

**UNEXPLODED ORDNANCE (UXO) SURFACE SWEEP
WORK PACKAGE**

**EOD RANGE (SITE #1)
MARINE CORPS AIR STATION (MCAS)
EL TORO, CALIFORNIA**

April 4, 2001

INCLUDES:

- PART 1 - WORK PLAN**
- PART 2 - HEALTH & SAFETY PLAN**

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

Contract No. DAAD05-97-D-7004 - DO 124, MOD 1

Prepared by: Roy F. Weston, Inc.
Vallejo Site Office (UXO Program)
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DEPARTMENT OF THE NAVY
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5090
Ser 06CC.CA/0361
April 09, 2001

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Subj: UNEXPLODED ORDNANCE (UXO) SURFACE SWEEP WORK PACKAGE EOD
RANGE (SITE #1) AT MARINE CORPS AIR STATION (MCAS) EL TORO,
CALIFORNIA

Dear Ms. Hannon:

Delivered for your agency's review is the subject document. As discussed at the BCT meeting on 21 March 01, we are requesting an expedited review of this document, given its impact on the radiological survey planned for Site 1 in the near future. Please have comments submitted to this office by 25 April 2001.

Thank you in advance for your expedited review and support. Please call Content Arnold at (619) 532-0790, if you have any questions, or need additional information.

Sincerely,

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

Enclosure: 1. Unexploded Ordnance (UXO) Surface Sweep Work Package EOD
Range (Site #1) at Marine Corps Air Station (MCAS) El Toro, California

Copy to w/out enclosure:
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Subj: UNEXPLODED ORDNANCE (UXO) SURFACE SWEEP WORK PACKAGE
EOD RANGE (SITE #1) AT MARINE CORPS AIR STATION (MCAS) EL TORO,
CALIFORNIA

Dear Ms. Moutoux:

Delivered for your agency's review is the subject document. As discussed at the BCT meeting on 21 March 01, we are requesting an expedited review of this document, given its impact on the radiological survey planned for Site 1 in the near future. Please have comments submitted to this office by 23 April 2001.

Thank you in advance for your expedited review and support. Please call Content Arnold at (619) 532-0790, if you have any questions, or need additional information.

Sincerely,

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

Enclosure: 1. Unexploded Ordnance (UXO) Surface Sweep Work Package EOD
Range (Site #1) at Marine Corps Air Station (MCAS) El Toro, California

Copy to (w/o encl):
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Subj: UNEXPLODED ORDNANCE (UXO) SURFACE SWEEP WORK PACKAGE EOD
RANGE (SITE #1) AT MARINE CORPS AIR STATION (MCAS) EL TORO,
CALIFORNIA

Dear Ms. Chesney:

Delivered for your agency's review is the subject document. As discussed at the BCT meeting on 21 March 01, we are requesting an expedited review of this document, given its impact on the radiological survey planned for Site 1 in the near future. Please have comments submitted to this office by 25 April 2001.

Thank you in advance for your expedited review and support. Please call Content Arnold at (619) 532-0790, if you have any questions, or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Dean Gould", written over a horizontal line.

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

Enclosure: 1. Unexploded Ordnance (UXO) Surface Sweep Work Package EOD
Range (Site #1) at Marine Corps Air Station (MCAS) El Toro, California

Copy to w/ Enclosure:
Commander
Marine Corps Air Bases Western Area
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**UNEXPLODED ORDNANCE (UXO) SURFACE SWEEP
WORK PLAN**

**EOD RANGE (SITE #1)
MARINE CORPS AIR STATION (MCAS)
EL TORO, CALIFORNIA**

April 4, 2001

PART 1 OF THE UXO SURFACE SWEEP WORK PACKAGE

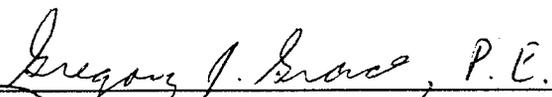
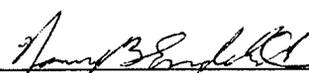
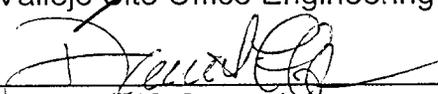
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**UXO CLEARANCE WORK PLAN
EOD RANGE SURFACE SWEEP
MCAS EL TORO**

Review and Approval:

By their specific signature, the undersigned certify that this Work Plan is approved for utilization.

Reviewed by:

| | |
|---|--------------------|
|  _____ Engineering Review | Date <u>4/5/01</u> |
|  _____ Radiological Project Engineer | Date <u>4/4/01</u> |
|  _____ UXO Project Manager | Date <u>4/4/01</u> |
|  _____ Vallejo Site Office Engineering Manager | Date <u>4/5/01</u> |
|  _____ Senior UXO Supervisor | Date <u>4/4/01</u> |
| <u><Wayne Wright></u> WESTON Senior UXO Manager | Date _____ |

REVISIONS

| Revision | Description | Approval | Date |
|----------|-------------|----------|------|
| | | | |

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REFERENCES

1. Navy Manual NAVSEA OP-5, Ammunition and Explosives Ashore Safety Regulations for Handling, Storing, Production, Renovation and Shipping.
2. Naval Sea Systems (NAVSEA) Instruction 8023.11 "Standard Operating Procedures for the Processing of Expendable Ordnance at Navy and Marine Corps Activities
3. Department of Defense Instruction 4145.26M, "DOD Contractors Safety Manual for Ammunition and Explosives"
4. FEDERAL REGULATIONS
 - 40 CFR 116 Designation of Hazardous Substances
 - 40 CFR 260-268 .. Hazardous Waste Management
 - 40 CFR 300 National Contingency Plan
 - 40 CFR 355 Planning and Notification Procedures
 - 40 CFR 370 Reporting Requirements
 - 40 CFR 372 Chemical Release Reporting
 - 29 CFR 1910 Occupational Safety and Health Regulations (OSHA)
 - 29 CFR 1926..... Excavations (Subpart P)
 - 40 CFR 261 Off-site Transport of Hazardous Materials and Unexploded Ordnance
 - 49 CFR Department of Transportation (DOT), Hazardous Materials Transport
5. U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1 of 3 September 1996
6. STATE REGULATIONS
 - 22 CCR 66261 Identification of Hazardous Wastes
 - 22 CCR 66680 List of Hazardous Wastes
7. Weston Hazardous Material Plan, June 6, 2000
8. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Public Lay 96-510
9. 40 CFR Part 300, 1990, National Oil and Hazardous Substances Pollution Contingency Plan, U.S. Code of Federal Regulations
10. Draft Final Record of Decision, OU 2B Sites 2 and 17, Bechtel National, Inc. (BNI), 1999
11. Initial Assessment Study of Marine Corps Air Station, El Toro, California, Naval Energy and Environmental Support Activity (NEESA), Port Hueneme, 1986

12. Draft Range Identification and Preliminary Range Assessment, MCAS El Toro, United States Army Corps of Engineers (USACOE), March 1998
13. Draft Phase I Remedial Investigation Technical Memorandum, Jacobs Engineering Group, Inc., 1993.
14. Final Work Plan Phase II Remedial Investigation/Feasibility Study, Bechtel National, Inc., 1995

