

Comprehensive Long-Term Environmental Action Navy (CLEAN) II
Contract No. N62742-94-D-0048
Contract Task Order No. 0072

Amendment No. 1 to Work Plan
**Phase II Remedial
Investigation**

IRP Site 1, Explosive Ordnance Disposal Range,
Former 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

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November 2002

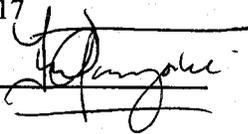
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DATE: November 28, 2002
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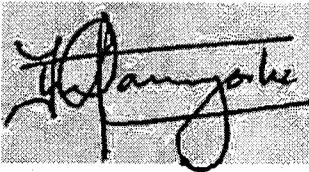
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Phase II Remedial Investigation at IRP
Site 1, Explosive Ordnance Disposal Range
Former MCAS El Toro, California**

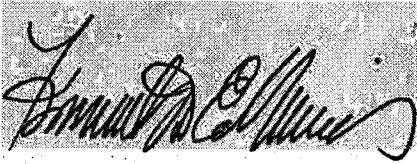
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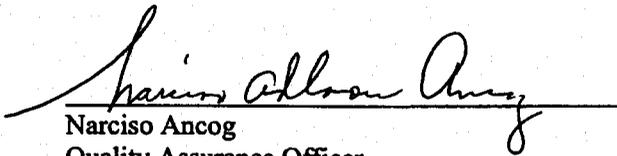
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FINAL WORK PLAN
PHASE II REMEDIAL INVESTIGATON IRP SITE,
EXPLOSIVE ORDNANCE DISPOSAL RANGE

DATED 27 NOVEMBER 2001

IS ENTERED IN THE DATABASE AND FILED AT
ADMINISTRATIVE RECORD NO. M60050.002577

DRAFT FINAL
SAMPLING AND ANALYSIS PLAN
AMENDMENT NO.1 - PHASE II
REMEDIAL INVESTIGATON IRP SITE
EXPLOSIVE ORDNANCE DISPOSAL RANGE

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FINAL SAMPLING AND ANALYSIS PLAN
AMENDMENT NO.1 - PHASE II
REMEDIAL INVESTIGATION IRP SITE
EXPLOSIVE ORDNANCE DISPOSAL RANGE

DATED 1 DECEMBER 2004

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AMENDMENT NO. 2
TO THE WORK PLAN
PHASE II REMEDIAL INVESTIGATION IRP SITE,
EXPLOSIVE ORDNANCE DISPOSAL RANGE

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AMENDMENT NO. 3
TO THE WORK PLAN
PHASE II REMEDIAL INVESTIGATION IRP SITE,
EXPLOSIVE ORDNANCE DISPOSAL RANGE

DATE 11 JANUARY 2005

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ACRONYMS AND ABBREVIATIONS

Air SWAT	air quality solid waste assessment test
BNI	Bechtel National, Inc.
BRAC	Base Realignment and Closure
CLEAN	Comprehensive Long-Term Environmental Action Navy
CRWQCB	California Regional Water Quality Control Board
CTO	contract task order
DON	Department of the Navy
EOD	explosive ordnance disposal
FFA	Federal Facilities Agreement
JEG	Jacobs Engineering Group, Inc.
MCAS	Marine Corps Air Station
MSL	mean sea level
NPL	National Priorities List
PACDIV	Pacific Division, Naval Facilities Engineering Command
SOPs	standard operating procedures
SWDIV	Southwest Division, Naval Facilities Engineering Command
U.S.	United States
USFWS	United States Fish and Wildlife Service
VOCs	volatile organic compounds

1. INTRODUCTION

In accordance with a United States Fish and Wildlife Service request, soil sampling will be conducted within the pond area at Site 1, Marine Corps Air Station (MCAS), El Toro, California.

This project was authorized by the United States (U.S.) Navy, Pacific Division, Naval Facilities Engineering Command (PACDIV) under contract task order (CTO) no. 0072 of the Comprehensive Long-Term Environmental Action Navy (CLEAN) II program, contract number N62742-94-D-0048.

This Workplan Amendment supplements the *Final Work Plan, Phase II Remedial Investigation, IRP Site 1, Explosives Ordnance Range, Marine Corps Air Station El Toro, California* (Earth Tech 2001). No substantial changes have been made to the methodology outlined in that document; only additional sampling locations have been specified.

