicates to assess whether the effect is a function of laboratory sampling and analysis, a function of the sampling process, or a function of the inherent variability of the site. The qualitative assessment will be used to characterize the uncertainty of the conclusions of this assessment.

#### 5.2.1.4 FIELD BLANKS

Field blank samples will be used to characterize any contribution of the water used for decontamination of equipment and may qualify the assessment of the results based on the equipment rinsates.

#### 5.2.1.5 EQUIPMENT RINSATE BLANK

Equipment rinsates will be collected to assess the potential contribution of cross contamination between sample locations to the results reported. Target analytes detected in equipment rinsates will be compared to analytes detected in samples and the conclusions qualified as necessary.

### 5.2.2 Laboratory Analytical Methods and Requirements

Laboratory services will be contracted under the Pacific Division Navy CLEAN II subcontracting system, which has master services agreements (MSAs) with Naval Facilities Engineering Service Center (NFESC)-evaluated laboratories qualified to perform work for this project. The MSAs specify the work to be performed, which shall be done in accordance with the referenced method and the *IRCDQM* (NFESC 1999).

Laboratory services for soil-gas analysis will be provided by a laboratory certified under the California Environmental Laboratory Accreditation Program (ELAP) for analysis of water or soil. The laboratory shall perform and report daily calibration verifications, method or system blank analyses, and second-source calibration standards. The laboratory will be inspected by the project chemist during operations, and data packages will be subject to desktop evaluations.

#### 5.2.2.1 VOLATILE ORGANIC COMPOUNDS

Analysis on Hydropunch samples will be performed (at a subcontracted laboratory) in accordance with EPA Method 8260B for water, using sample collection and preparation in accordance with EPA Method 5030B. The analytes will be compounds on the Contract Laboratory Program (CLP) target list.

The shallow soil-gas samples will be analyzed using a modification of EPA SW-846 (EPA 1997), Method 8021B for VOCs by gas chromatography, using a Hall (electrolytic conductivity detector [ELCD]). Samples will be analyzed on site using subcontracted mobile laboratory services. The analysis will use direct injection of samples collected by syringe from Tedlar bag samples collected from subsurface probes. Ten percent of the shallow soil-gas samples (duplicate samples) will be submitted to a fixed-base laboratory for analysis by modified EPA Method TO14.

Analysis on all vapor duplicate samples will be performed (at a fixed-base laboratory) in accordance with modified EPA Method TO-14 (EPA 1997). EPA Method TO-14 offers use of either nonspecific detectors (electron capture detectors) or a mass spectrometer. The detector selection will be based on laboratory capabilities and costs. Data quality acceptance criteria will be the same, irrespective of the specific analytical procedures.

### 5.2.3 Quality Control Requirements

All laboratory measurements will be performed in accordance with *IRCDQM* (NFESC 1999) and the Earth Tech MSAs. The laboratory is required to have an approved QA program with current SOPs for each method performed.

The laboratory will perform the following quality control analyses in accordance with the cited methods:

- Method or reagent blanks
- Matrix spikes
- Duplicates or matrix spike duplicates
- Surrogates
- Blank spikes or laboratory control samples

The values shown in Table 5-2 and Table 5-3 will be used to validate the data and assess the acceptability for the project goals. Laboratory-derived acceptance criteria will be used if the criteria are either narrower than those presented in Table 5-2 and Table 5-3, or if not, they will be developed in accordance with the published method to represent realistic operational criteria.