ACRONYMS AND ABBREVIATIONS

ARAR - Applicable or Relevant and Appropriate Requirements
ACGIH - American Conference of Governmental Industrial Hygienists
BRAC - Base Realignment and Closure
CERCLA - Comprehensive Environmental Responses Compensation and Liability Act
CCR - California Code of Regulations
CFR - Code of Federal Regulations
CRZ - Contamination Reduction Zone
DDESB - Department of Defense Explosive Safety Board
DOD - Department of Defense
DOT - Department of Transportation
DRMO - Defense Reutilization and Marketing Office
DTSC - Department of Toxic Substances Control (State of California)
EFD SOUTHWEST - Engineering Field Division Southwest (of NAVFAC)
EMT - Emergency Medical Technician
EOD - Explosive Ordnance Disposal
EPA - Environmental Protection Agency
ESQD - Explosive Safety Quantity-Distance
FSP - Field Sampling Plan
HAZMAT - Hazardous Material
HAZWOPER - Hazardous Waste Operator
HASP - Health and Safety Plan
HSP - Health and Safety Plan
HERO – Hazards of Electromagnetic Radiation to Ordnance
IAW - In Accordance With
IR-1 - Installation Restoration Site Number 1
Kg - Kilograms
L - Liters
mg - Milligrams
µg - Micrograms
MCAS-Marine Corps Air Station
MK - Mark
NAS - Naval Air Station
NAVFAC - Naval Facilities Command
NAVSEA - Naval Sea Systems Command
NCP - National Oil and Hazardous Substance Pollution Contingency Plan
NPL - National Priority List
OB/OD – Open Burn/Open Detonation
OEW – Ordnance and Explosives Waste

ACRONYMS AND ABBREVIATIONS (continued)

OHSC - On-Site Health and Safety Coordinator
OP - Ordnance Pamphlet
OPNAVINST - Chief of Naval Operations Instruction
OSH - Occupational Safety and Health
OSHA - Occupational Safety and Health Administration
PA - Preliminary Assessment
PPE - Personal Protective Equipment
ppm - Parts per million
RCRA - Federal Resource Conservation and Recovery Act
RI - Remedial Investigation
SARA - Superfund Amendments And Reauthorization Act of 1986
SOP - Standard Operating Procedure
STLC - Soluble Threshold Limit Concentration
SUXOS – Senior Unexploded Ordnance Supervisor
TDS - Total Dissolved Solids
TTLC - Total Threshold Limit Concentration
USC - United States Code
UXO - Unexploded Ordnance
VOC - Volatile Organic Compounds

1. INTRODUCTION

The Implementation Work Package is comprised of the following parts:

Part 1 - Work Plan (WP), describes overall project scope, site preparation, and detailed procedures describing the ordnance surface sweep process.

Part 2 - Health and Safety Plan (HASP), includes procedures and information to insure the safety and health of site workers and visitors.

1.1 PURPOSE

This work plan describes the objectives and procedures necessary to accomplish an unexploded ordnance (UXO) surface sweep of the worksite located on the Installation Restoration Program (IRP) Site #1 Explosive Ordnance Disposal (EOD) Range at Marine Corps Air Station (MCAS) El Toro, California (Figures 1, 2, and 3). The sweep will verify that no surface ordnance remains accessible as a hazard to workers accomplishing the subsequent radiological survey of the 10 acre area of concern within the EOD range.

The project was authorized by the Department of the Navy, Engineering Field Division Southwest (EFD Southwest), Naval Facilities Engineering Command under Contract No. DAAD-05-97-D-7004 in support of the site radiological survey.

1.2 SCOPE

The purpose of this project is to support the radiological survey of the EOD Range site by locating and identifying live ordnance items exposed on the surface that might be actuated by survey personnel or equipment. Exposed live ordnance is considered a potential hazard at the site due to past operations at Site 1 that involved the training of EOD personnel (Jacobs Engineering Group [JEG], 1993).

NOTE: The term "live ordnance" used within the context of this work document denotes ordnance items or other explosive constituents known or suspected to contain energetic material representing a potential physical hazard to site workers. Ordnance which can safely be verified free of energetic material is termed "inert ordnance".

The work plan complies with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, 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. The work plan also satisfies all explosive safety guidelines of NAVSEA OP 5 and DODINST 4145.26M relating to the handling and disposal of unexploded ordnance.

Project work will be limited to the location and marking of surface ordnance. The only exception would occur if exposed unstable live ordnance is identified which presents an immediate threat to human health or the environment. The material would in that case be blown in place pursuant to CERCLA Section 104 and in accordance with the NCP as an emergency removal action.

Data obtained during the conduct of the project pertinent to the characterization of the site will be provided to the Navy for inclusion in the Site 1 Phase II Remedial Investigation (RI).

2. SITE DESCRIPTION

The known site history and physical characteristics are described in this section.

2.1 SITE DESCRIPTION AND BACKGROUND

Marine Corps Air Station (MCAS) El Toro covers approximately 4,740 acres in a semi-urban, agricultural area of southern California approximately 8 miles south of Santa Ana and 12 miles northeast of Laguna Beach. Land use around the MCAS includes commercial, light industrial and residential. MCAS El Toro was closed on 2 July 1999 as a result of the Base Realignment and Closure Act (1993 BRAC III).

Initial work conducted by the Department of the Navy (DON) at MCAS El Toro included an Initial Assessment Study during 1985 (Naval Energy and Environmental Support Activity [NEESA] 1986) and a Site Inspection Plan of Action during 1987 and 1988 (Bechtel National, Inc. [BNI] 1999). MCAS El Toro was added to the National Priorities List (NPL) of the Superfund Program on 15 February 1990 based on 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 EPA Region IX, California Department of Health Services (DHS), California Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board, Santa Ana Region (CRWQCB).