1.1 MCAS EL TORO 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. MCAS El Toro covers approximately 4,738 acres. Land use around the MCAS includes commercial, light industrial, and residential. MCAS El Toro closed on 2 July 1999, as part of 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 (NEESA 1986).

MCAS El Toro was added to the National Priorities List (NPL) of the Superfund Program on 15 February 1990, due to volatile organic compounds (VOCs) 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 the EPA Region IX, California Department of Health Services (DHS) (part of which is currently 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 Southwest Division Naval Facilities Engineering Command (SWDIV), EPA, DTSC, and CRWQCB was formed to oversee implementation of the FFA.

Implementation of the FFA at MCAS El Toro included the following investigations and studies: Air Quality Solid Waste Assessment Test (Air SWAT), phase I RI, phase II RI, and a feasibility study (FS). Groundwater sampling is conducted station-wide on a routine basis by the Navy.

1.2 IRP SITE 1 BACKGROUND

IRP Site 1 is located in the northeast portion of MCAS El Toro in the foothills of the Santa Ana Mountains (see Figure 1, found in Attachment 1). Site 1 is situated within a tributary canyon of Borrego Canyon Wash at elevations ranging from approximately 610 to 760 feet above mean sea level (MSL). Site 1 includes the Northern EOD Range (approximately 737,250 square feet) and the Southern EOD Range (approximately 721,600 square feet) (BNI 1995).

A bermed retention pond is present in the northern portion of the site. Seasonal accumulations of rainwater were reported to have been observed in the retention pond. However, no ponding or accumulation contributing to surface water flow was observed (June 1999 to present) by Earth Tech.

The site has been characterized by fairly rapid groundwater recharge in response to storm events (JEG 1993).

2. WORK PLAN

2.1 PURPOSE

Sampling will be conducted in order to assess whether past Explosive Ordnance Disposal (EOD) training activities have impacted the pond area, and thus may have impacted the Riverside fairy shrimp (*Streptocephalus woottoni*), which is a federally threatened species.

2.2 SCOPE

The scope of this work is to collect data to characterize site conditions; document the nature of the waste within the pond (if any); assess risk to human health and the environment; and conduct treatability testing as necessary to evaluate the potential performance and cost of treatment technologies that are being considered. This information will be used to evaluate appropriate response actions to support the decision-making process for further course of action in conjunction with the reuse options (Earth Tech 2001).

The overall approach to data collection has not changed from the Phase II Remedial Investigation Work Plan (Earth Tech 2001); only additional sampling locations have been specified.

2.3 EOD RANGE POND BACKGROUND

A review of existing site data indicated that the pond that is present at Site 1 was constructed in 1980. Prior to 1980, there were no vernal pools at Site 1. The pond was constructed in order to prevent sheet flow from flooding the Site 1 area during precipitation events.

A letter dated March 22, 2001 (DON 2001) was sent by the Navy to Mr. James Bartel, Field Supervisor for the U.S. Fish and Wildlife Service, Carlsbad, California. The letter provided background information and a description of the proposed Phase II RI activities at Site 1 and the measures that the Navy would be taking to prevent impacts to biological resources at Site 1. In relation to the Riverside fairy shrimp, the letter mentioned that the fairy shrimp has been detected in the pond, but that no intrusive activities were planned for the pond area at that time.

A letter was sent by the United States Fish and Wildlife Service (USFWS) (USFWS 2001) and received May 3, 2001 in response to the Navy's letter. The letter largely concurred with the Navy's findings that the remedial investigation at Site 1, as described, was not likely to adversely affect federally listed threatened and endangered species, specifically the Riverside fairy shrimp. The letter stated that the interagency consultation requirements of section 7 of the Endangered Species Act of 1973, as amended, had been satisfied.

With regards to the Riverside fairy shrimp, the letter stated that the proposed investigation does not appear to yield enough information to determine whether the use of Site 1 as an EOD range has resulted in contamination that is negatively affecting Riverside fairy shrimp in the pond. Additional investigations, such as analyzing surface water from the pond, were suggested.

3. SAMPLING AND ANALYSIS PLAN

Fieldwork will be performed in accordance with applicable CLEAN standard operating procedures (SOPs) (BNI 1999). Earth Tech field personnel will have copies of all referenced SOPs during the

fieldwork. Approved CLEAN SOPs were submitted to the BCT by the SWDIV; copies of the SOPs can be provided to reviewers of this document, if requested.