**Table 5-2: Project Quality Control Criteria for Soil-Gas Samples**

| Analyte | Project Decision Threshold | Reporting Limit Required | Precision (RPD) | Accuracy (%R)* | |
|---|---|---|---|---|---|
| | | | | MS/MSD | LCS |
| **Target Volatile Compounds (Analysis: 8021B. Analysis on Duplicate samples: modified EPA Method TO-14) (µg/L)** | | | | | |
| 1,1-dichloroethene | 1 | 1 | 20* | – | 90–110 |
| tetrachloroethene | 1 | 1 | 20* | – | 90–110 |
| trichloroethene | 1 | 1 | 20* | – | 90–110 |
| dichlorodifluoromethane | 1 | 1 | 20* | – | 90–110 |
| dhloroethane | 1 | 1 | 20* | – | 90–110 |
| trichlorofluoromethane | 1 | 1 | 20* | – | 90–110 |

**Table 5-2: Project Quality Control Criteria for Soil-Gas Samples**

| Analyte | Project Decision Threshold | Reporting Limit Required | Precision (RPD) | Accuracy (%R)* | |
|---|---|---|---|---|---|
| | | | | MS/MSD | LCS |
| 1,1,2-trichlorotrifluoroethane | 1 | 1 | 20* | – | 90–110 |
| 1,1-dichloroethene | 1 | 1 | 20* | – | 90–110 |
| methylene chloride | 1 | 1 | 20* | – | 90–110 |
| trans-1,2-dichloroethene | 1 | 1 | 20* | – | 90–110 |
| 1,1-dichloroethane | 1 | 1 | 20* | – | 90–110 |
| cis-1,2-dichloroethene | 1 | 1 | 20* | – | 90–110 |
| chloroform | 1 | 1 | 20* | – | 90–110 |
| 1,1,1-trichloroethane | 1 | 1 | 20* | – | 90–110 |
| benzene | 1 | 1 | 20* | – | 90–110 |
| carbon tetrachloride | 1 | 1 | 20* | – | 90–110 |
| chloroethane | 1 | 1 | 20* | – | 90–110 |
| 1,2-dichloroethane | 1 | 1 | 20* | – | 90–110 |
| fluorobenzene | 1 | 1 | 20* | – | 90–110 |
| cis-1,3 dichloropropene | 1 | 1 | 20* | – | 90–110 |
| toluene | 1 | 1 | 20* | – | 90–110 |
| 1,1,2-trichloroethane | 1 | 1 | 20* | – | 90–110 |
| 1,1,1,2-tetrachloroethane | 1 | 1 | 20* | – | 90–110 |
| ethylbenzene | 1 | 1 | 20* | – | 90–110 |
| meta- and para-Xylene | 1 | 1 | 20* | – | 90–110 |
| ortho-Xylene | 1 | 1 | 20* | – | 90–110 |
| 1,1,2,2-tetrachloroethane | 1 | 1 | 20* | – | 90–110 |
| vinyl chloride | 1 | 1 | 20* | – | 90–110 |

*Notes:*
LCS = laboratory control sample
EPA = U.S. Environmental Protection Agency
MS = matrix spike
MSD = matrix spike duplicate
RPD = relative percentage of difference
% R = percent recovery
* Laboratory-specific performance criteria.

**Table 5-3: Project Quality Control Criteria for Groundwater Samples**

| Analyte | Project Decision Threshold[a] | Reporting Limit Required | Precision (RPD) | Accuracy (%R)[b] | |
|---|---|---|---|---|---|
| | | | | MS/MSD | LCS |
| **Volatile Organic Compounds (Extraction: SW5030B. Analysis: SW8260B) (µg/L)** | | | | | |
| 1,1,1-trichloroethane | 200 | 1 | 20 | 70–130 | 75-125 |
| 1,1,2,2-tetrachloroethane | 1 | 1 | 20 | 70–130 | 75–125 |
| 1,1,2-trichloroethane | 5 | 1 | 20 | 70–130 | 75–125 |
| 1,1-dichloroethane | 5 | 1 | 20 | 70–130 | 75–125 |