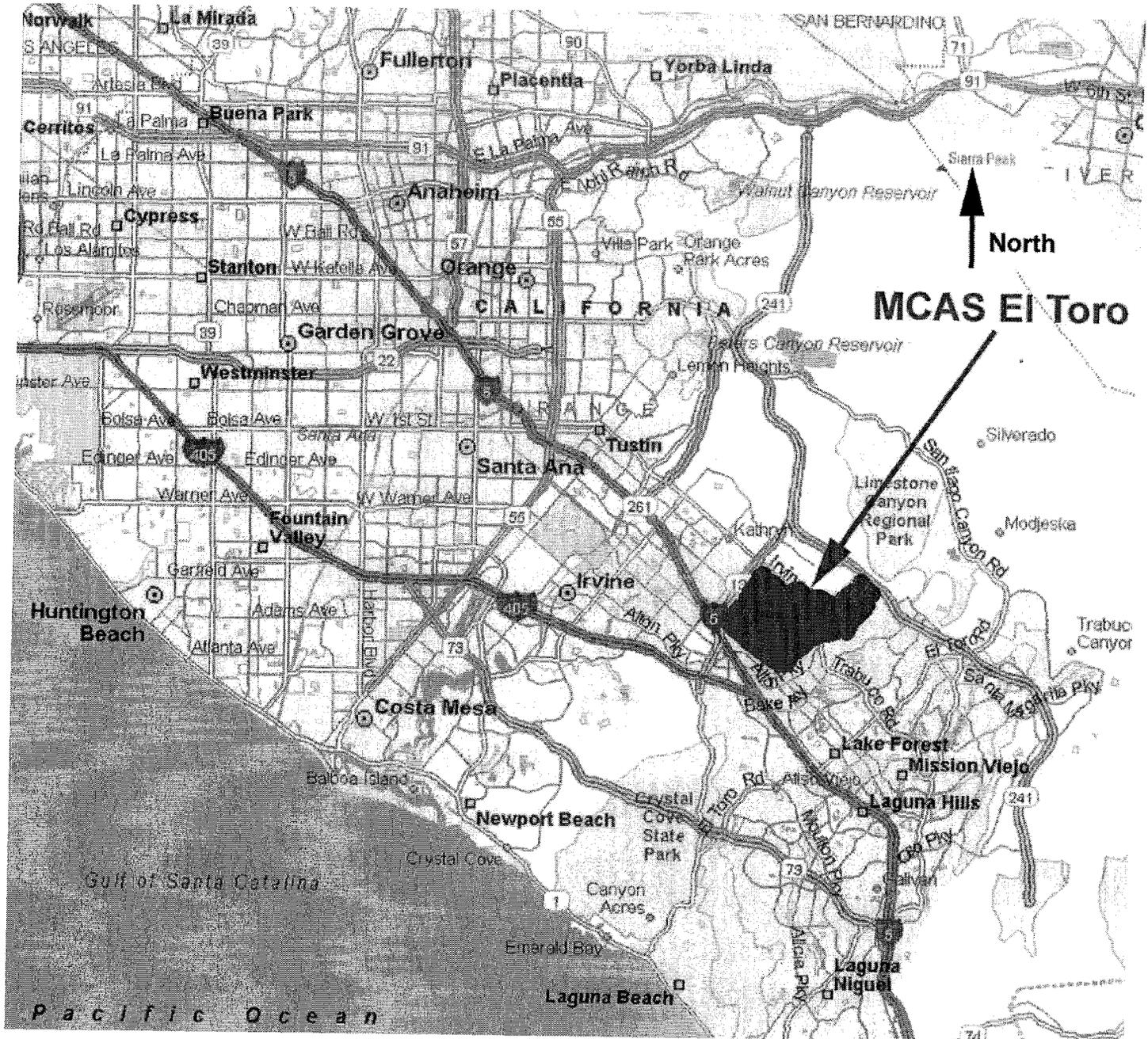
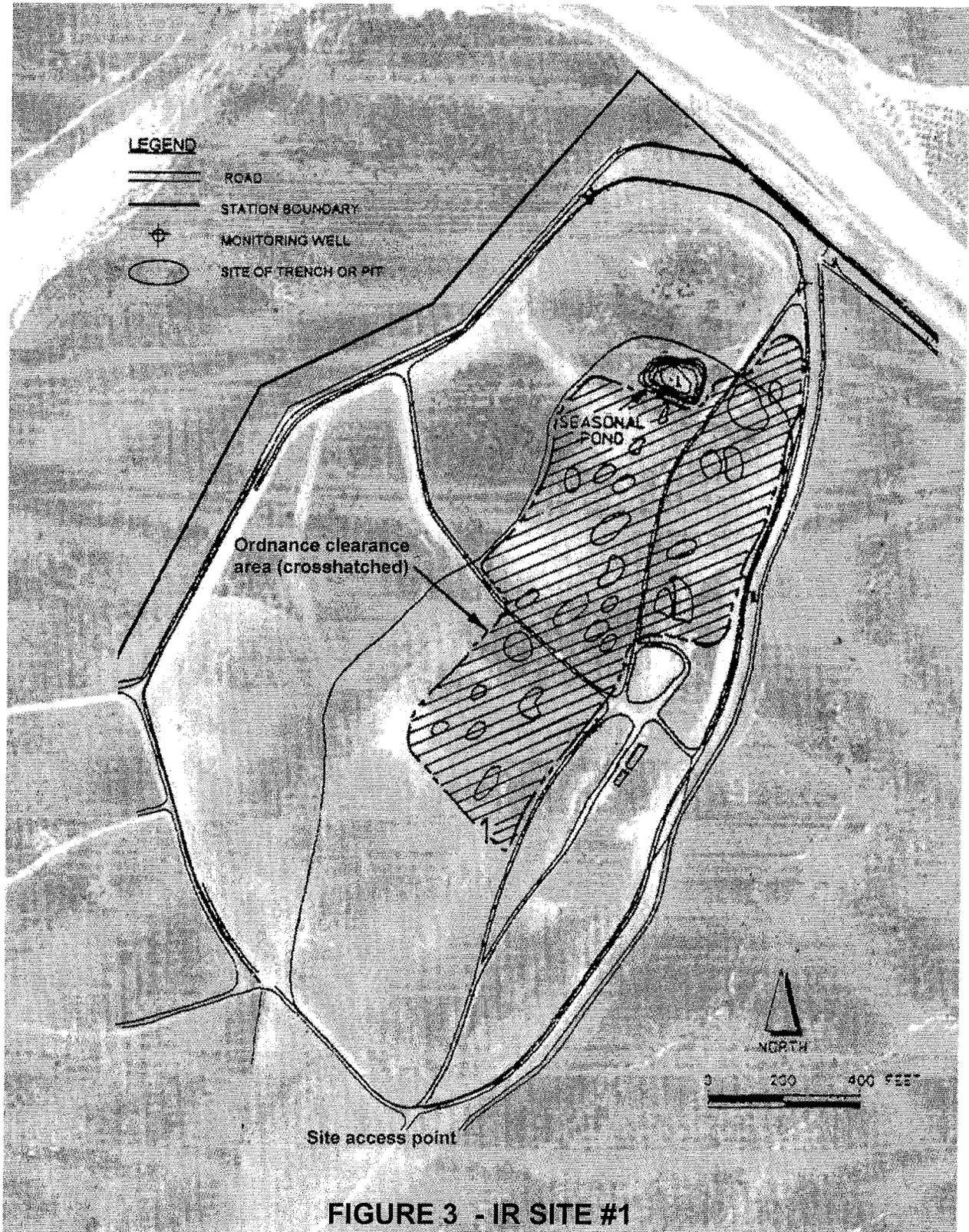


FIGURE 1 – MCAS EL TORO LOCATION MAP



MCAS El Toro was placed on the list of military facilities scheduled for closure under the BRAC Act in March 1993. 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 remedial investigation (RI), phase II RI, and a feasibility study (FS). Groundwater sampling is conducted station-wide on a routine basis by the Navy.

Installation Restoration Program (IRP) Site 1 is situated within a tributary canyon of Borrego Canyon Wash at elevations ranging from approximately 610 to 760 feet above sea level. Site 1 includes the Northern EOD Range (~737,250 sq ft) and the Southern EOD Range (~721,600 sq ft). A bermed retention pond is present in the northern portion of the site. Although seasonal accumulations of rainwater have been reported in the retention pond, no ponding or accumulation contributing to surface water flow has been observed from June 1999 to the present by Earth Tech. The site has been characterized by fairly rapid groundwater recharge in response to storm events (Jacobs Engineering Group [JEG], 1993).