3.1 SAMPLING DESIGN FOR SITE 1

Sampling will occur at three locations within the EOD Range pond (Figure 2, found in Attachment 1). The three locations were selected based on two criteria: 1) one sample will be collected in the lowest portion of the pond in order to assess the location with the highest potential to accumulate any residuals from EOD training and due to sheet flow (soil contamination in the sediments of the pond), and 2) two samples will be collected at the locations of previously identified geophysical anomalies (which are within the pond and slightly upgradient) in order to assess the possibility of contamination caused by the geophysical anomaly sources.

3.2 DATA COLLECTION

Samples will be collected on the surface and at 5 feet below ground surface. Surface samples will be collected using an unused trowel. Subsurface samples will be collected using a hand auger. A single duplicate soil sample will be collected to evaluate variability of the sampled media but cannot be used to determine precision. While disposable equipment is planned, if non-reusable sampling equipment comes in contact with samples, an equipment rinsate will be collected to evaluate the potential for cross contamination.

During sampling activities, every effort will be made to minimize impact to the pond area. Soil disturbance will be kept to a minimum. The minimum number of personnel possible will be utilized in sample collection. Every effort will be made to collect the samples when the soil within the pond is dry. In the case of muddy or inundated conditions, appropriate measures will be taken to access the sampling locations, thus reducing the impact to fairy shrimp habitat. Field activities will be supervised by a biologist with a valid section 10(A)(1)(a) permit. The biologist will provide direction in the field regarding avoidance and minimization measures, as appropriate.

After sample collection, 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 1999). Samples will be shipped or delivered within 24 hours to allow the laboratory to meet holding times for analysis. Samples will be analyzed for the same analytical groups outlined in the Phase II RI Work Plan (Earth Tech 2001). Table 1 presents the sample and analysis summary.

Table 1. Planned Sampling and Analysis Summary

Analysis	Method	Field Samples	Field Duplicates	Total	Container	Preservative	Holding Time
Total Volatile Petroleum Hydrocarbons	SW5035/ SW8015B	6	1	7	3 Encore	Cool to 4°C	48 hours ^a (7 days if frozen)
Volatile Organic Compounds	SW5035/ SW8260B	6	1	7	3 Encore	Cool to 4°C	48 hours ^a (7 days if frozen)
Semivolatile Organic Compounds	SW3550B/ SW8270C	6	1	7	One 16-ounce glass jar or stainless steel liner with Teflon-lined lid/end caps	Cool to 4°C	14 days ^b /40 days ^c
Total Extractable Petroleum Hydrocarbons	SW3550B/ SW8015B	6	1	7			14 days ^b /40 days ^c
Nitroaromatics /nitroamines (explosives)	SW8330	6	1	7			14 days ^b /40 days ^c
Perchlorate	Modified SW9058	6	1	7			28 days ^a
Metals	SW3050B/ SW6010/7000	6	1	7	One 16-ounce glass jar or stainless steel liner with Teflon-lined lid/end caps	Cool to 4°C	6 months ^a (28 days for mercury)
pH	SW9045C	6	1	7			Immediately
Nitrate	Modified 300.0	6	1	7			14 days ^a

Notes:

°C = degrees Celcius

^a From sample collection to analysis^b From sample collection to extraction^c From sample extraction to analysis

4. DATA EVALUATION

The results of the sampling will be evaluated and incorporated into the Remedial Investigation data set and subsequently used in human health and ecological risk assessment.

5. REFERENCES

Bechtel National, Inc. (BNI). 1995. *Final Work Plan Phase II Remedial Investigation/Feasibility Study*, San Diego, CA.