**Table 5-3: Project Quality Control Criteria for Groundwater Samples**

| Analyte | Project Decision Threshold[a] | Reporting Limit Required | Precision (RPD) | Accuracy (%R)[b] | |
|---|---|---|---|---|---|
| | | | | MS/MSD | LCS |
| 1,1-dichloroethene | 6 | 1 | 20 | 70–130 | 75–125 |
| 1,2-dichloroethane | 0.5 | 0.5 | 20 | 70–130 | 75–125 |
| cis-1,2-dichloroethene | 6 | 1 | 20 | 70–130 | 75–125 |
| trans-1,2-dichloroethene | 10 | 1 | 20 | 70–130 | 75–125 |
| 1,2-dichloropropane | 5 | 1 | 20 | 70–130 | 75–125 |
| 2-butanone (methyl ethyl ketone) | -- | 100 | 40 | 50–150 | 60–140 |
| 2-hexanone (methyl butyl ketone) | -- | 50 | 40 | 50–150 | 60–140 |
| 4-methyl-2-pentanone | -- | 50 | 40 | 50–150 | 60–140 |
| acetone | -- | 100 | 40 | 50–150 | 60–140 |
| benzene | 1 | 1 | 20 | 70–130 | 75–125 |
| bromodichloromethane[c] | 80 | 0.1 | 20 | 70–130 | 75–125 |
| bromoform[c] | 80 | 1 | 20 | 70–130 | 75–125 |
| bromomethane | -- | 1 | 20 | 70–130 | 75–125 |
| carbon disulfide | -- | 1 | 20 | 70–130 | 75–125 |
| carbon tetrachloride | 0.5 | 0.5 | 20 | 70–130 | 75–125 |
| chlorobenzene | 70 | 1 | 20 | 70–130 | 75–125 |
| chloroethane | -- | 1 | 20 | 70–130 | 75–125 |
| chloroform[c] | 80 | 0.1 | 20 | 70–130 | 75–125 |
| chloromethane | -- | 1 | 20 | 70–130 | 75–125 |
| cis-1,3-dichloropropene | 0.5 | 0.5 | 20 | 70–130 | 75–125 |
| dibromochloromethane[c] | 80 | 0.1 | 20 | 70–130 | 75–125 |
| ethylbenzene | 700 | 1 | 20 | 70–130 | 75–125 |
| methylene chloride (dichloromethane) | 5 | 3 | 20 | 70–130 | 75–125 |
| styrene | 100 | 1 | 20 | 70–130 | 75–125 |
| tetrachloroethene | 5 | 1 | 20 | 70–130 | 75–125 |
| toluene | 150 | 1 | 20 | 70–130 | 75–125 |
| trans-1,3-dichloropropene | 0.5 | 0.5 | 20 | 70–130 | 75–125 |
| trichloroethene | 5 | 1 | 20 | 70–130 | 75–125 |
| vinyl chloride | 0.5 | 0.5 | 20 | 70–130 | 75–125 |
| xylenes (total) | 1,750 | 1 | 20 | 70–130 | 75–125 |

*Notes:*
µg/L = micrograms per liter
LCS = laboratory control sample
EPA = U.S. Environmental Protection Agency
MS = matrix spike
MCLs = maximum contaminant levels
MSD = matrix spike duplicate
RPD = relative percentage of difference
% R = percent recovery
SW = test method for solid waste (EPA 1997)
PRGs = preliminary remediation goals

[a] Lower of California MCLs and EPA MCLs have been used.

[b] Laboratory-specific performance criteria.

[c] Total trihalomethanes = 80 µg/L

**Reporting Limits.** The laboratory will have current and documented reporting limits consistent with the values presented in Table 5-2 and Table 5-3. Reporting limits that exceed the selected decision criteria will be evaluated on an individual basis. Analytes not detected in any sample at the site or those that have no reasonable expectation to be the result of site activities will not be included in further evaluation. Analytes identified as site COPCs will be incorporated into the site evaluation and recommendations; the detection limit will be addressed as a factor in the uncertainty associated with the decision-making process.

**Method Blanks.** A method blank will be analyzed with every batch of 20 or fewer samples to measure laboratory contamination. The method blank will be an analyte-free matrix (water or soil vapor) that will be carried through the entire preparation and analysis procedure. If any analytes are found above reporting limits, the results of samples in the batch will be examined. Those with results less than the reporting limit or greater than 10 times the value of the method blank will be accepted. Other samples will be reanalyzed in another batch. Consistent presence of contamination will require investigation and correction.