2.2 LAND USE AND NATURAL RESOURCES

Although the majority of the land immediately surrounding MCAS El Toro has been used for nursery and agricultural activities, continued urbanization has brought housing developments within ½ mile of the northeast edge of Site 1. Areas located to the south, southeast, and southwest of the site 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 for municipal water supply, agricultural, industrial supplies, and industrial process supply. Groundwater in the vicinity of MCAS El Toro is used primarily 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. The nearest municipal wells used as drinking water sources are located in the City of Tustin near the junction of Walnut Avenue and Red Hill Avenue and in the City of Santa Ana near the junction of Grant Avenue and Walnut Avenue (BNI 1995).

2.3 EOD ACTIVITIES

Training of EOD personnel and the associated detonation of munitions has been accomplished at Site 1 since 1952 (BNI 1995). Use of the EOD Range has been discontinued with the closure of MCAS El Toro on 2 July 1999. The majority of recent military EOD training took place at the Northern EOD Range, and EOD training by the Orange County Sheriff Department and federal agencies took place at the Southern EOD Range (BNI 1995a). Several demolition pits, a range building, and a former

observation bunker constructed from metal ammunition cans were reported to be present. Many of these metal cans were reported to be filled with the burned residue of disposed munitions, such as cartridge-actuated devices and 20mm ammunition (U.S. Army Corps of Engineers [USACOE], 1998).

Military ordnance used at the site included hand grenades, land mines, cluster bombs, smoke bombs, and rocket warheads. Civilian and commercial explosives, such as dynamite, and plastic and gelatinous explosives have also been used at the EOD Range. Munitions were detonated in trenches and pits, which were continually filled with soil and then re-excavated. In 1982, approximately 2,000 gallons of sulfur trioxide chlorosulfonic acid (FS smoke) were reportedly burned in trenches located in the northern portion of the site in 1982. An estimated 300,000 gallons of petroleum fuels were burned during disposal activities from 1952 through 1993 (JEG 1993).

In addition, there was one unconfirmed report that low-level radioactive material was disposed at the site (NEESA, 1986). Perchlorate was identified as a potential contaminant of concern at Site 1 due to its use in explosives and propellants.

2.4 PREVIOUS SITE WORK

Phase I RI - Previous investigations at Site 1 include a geophysical survey (JEG 1991) and a Phase I Remedial Investigation (JEG 1993). Four surface soil samples were collected and three groundwater monitoring wells were installed in and around Site 1 during the Phase I RI.

Phase II RI Work Plan - A *Phase II RI/FS Work Plan* (JEG 1993) for the IR sites, including the results of the data quality objectives (DQO) process was prepared by JEG for MCAS El Toro in 1993. No further investigation for Site 1 was required during the Phase II RI for MCAS El Toro, because the limited Phase I investigation results indicated no human health or ecological risk. However, since the Phase I sampling at Site 1 did not assess the areas used for active EOD training, further investigation following the discontinuation of EOD training was recommended.

An updated *Phase II RI Work Plan* and associated plans were prepared in 1995 (BNI 1995). A three-tiered approach was proposed to investigate shallow and deeper subsurface soils and groundwater. Due to continued operation of the EOD Range, the soil investigation was deferred until cessation of EOD activities. However, three groundwater monitoring wells were installed at Site 1 in May 1996.

Risk Assessment Work Plan - A *Final Risk Assessment Work Plan* (BNI 1995) was prepared for MCAS El Toro. The plan presented the methods and procedures that were to be used to assess risks to human health and ecological receptors. Objectives, regulatory requirements, and procedures to be followed in the risk assessment process were also included.

Evaluation of Perchlorate in Groundwater - A station-wide evaluation (which included Site 1) was conducted for the presence of perchlorate in the groundwater during 1998. This investigation was performed as part of the routine groundwater monitoring that is being conducted station-wide by the Navy. In October 1998, existing groundwater wells at Site 1 were sampled and analyzed for perchlorate. The results of the investigation were presented in the *Draft Evaluation of Perchlorate in Groundwater* (BNI 1999).

Perchlorate Verification at Site 1 - A perchlorate verification study was conducted at Site 1 during 1999 (Earth Tech 2000). Six groundwater-monitoring wells were installed and sampled for perchlorate. During this investigation, a geophysical survey was also performed at Site 1 to locate buried debris. In addition, surface and shallow (up to 5 feet below ground surface [bgs]) soil samples were collected to assess selected geophysical anomaly areas as part of a limited soil investigation to identify areas acceptable for transfer.

Radionuclide Investigation - A station-wide radionuclide evaluation is currently being conducted at MCAS El Toro. This radionuclide evaluation will provide more definitive data on the origin of radioisotopes detected in groundwater at various sites on the station, including Site 1.

3. WORK PLAN SUMMARY

The surface sweep will verify that no unidentified hazardous ordnance is present on the surface within the boundaries of the 10 acre EOD range which could endanger the safety of workers accomplishing the subsequent radiological survey. The sweep will utilize visual and metal detector search techniques to identify potential surface ordnance hazards which could be actuated by radiological survey operations. The ten acre site will be divided into 100' X 100' grid squares and the following processes applied to each grid square.

- Surface visual search of each square
- Metal detector search only of those areas where visual inspection of the surface is obscured by vegetation or other material
- Evaluation of ordnance hazards (if encountered)
- Cataloging, securing, and disposition of ordnance items (if encountered)

All operations involving a potential ordnance hazard will be conducted in strict compliance with the procedures contained in this document. The surface sweep will be accomplished by Weston Unexploded Ordnance (UXO) Specialists as required by this document and the site specific Health and Safety Plan (HASP). A maximum of three Weston UXO Specialists will be onsite during the duration of the project estimated to be three weeks.

The quality of the surface sweep will be controlled by the following methods:

1. All grids will be searched visually (augmented by metal detectors where necessary) and all contacts evaluated to determine whether they pose a potential hazard to radiological survey personnel.
2. An instrument test area will be established near the worksite in similar soil conditions where representative inert ordnance items will be planted and used to verify satisfactory operation of metal detectors (accomplished a minimum of once per day).

All live ordnance items identified during the surface sweep will be considered fully armed and in an unsafe condition because of their presence on the EOD range. The Senior Unexploded Ordnance Supervisor (SUXOS) will determine, based on the nature and condition of the specific item, if the item requires immediate action or if it can be isolated and allowed to remain in place. Items presenting an immediate threat to human health or the environment will be blown in place by qualified and licensed Weston Unexploded Ordnance Specialists as described in Section 5.4.1 and Appendix A.

Complete records will be maintained concerning the location and nature of any live ordnance items identified during the operation.

4. SITE DEVELOPMENT

This section describes the measures that will be used to control site entry, to meet the logistical support requirements of the operation, and to mitigate the potential impact of site operations on native endangered species.

4.1 INITIAL SITE WORK

Appropriate locations for tool and equipment storage, road access and parking, site administration, and equipment maintenance will be established near the site. Potential ecological restrictions on site work are described in Section 4.1.2.