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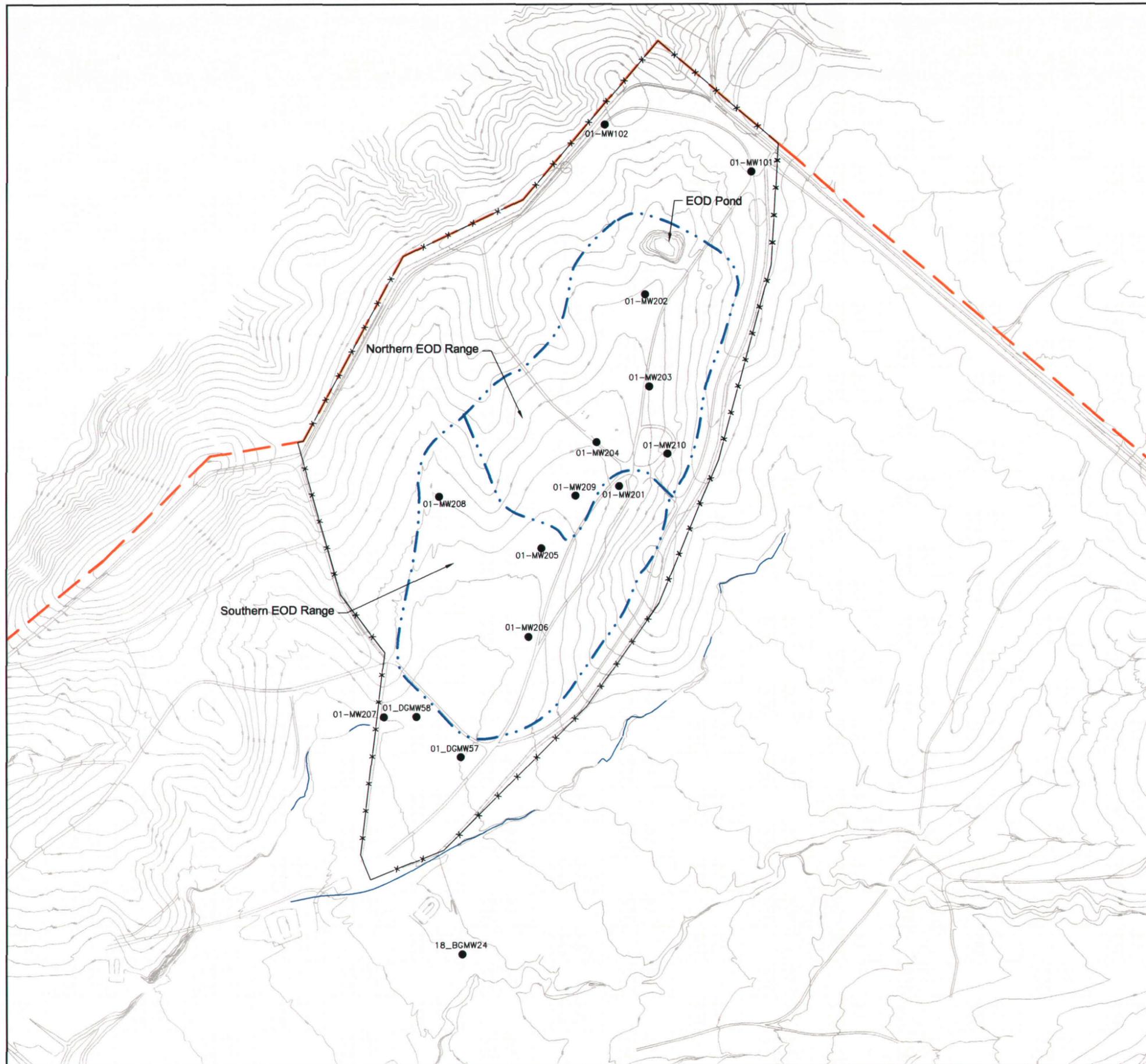
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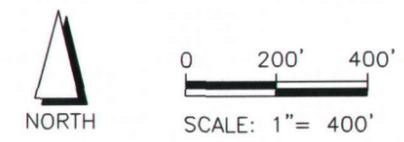
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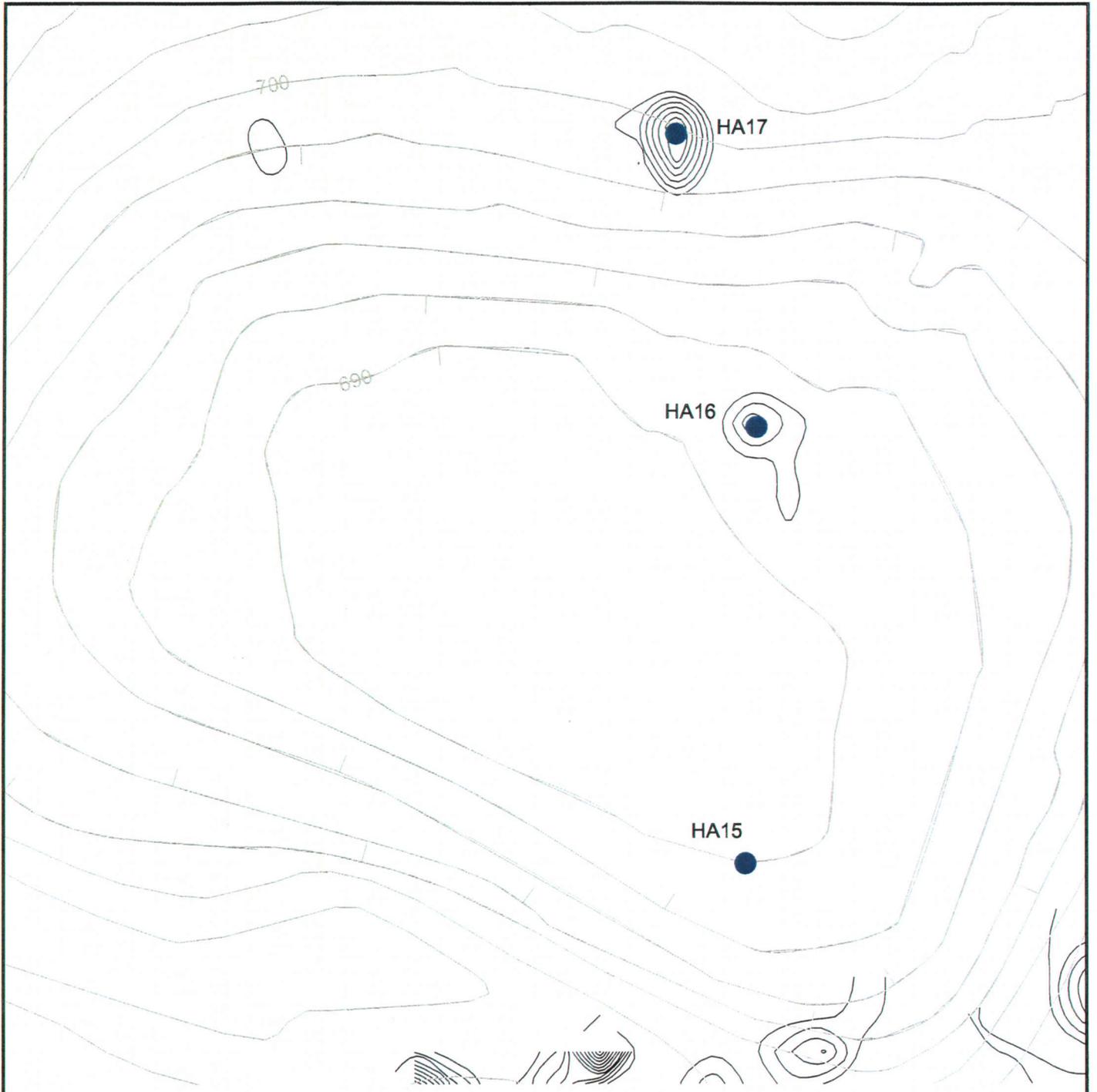
**Attachment 1
Figures**



- LEGEND:**
- - - MCAS EL TORO BOUNDARY
 - x - x - SECURITY FENCE/ SITE 1 BOUNDARY
 - . . - EOD RANGE BOUNDARY
 - STREAM OR WASH
 - 01-MW208 GROUNDWATER MONITORING WELL

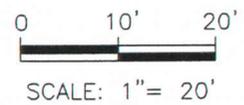


Phase II RI		
Site 1 Vicinity		
Remedial Investigation, Site 1 - EOD Range		
Date: 11-02	Former MCAS El Toro	Figure 1
Project No. 36097	 A tyco INTERNATIONAL LTD. COMPANY	



Legend:

-  ELEVATION CONTOUR
-  GEOPHYSICAL ANOMALY
-  PROPOSED SAMPLING LOCATION



EOD Pond Sampling Locations		
Date 11-02	Former MCAS El Toro	Figure 2
Project No. 36097	EARTH  TECH <small>A tyco INTERNATIONAL LTD. COMPANY</small>	