**Laboratory Control Samples.** A laboratory control sample (LCS) will be analyzed with every batch of 20 samples or less for accuracy. The LCS will consist of a method blank spiked with a known amount of analyte that will be carried through the entire preparation and analysis procedure. The LCS source will be different from that used to prepare calibration standards. Analytes used for the LCS will comply with the method requirements. Control charts may be used, and control limits will be calculated based upon historical data. When control limits are exceeded, the analysis will be stopped, and the problem corrected. Samples associated with the out-of-control LCS will be reanalyzed in another batch unless documented evidence is presented to show that associated samples were not affected. The guidance limits for the LCS listed in Table 5-2 and Table 5-3 will be used unless more restrictive laboratory-specific limits are established or statistically based limits are developed.

**Matrix Spikes.** A matrix spike (MS) will be analyzed for at least one out of every 20 water samples to measure matrix effects on accuracy. No MS analyses will be performed on gas samples. The MS will consist of additional aliquots of sample spiked with a known amount of analyte. Compounds to be spiked will be in accordance with the laboratory SOP or the published method. Guidance limits for the MS listed in Table 5-2 and Table 5-3 will be used unless more restrictive laboratory-specific limits are established. If the analyte concentration in the sample is greater than twice the amount of spike added, the spike will be considered invalid and the recovery will not be calculated. If a valid spike recovery exceeds acceptance limits but the LCS is in control, matrix interference is indicated.

**Duplicates or Matrix Spike Duplicates.** A duplicate or a matrix spike duplicate (MSD) will be analyzed for at least one out of every 20 samples to measure precision. For any batch of samples that does not contain a duplicate or MSD (i.e., when insufficient sample is available), two LCSs may be used. However, every effort will be made to provide sufficient sample for laboratory QC. If the relative percentage of difference (RPD) does not meet the established acceptance limits, the problem will be investigated and corrected. Any affected samples will be reanalyzed in a separate batch. Acceptance limits for duplicates/MSDs listed in Table 5-2 and Table 5-3 will be used unless more restrictive laboratory-specific limits are established or statistically derived limits are developed.

**Surrogates.** Surrogate spikes will be added to all water samples for organic analyses to measure sample-specific accuracy. Surrogate spike acceptance criteria are developed by the laboratory and will be provided with the data package.

### 5.2.4 Calibration and Preventive Maintenance

The laboratory is required to document calibration procedures in accordance with Appendix C, Section 5.9.4 of the *IRCDQM* (NFESC 1999). Calibration procedures will be consistent with specified method requirements.

The laboratory will perform preventive maintenance on instruments used to analyze project samples and will keep records of all such maintenance in accordance with Section 5.8 of Appendix C of the *IRCDQM* (NFESC 1999). Preventive maintenance documentation is incorporated into laboratory certification requirements and is an element of the subcontractor laboratory quality assurance plan, which will be reviewed and approved prior to selection of a CLEAN II subcontractor laboratory.

### 5.2.5 Acceptance Requirements for Supplies and Consumables

Supplies and consumables that have the potential to effect data quality will include sample containers and preservatives. All sample containers and preservatives will be provided by the laboratory, except for Tedlar bags, which will be supplied by Earth Tech. The laboratory will track sample container and preservative sources and ensure that the containers are free from contamination. Field blanks will serve as an independent verification of consumable integrity.

Consumables used in sample collection include the tubing installed in each well. New materials in original packaging from the supplier will be used and selected on the basis of being appropriate for the application.

### 5.2.6 Data Management

The laboratory will verify, reduce, and report data as specified in their laboratory QA plan and in accordance with the laboratory SOW. Both hard copy and electronic data deliverables (EDDs) will be required within 30 days of sample receipt. The format for both hard copies and EDDs is specified in the subcontract. Hard copy data will be delivered on CLP-like forms, along with a case narrative, table of contents, and raw data for Level IV QC deliverables.