4.1.1 PERIMETER AND SITE CONTROL

The entire perimeter of the site is secured by chain link security fencing and locked gates. Access to the site while work is in progress will be restricted to those persons authorized by the RPM.

An Explosive Safety Quantity Distance (ESQD) arc to ensure public safety will be established and enforced around any operation involving the evaluation, handling, or blowing in place of suspected live ordnance material. Utility roads will be barricaded and posted and access into the ESQD will be restricted to personnel qualified and certified as described in the Health and Safety Plan. Site visitors and other site workers not directly involved with the operation will not be allowed within established ESQD arcs. The size of the ESQD arc will be determined by the SUXOS in consultation with the UXO Safety Officer and will be dependent on the specific type(s) of ordnance involved and the expected blast/fragmentation hazard (not less than 300 feet).

4.1.2 ECOLOGICAL CONCERNS

The federally threatened coastal California gnatcatcher (*Poliioptila californica*) has recently been identified on the site. The Navy is currently working with the United States Fish and Wildlife Service (USFWS) to mitigate any potential threats to the gnatcatcher. Based upon the opinion of SWDIV's biologist, we anticipate that site activities relating to the Radiological Survey may have a low potential to affect the California gnatcatcher. The mitigation measures proposed by SWDIV to avoid adverse impact on the gnatcatcher are included as Appendix B. SWDIV and Earth Tech will assist with all site gnatcatcher issues. The SWDIV biologist is John Lovio, 619 532-1166 and the Earth Tech point of contact is Crispin Wanyoike, 562 951-2057.

4.2 SITE EQUIPMENT

Equipment that may be used during site operations is listed in this section. Other equipment in addition to that listed below may be used if appropriate and approved by the Project Engineer.

4.2.1 VEHICLES

- a) Truck, 4WD Utility Pickup (crew cab, ordnance certified)

4.2.2 INSTRUMENTS

- a) AN-19/2 All Metals Locator (Metal Detector)
- b) Hand held GPS system

4.2.3 COMMUNICATIONS EQUIPMENT

- a) Cellular phones, Nextel or equivalent

4.2.4 SURVEY SUPPLIES

- a) Marking stakes
- b) Ground marking paint
- c) Non-magnetic rope, line, or tape (for search lanes)
- d) 100 ft measuring tape

4.2.5 HAND TOOLS

- a) Non-sparking hand tools

4.2.6 VEGETATION REMOVAL EQUIPMENT

- a) Pruning shears
- b) Hand saws
- c) Gas powered string trimmer

4.2.7 SAFETY EQUIPMENT

Required safety equipment is specified in the Site Specific Health and Safety Plan.

5. THE SURFACE SWEEP PROCESS

The ordnance surface sweep process will be systematically applied to each grid square on the site and will involve the following sequence of tasks:

- Removal of vegetation that would otherwise interfere with the visual/metal detector search for surface ordnance
- Visual surface search
- Metal detector search as required to locate surface metallic objects where the ground surface is obscured by remaining vegetation or other material
- Evaluation of anomalies
- Disposition of identified live ordnance items

Procedures for specific site operations that impact ordnance safety are detailed in the HASP and will be rigidly followed. Relevant documents governing the safe handling of ordnance are U.S. Navy Manual NAVSEA OP-5, "Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation and Shipping", and DODINST 4145.26M, "DOD Contractors Safety Manual for Ammunition and Explosives".

5.1 VEGETATION REMOVAL

Vegetation removal will be accomplished only where the ground surface is visually obscured or where the height of vegetation would interfere with the ability to utilize

metal detectors as a secondary search method. Hand tools and gas powered string trimmers will be used to shorten vegetation to support completion of the surface sweep.

5.2 SURFACE SEARCH

A system of 100' by 100' grid squares covering the entire 10 acre worksite will be established to guide the systematic surface search for ordnance. An arrangement of ¼" lines will be created within each grid to guide the search of 5 foot wide lanes by a team of Unexploded Ordnance (UXO) Specialists. The UXO Specialists will systematically search the surface of each grid visually to locate surface ordnance. Metal detectors will be used to assist the search in situations where the ground surface may be obscured by vegetation or other material. Lanes will be overlapped by approximately 6 inches to ensure that no areas are missed. When an anomaly is detected, a pin flag will be used to mark the anomaly. A detailed log will be maintained documenting the status of the surface search and the exact position and description of any live ordnance items that are encountered.

The location of any soil or other material encountered during the surface search suspected to contain chemical contaminants because of unusual color, texture, or odor will be marked, documented in the daily log, and reported to the Navy Remedial Project Manager.

5.3 ANOMALY EVALUATION

The explosive safety requirements described in Section 7 of this document will be enforced when suspected live ordnance items are being evaluated or handled. An explosive safety quantity-distance (ESQD) arc will be established around the work site during evaluation of anomalies suspected to represent live ordnance. Size of the ESQD arc will be determined by the SUXOS dependent on the specific anticipated hazard as described in Section 4.1.1. and in Section 11.2 of the HASP.

Surface anomalies will be exposed and a hazard assessment accomplished to determine if they represent live ordnance. The hazard assessment will be completed by the SUXOS and will be based on the nature and condition of the specific item(s) encountered. Items classified as live ordnance will be considered fully armed and in an unsafe condition because of their presence on the EOD range. Live ordnance items will therefore not be disturbed but will either be blown in place or be left in place and marked to prevent inadvertent actuation by site workers (see Section 5.4 for specific details).

5.4 DISPOSITION OF ORDNANCE AND OTHER MATERIALS

This section describes procedures for the disposition of ordnance and other manmade materials encountered during the search sweep.

5.4.1 LIVE ORDNANCE

The Navy Remedial Project Manager (Content Arnold, 619 532-0790), Caretaker Site Office Officer in Charge (Ron Johnson, 619 572-1403), and BRAC Environmental Coordinator (Dean Gould, 619 532-0784) will be immediately notified whenever an ordnance item is identified. The identification of ordnance will also initiate the decision process shown in Figure 4.

Live ordnance that is not considered to pose an immediate threat to human health or the environment will be left in place. An appropriately sized and clearly marked "buffer zone" to prevent inadvertent contact (and possible actuation of the item) by radiological survey workers will be established around the item. Buffer zone size will be determined by the SUXOS based on the nature and apparent condition of the each item. Written notification detailing the nature and location of the hazard will be provided to the Navy RPM, CSO, and BEC.

Live ordnance that is determined to pose a immediate threat to human health or the environment will require immediate blowing in place. A detailed description of the item, it's location, and the planned method of disposition will be provided to the RPM using the "EMERGENCY REMOVAL ACTION DOCUMENTATION" form provided on page WP-A8. The RPM will notify regulatory agencies that an emergency removal action has been initiated in accordance with provisions of the NCP. Items will be blown in place by qualified and licensed Weston Unexploded Ordnance Specialists in coordination with local agencies. The blowing in place of ordnance also meets the criteria for an emergency disposal per 40 CFR 270.1 (c) (3) to eliminate "...an immediate threat to human health, public safety, property, or the environment from the known or suspected presence of military munitions...". Ordnance will be blown in place only after the evacuation of all non-essential personnel from an area determined by the EOD Team Leader or the SUXOS to be appropriate for the expected blast/fragmentation hazards. Blow in place operations will be in accordance with Appendix A and NAVSEA OP 5 Volume 1. A completed copy of the "EMERGENCY REMOVAL ACTION DOCUMENTATION" form will be provided to the Navy RPM to assist in preparation of the required documentation supporting the emergency action.