Printed laboratory reports will be received and reviewed for completeness and compliance with the laboratory SOW. The project chemist will immediately review the case narrative and report to project management any issues that may effect the project conclusions or schedule. The project chemist will also ensure that appropriate copies are provided to technical staff, data validation personnel, and the CTO manager.

EDDs will be received on diskettes or through electronic mail in the format specified in the analytical laboratory technical specifications. EDDs will be loaded into a database management system and checked for completeness and errors. Part of this check involves verifying that all requested analyses for each sample are performed and reported. This may be accomplished by comparing the delivered results to those recorded electronically. If errors are encountered or data are not complete, the laboratory will be notified and data will be resubmitted. If only minor errors or omissions are encountered, data management personnel will manually correct the data, but the laboratory will be notified so that it can rectify the problems for future projects. Once in the database, the records will be made accessible to project personnel.

The electronic data versus hard copy data will be manually verified for the entire project. Final data tables will be compared to the database to verify the output.

Computer files will be backed up daily to avoid loss of information. Hard copy data will be stored in secure areas, while electronic data will be stored in password-protected files, with read-only access to users who do not have authorization to edit the data. The data will be stored for 10 years after the close of the PACNAVFACENGCOM CLEAN II contract.

## 5.3 PROJECT QUALITY ASSURANCE OVERSIGHT

Samples will be submitted to an NFESC-evaluated laboratory for analysis by methods cited in Table 5-2 and Table 5-3. The laboratory will also be certified by the ELAP. Laboratory data quality strategies and criteria were developed in accordance with the project DQOs and the following references:

- *Installation Restoration Chemical Data Quality Manual* (NFESC 1999)
- *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods (SW846)* (EPA 1997)
- *Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis* (EPA 1994a)
- *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis* (EPA 1994b)

System and performance audits are a fundamental element of the QA process and are the tool used to demonstrate compliance with data quality requirements.

Overall responsibility for implementation and monitoring of the Earth Tech QA program resides with the CLEAN II project quality manager. The CLEAN II project quality manager and the CTO manager will be responsible for reviewing the technical contents of all submittals required under this project. The QA activities applicable to this CTO are described in "Standard Operating Procedures" in the CLEAN II Program Procedures Manual (BNI 1999c). The Earth Tech peer review program will be followed during this project.

### 5.3.1 Field Audits

The project chemist will visit the site weekly during field activities to assess field practices for compliance with procedures and requirements. Documentation of the review shall be included in the project files.

### 5.3.2 Laboratory System Audits

Laboratories solicited for this project are required to have successfully completed evaluation by the Naval Facilities Engineering Service Command. Further evaluation of laboratory performance will be through data package reviews and oversight by the project chemist.

### 5.3.3 Laboratory Performance Review

Continual laboratory performance reviews will be conducted for the project. This will consist of the following tasks:

- Internal laboratory oversight by laboratory QA manager
- Frequent progress reports and discussions between the project chemist and the laboratory project manager
- Project chemist oversight of deliverables and reports

- Desktop evaluation of reports and data packages
- Data validation, as discussed in Section 5.4.2

### 5.3.4 Corrective Actions

Corrective action requests will be issued and tracked by the project chemist when deficiencies or noncompliances are noted, whether in field audits or laboratory evaluations. These findings will be resolved in a timely manner, typically within 30 days, by the project manager and documented in the project file. Findings that affect the collection or interpretation of project data will be noted in the laboratory case narrative.

### 5.3.5 Reports to Management

Documentation of audits, copies of audit checklists, and copies of corrective action reports will be included in project files to be reviewed during management evaluation of project progress. Significant corrective actions, which are identified as having a direct effect on data quality or project completion, will be addressed by the CTO manager in writing to the program manager.