The Navy, through Executive Order 12580, has the authority to conduct emergency removal actions and anticipates that the emergency blowing in place of unsafe ordnance will be implemented as an emergency removal action. Due to the immediate need to render the UXO safe, the notification of federal and state BCT members will be accomplished by phone and supported by subsequent written notification. The Navy will also prepare an Action Memorandum summarizing the emergency action conducted and publish a Public Notice of availability for review and comment.

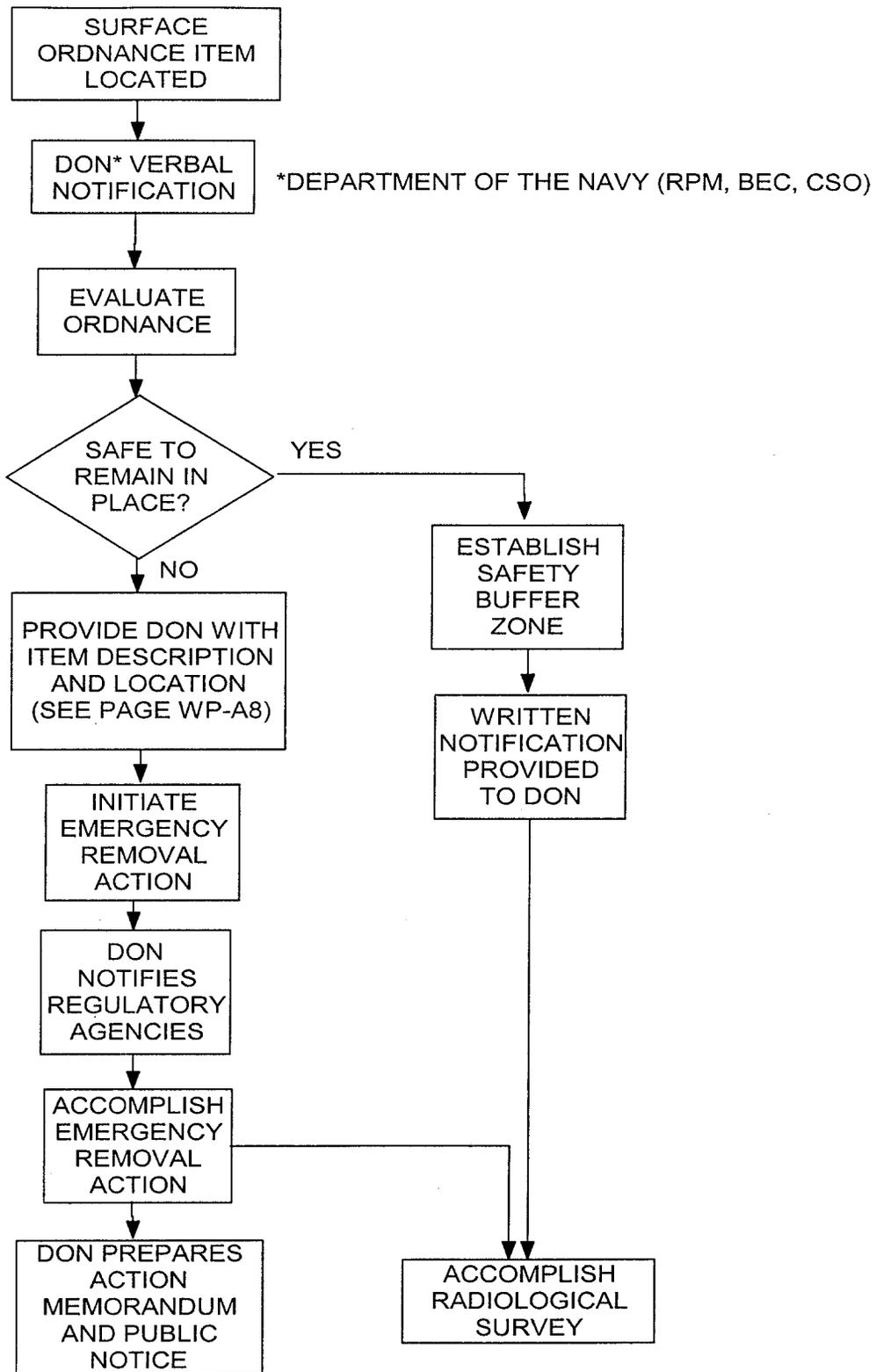


FIGURE 4 – SURFACE ORDNANCE DECISION PROCESS

5.4.2 INERT ORDNANCE

All identified inert ordnance will be left in place and will be clearly marked using a unique color (preferably fluorescent orange) spray paint to prevent their possible confusion with live items during completion of the surface sweep and the subsequent radiological survey.

5.4.3 NON-ORDNANCE MATERIALS

Non-ordnance materials will be left in place.

6. REPORTS AND RECORDS

A daily log and field maps will be maintained on the site during operations and retained by WESTON upon completion of the project. A copy will be included as part of the final report.

The Daily Log will be used to document the location and description of findings and other pertinent field information such as:

- Work accomplished
- Visual and metal detector anomalies
- Results of suspected ordnance anomaly evaluations
- Description, exact location, and disposition of any encountered live ordnance
- Inert ordnance
- Details of specific tasks as needed
- Show personnel assignments
- Describe any changes in site conditions
- List daily safety meetings, briefings and other planned events

Field Maps will contain data to document the results of the search process applied to each 100 foot grid square. These maps will show the location any ordnance material and may include pertinent information on surface features, surface search findings, etc.

7. HEALTH AND SAFETY PLAN REQUIREMENTS

Aspects of the project which involve explosive safety, environmental safety, and occupational safety and health are discussed in this section.

7.1 SITE SPECIFIC HEALTH AND SAFETY PLAN

A site specific Health and Safety Plan (HASP) has been developed and is included as Part 2 of the work package. The HASP will ensure a safe work environment for site personnel, provide a uniform and concise emergency plan of action, and provide site personnel with the necessary information to adhere to these policies. The programs and procedures contained in the HASP are based on an evaluation of potential site hazards and meet all applicable requirements concerning explosive safety, environmental safety, and occupational safety and health. All personnel will be required to have read and understand the HASP prior to entering the site.

7.2 TRAINING

All personnel involved with the handling of explosive ordnance must be graduates of the Naval Explosive Ordnance Disposal School. Additional details concerning training requirements are provided in the HASP.

7.3 EXPLOSIVES SAFETY

All ordnance surface sweep operations will be conducted by Weston Unexploded Ordnance Specialists because of the possible presence of live ordnance. All aspects of ordnance location, evaluation, and blowing in place will be accomplished in rigid compliance with the established site work procedures. Assistance in dealing with emergency or unusual situations involving ordnance may be provided by U.S. Marine Corps Explosive Ordnance Disposal personnel using specialized EOD Standard Operating Procedures. All explosive safety guidelines are based on the requirements of NAVSEA OP 5 and DODINST 4145.26M.