## 5.4 DATA VALIDATION AND USABILITY

All data developed in the course of the project will be evaluated for usability and compliance with measurement quality objectives. Field (mobile lab) data will be tabulated and presented in the context of data gathering. Laboratory data will be validated as specified below in accordance with the project DQOs and SWDIV EWIs.

### 5.4.1 Desktop Data Review

Upon receipt, all field data will be reviewed by the field manager and project manager for internal consistency and completeness. Laboratory data will be reviewed by the project chemist and the project hydrogeologist for applicability to the assessment of the site.

### 5.4.2 Data Validation

The data validation strategies presented in the *EWI* #1 (SWDIV 1999) specify investigations at NPL sites will be subject to a minimum of 20 percent Level IV validation, with the remainder of the data subject to Level III validation.

However, because these samples are critical to the assessment of Building 307, 100 percent Level IV validation has been assigned.

#### *5.4.2.1 LEVEL IV VALIDATION*

Level IV validation is intended to identify if any significant, systematic errors are present in the laboratory procedures or processes. If the Level IV validation identifies systematic errors, the laboratory will be required to initiate corrective action and ensure that such errors are corrected.

### 5.4.3 Data Usability

The final report will summarize the data validation findings, indicating the processes and findings of the review process. Data reported in the project report will be flagged with appropriate qualifiers to indicate the usability.

Data may be assigned the following qualifiers:

- J Estimated concentration
- N Presumptive evidence of the identification of an analyte
- R Rejected data (unusable)
- U Not detected (e.g., not present because of blank contamination)

Combinations of qualifiers such as UJ and NJ are possible. Where the validation qualifiers affect the project decision recommendations, the report will discuss the issue and the necessary corrective action.

# 6. DATA EVALUATION

The objective of this preliminary assessment is to determine whether laundry and dry cleaning at Building 307 impacted the surrounding soil and associated groundwater. For this reason, the data evaluation only extends to assess whether the concentration's of analytes in either the soil-gas or the groundwater Hydropunch samples are in significant levels to require further investigation. Such an investigation may include an assessment of the horizontal and vertical extent of the contamination.

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Southwest Division Naval Facilities Engineering Command (SWDIV). 1999. *Environmental Work Instructions (EWI)* October.

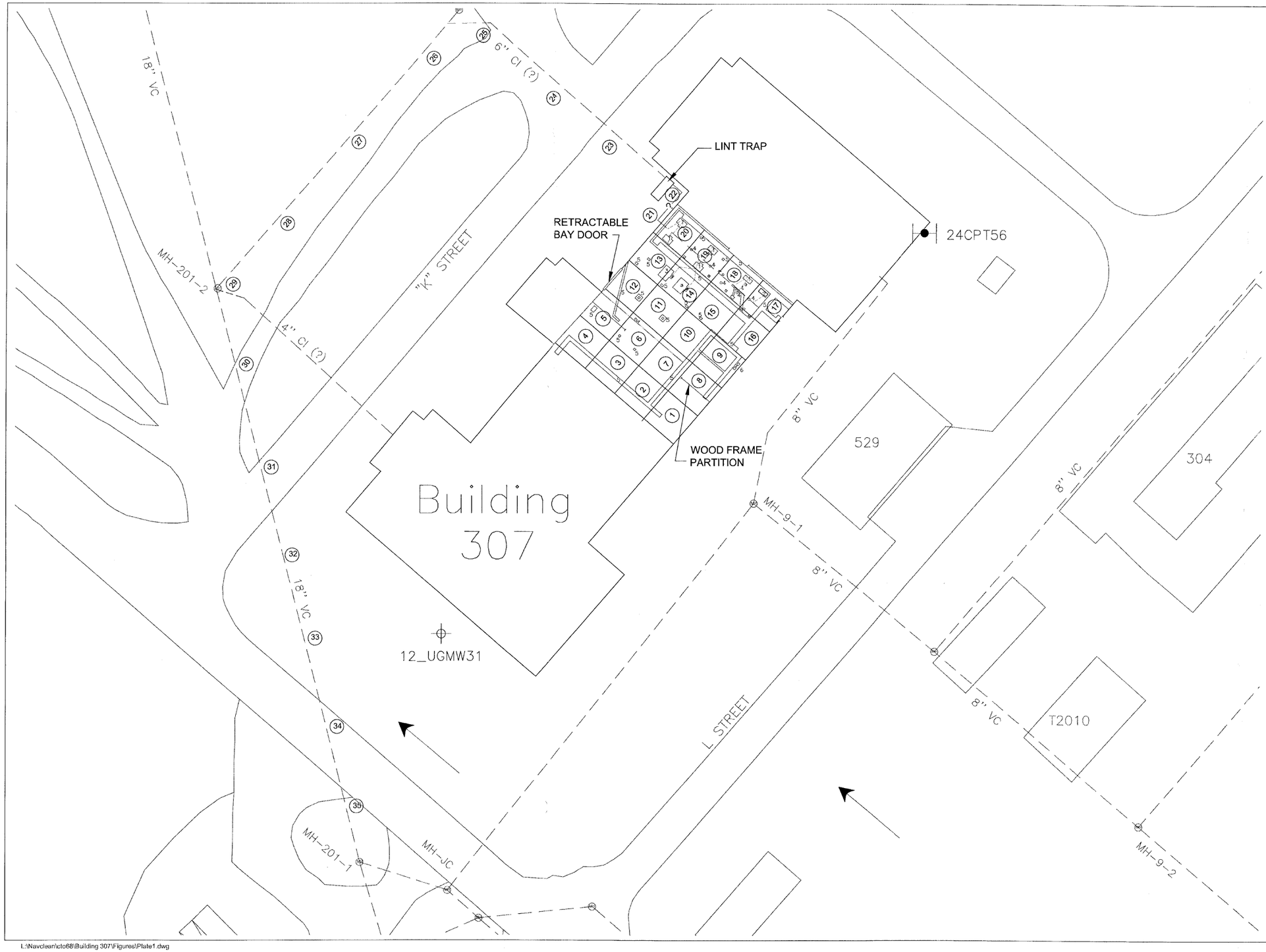
Chemical Data Validation (EWI) (SWDIV 1999)

Review, Approval, Revision,and Amendment of Field Sampling Plan and quality Assurance Project Plan. (EWI) (SWDIV 1999)

Laboratory Quality Assurance Program (EWI) (SWDIV 1999)

Attachment 1

PRIMARY SOURCE OF MAP INFORMATION
DRAFT FINAL ENGINEERING
DESIGN REPORT (BECHTEL)




EXPLANATION

| | |
|---|---|
| 307 | BUILDING |
| | SANITARY SEWER LINE |
| | SAMPLE GRID |
| MH | MANHOLE |
| 20 | SAMPLE LOCATION |
| | EXISTING GROUNDWATER WELL |
| | EXISTING SOIL-GAS WELL |
| 1 | FORMER UNLOADING WASHER |
| 2 | WASHER |
| 3 | DUMPING EXTRACTOR |
| 4 | CLEAN-OUT |
| 5 | SAWCUTS ON BUILDING FLOOR (INDICATING POSSIBLE LOCATIONS OF TRENCH DRAINS AND LAUNDRY EQUIPMENT) |
| 6 | ELECTRICAL PANEL |
| CI | CAST-IRON PIPE |
| VC | VITRIFIED CLAY PIPE |
| CPT | CONE PENETROMETER TEST |
| UGMW | UPGRADIENT MONITORING WELL |
| | GROUNDWATER FLOW DIRECTION |

NORTH

0 12.5 25 50 Feet

SCALE: 1" = 25'

Work Plan — Final

## Proposed Sampling Locations

Preliminary Assessment, Building 307

| | | |
|---|---|---|
| Date: 08-01 | MCAS El Toro | Plate 1 |
| Project No. 29307 | EARTH TECH, A tyco INTERNATIONAL LTD. COMPANY | |

L:\Navclean\cto68\Building 307\Figures\Plate1.dwg