8. PROJECT STAFFING AND PERSONNEL

Site field activities will be accomplished by a SUXOS, a UXO Safety Officer, and UXO Specialist(s). UXO qualifications include:

- **Senior UXO Supervisor (SUXOS)** - The SUXOS will be a graduate of the U.S. Army Bomb Disposal School, Aberdeen Proving Grounds, Maryland, or the U.S. Naval EOD School, Indian Head, Maryland. This individual will have a minimum of 15 years of EOD and UXO experience combined, and be qualified to perform all the functions for the following positions: UXO Sweep Personnel, UXO Technicians I, II, III.
- **UXO Safety Officer** - The UXO Site Safety Officer will be a graduate of the U.S. Army Bomb Disposal School, Aberdeen Proving Grounds, Maryland, or the U.S. Naval EOD School, Indian Head, Maryland. This individual will also have specific training, knowledge, and experience necessary to implement and verify compliance

with the site specific HASP, and be qualified to perform all the functions for the following positions: UXO Sweep Personnel, UXO Technicians I, II, III.

- **UXO Specialist(s)** - The UXO Specialist(s) will be graduates of the U.S. Army Bomb Disposal School, Aberdeen Proving Grounds, Maryland, or the U.S. Naval EOD School, Indian Head, Maryland. The individuals will have the same minimum qualifications as a UXO Technician II. The individuals must be qualified to perform all the functions for the following positions: UXO Sweep Personnel, UXO Technician I, UXO Escort.

APPENDIX A

EMERGENCY ORDNANCE DESTRUCTION

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NOTICE: *Common sections of this Appendix (such as briefings, emergency procedures and contacts, report requirements, etc.) have not been repeated since this procedure is intended to supplement the parent document.*

PROCEDURES

REFERENCES

- a. NAVSEA OP5 Vol. 1
- b. NAVSEA SWO060-AA-MMA-010
- c. OPNAVINST 5530.13B (Physical Security Regulations)
- d. EFAWESTCSOMAREINST 8023.2
- e. EODB 60A-1-1-31
- f. NAVSEAINST 8023.11 (SOP for Expendable Ordnance)
- g. NAVSEA OP 3565 (HERO)
- h. 40 CFR 270.1
- i. 40 CFR 300

PURPOSE

To establish Standard Operating Procedures (SOP) for the emergency blowing in place of hazardous ordnance material in support of ordnance activities at El Toro MCAS IR Site 1.

DISCUSSION

- a. Qualified/licensed UXO Specialists are required to maintain currency in basic/advanced demolition techniques and render-safe procedures for conventional munitions. This instruction was prepared to serve as a guide in conducting operations. References (a) through (g) contain comprehensive procedures for conducting demolition operations.
- b. Unless otherwise authorized, each shot will be limited to the minimum quantity of explosive required to render-safe a specific ordnance item. An Explosive Safety Quantity Distance (ESQD) arc around the detonation point will be established to reflect the blast/fragmentation hazards associated with the specific ordnance item.

- c. An emergency blow in place of an item must be conducted whenever a qualified UXO Specialist determines that the explosive item poses an immediate threat to human health or the environment.
- d. A Demolition Operations Supervisor (Licensed Blaster) will supervise all operations.

PERSONNEL

- a. Range Safety Officer (RSO). The RSO is responsible for ensuring that blow in place operations involving hazardous explosive materials are conducted in a safe and professional manner.
- b. Demolition Operations Supervisor (DOS). The DOS is responsible for ensuring that all blow in place operations involving hazardous explosive materials are conducted in a safe and professional manner. The DOS will supervise and be responsible for the preparation, placement, and firing of all explosive charges.

COMMUNICATION

The primary method of communications will be a cellular/Nextel phone (a cellular phone is required to be on site during all operations). It will be tested prior to the start of operations.

- a. The following communication equipment is approved for use at the site provided that Hazards of Electromagnetic Radiation to Ordnance (HERO) distances are maintained between the equipment and all explosive materials:
 - Radios: 5 watt UHF/VHF handi-talkies
 - Cellular/Nextel phones: all
- b. Applicable HERO safe transmitting distances, as outlined in reference (i), are as follows:

| Equipment | HERO Susceptible | HERO Unsafe |
|---|------------------|-------------|
| Radios (5 watt UHF/VHF handi-talkies) | 10 feet | 23 feet |
| Cellular phones (in standby & talk modes) | 10 feet | 25 feet |

- c. HERO Unsafe precautions will be observed for all suspected ordnance material encountered at the EOD Range site.
- d. All transmitting equipment will be labeled with the HERO safe transmitting distances.

WEATHER

- a. Operations will not be accomplished when weather conditions are present which could endanger the safety of site personnel or the public.
- b. Blow in place operations will not take place when any of the following conditions exist:
 - Electrical storms are predicted for the immediate area.
 - Lightning activity is observed visually within five miles.
 - Sand, snow or dust storms of sufficient severity to create static electric charges are within five miles.

SCHEDULING

Operations will take place only after the proper notifications have been made (complete "EMERGENCY REMOVAL ACTION DOCUMENTATION" form on page WP-A8) and the appropriate ESQD arc established. Minimum notifications include Weston Project Manager, Navy (RPM, CSO, and BEC), regulatory agencies, and local fire/law enforcement agencies.

ACTION

- a. All personnel will become familiar with and follow the procedures outlined in this instruction and references (a) through (g) when conducting blow in place operations.
- b. All persons conducting operations involving the use of explosives, pyrotechnics, and cartridge actuated devices will follow the approved guidance provided in this instruction and references (a) through (g). Any deviation from this procedure must be made in writing and attached to this appendix.
- c. A copy of this document will be maintained onsite during operations.

GENERAL SAFETY PRECAUTIONS

- a. Smoking or spark/flame producing devices will not be permitted within 100 feet of any explosive material.
- b. The DOS will control all blasting caps or initiating devices.

- c. The DOS will control the blasting machine.
- d. Blasting caps will be carried only in approved containers not subjected to heat, shock or friction.
- e. All crimping and priming procedures will be directed and supervised by the DOS.
- f. The preparation of initiators will be performed at a distance of not less than 50 feet from any other explosives.
- g. Use only the number of personnel necessary to perform the operation safely (a minimum of two).
- h. Ensure the ESQD is clear of any unauthorized personnel before beginning any explosive related procedure.
- i. Do not handle, use, or remain near explosives during the approach or progress of an electrical storm. All personnel in such a case should immediately retreat to a place of safety.
- j. Always point the explosive end of blasting caps, detonators, and other explosive devices away from the body and any other person who may be in close proximity. These items are extremely dangerous and may cause serious injury if they detonate.
- k. Use only approved tools when handling explosive materials.
- l. Personnel conducting blow in place operations will wear cotton clothing to minimize the risk of static electricity.
- m. Personnel should anticipate the possible presence of accumulated static electricity and take necessary precautions to minimize the potential hazards.
- n. Operations will be conducted only during daylight hours.
- o. Use only standard military blasting caps (at least the equivalent of a #8 commercial blasting cap) of the same manufacture, if possible, for each shot involving more than one cap.
- p. Keep blasting caps in approved containers at least 50 feet from other explosives.
- q. Do not strike, tamper with, or attempt to remove or investigate the contents of a blasting cap, detonator, or explosive initiating device.
- r. Do not pull on the lead wires of electric blasting caps, detonators, or other electro-explosive devices (EED's).
- s. Do not bury blasting caps since they may be subject to unobserved pressures and movement which could lead to premature firing or misfires.

- t. Review electromagnetic radiation (EMR) precautions and electrical grounding procedures as indicated in the applicable reference publications prior to commencing any procedure involving electrically initiated explosive devices.
- u. Do not transmit on a radio within the HERO distance specified on the specific radio. Do not turn on or use the cellular phone within 25 feet of any explosive material.
- v. All shots will be dual primed whenever possible.
- w. Use only the minimum amount of explosives necessary to accomplish the blow in place of the item(s).

ELECTRIC FIRING SAFETY PRECAUTIONS

- a. Do not remove the shunt from the lead wires of blasting caps except to test continuity or connect into a firing circuit. The individual removing the shunt will ground himself/herself prior to this operation to prevent accumulated static electricity from firing the blasting cap.
- b. Test electric blasting caps for continuity prior to connecting them to the firing circuit. Upon completion of testing, the lead wires will be shunted by twisting the bare ends of the wire together. The wires will remain shunted until they are to be connected to the firing circuit.
- c. Do not hold the blasting cap directly in the hand when uncoiling leads. Hold wires approximately 6 inches from the cap. The lead wires should be straightened by hand; not thrown, waved, or snapped to loosen the coils.
- d. Unroll the lead wires so that the cap is as far as possible from the operator and pointing away from him. Place the blasting cap in a hole or behind a barricade before removing the shunt and testing for continuity. Make sure the cap is not pointing toward other personnel or explosives.
- e. Do not connect the blasting cap into the circuit unless the other end of the firing wire is shunted.
- f. Touch the shunted blasting cap wires to the shunted firing wires to equalize the electrical potential prior to connecting.
- g. Keep all parts of the firing circuit insulated from the ground or other conductors such as bare wires, rails, pipes, or other paths of stray current.
- h. Do not connect the blasting machine to the firing circuit until all pre-firing tests have been completed and the explosive donor charge is ready in all respects to be fired.
- i. Keep the power end of the firing wire shunted until ready to connect the blasting machine.

- j. Prior to making connections to the blasting machine, test the firing circuit for electric continuity and exercise the blasting machine to ensure proper operation.
- k. Do not attempt to fire a single electric blasting cap or combination of electric blasting caps in a circuit with less than the minimum current required by the total circuit.
- l. The DOS will order the firing wires to be connected to the blasting machine when he is certain the area is clear of personnel, animals and equipment.

BLOW IN PLACE PROCEDURES

PRE-OPERATIONAL REQUIREMENTS

- a. A qualified DOS will be selected prior to the start of any blow in place operation and act as the primary supervisor for the evolution.
- b. All spark and flame producing materials will be placed in the red container located at the range entrance.
- c. BRAVO flags will be displayed whenever any explosive materials is brought into the area. The DOS will ensure that access routes to the site are secured.
- d. Explosive materials will be pre-staged prior to blow in place operations. Blasting caps will be stowed in a location away from other high explosive materials.
- e. The DOS will brief the team on the sequence of events for each evolution.
- f. The DOS will verify operation of the cellular phone and availability of emergency contact numbers.

EMERGENCY REMOVAL ACTION DOCUMENTATION

(Attach additional sheets as required)

Ordnance Item

Date/time identified: _____

Individuals present (names, organizations): _____

Item identified by: _____

Item description (attach photograph): _____

Estimated size of item (length, width, height): _____

Distinctive features of ordnance (shape, color, markings): _____

Type of ordnance (rocket, grenade, projectile, etc.): _____

Item condition: _____

Depth/orientation (buried, partially buried, exposed): _____

Location - (coordinates, street/grid names, etc.; attach sketch): _____

Nearby structures (landmarks, names, types, distance from ordnance): _____

Pre-Blow in Place

Weston Project Manager notified (time/date): _____

Navy representatives (RPM/BEC/CSO) notified (time/date) : _____

Regulatory agency notification by RPM

- Person contacted: _____

- Agency: _____

- Time/date: _____

Local emergency services agencies notified: _____

Blow in Place

Date/time of operation: _____

Person(s) accomplishing: _____

Weather conditions: _____

Donor charge (type/quantity of explosives) : _____

Tamping (or other special measures) : _____

Post-Blow in Place

Documentation of emergency disposal provided by RPM (attach copy)

Senior UXO Supervisor/Site Supervisor

Date _____

DEMOLITION OPERATIONS SUPERVISOR'S CHECKLIST

EQUIPMENT LIST

| <u>EQUIPMENT</u> | <u>QUANTITY</u> | <u>LOCATION</u> |
|-------------------------------|-------------------|-------------------|
| binoculars | 1 pr | Demo box |
| blasting machine | 2 | Demo box |
| galvanometer | 2 | Demo box |
| electrical tape | 1 roll minimum | Demo box |
| cellular phone/radios | 1/2 | crew vehicle |
| bravo flag | 4 | crew vehicle |
| locks & chain | as required | site access gates |
| first aid kit | 1 | crew vehicle |
| fire extinguisher | 1 | crew vehicle |
| shovel | 2 | crew vehicle |
| rake | 1 | crew vehicle |
| safety glasses/ear protection | 1 pr ea. | individual issue |
| crimpers | 1 pr ea. | individual issue |
| personal demo gear | 1 set | individual issue |
| disposable commo wire | 1 roll (1/2 mile) | crew vehicle |
| siren | 1 | crew vehicle |

All equipment will be stored in a secure facility when not in use.

PROCEDURES FOR ELECTRIC INITIATION

- a. The DOS will issue the explosive materials required for the evolution and proceed to the explosive working area.
- b. The DOS will control all initiators and blasting machines.

NOTE

AT NO TIME WILL EXPLOSIVE MATERIALS BE LEFT UNATTENDED.

- c. All explosive charges will be prepared under the direction of the DOS.
- d. All initiating systems will be dual primed, whenever possible.
- e. The team will proceed to place the prepared main charge on the material to be blown in place. Ensure the detonation site is free of gravel, rocks, and other debris. The donor charge should be tamped with sand or clean soil wherever possible.

NOTE

SAFETY GLASSES WILL BE WORN AT ALL TIMES DURING THE BLASTING CAP TEST/PRIMING PROCEDURE.

- f. All members of the team not involved in the actual blasting cap test/priming sequence will proceed to the designated retreat location. When directed by the DOS, electric blasting caps will be tested for continuity.
- g. The DOS will direct a continuity test of the firing wire.
- h. Members will connect blasting caps to the firing wire and prime their shot at the direction of the DOS, then proceed to the retreat location.
- i. The DOS will ensure all personnel are accounted for and the site ESQD is clear.
- j. The DOS will direct a continuity test of the complete firing circuit.
- k. One member will be directed to sound the siren/horn 30 seconds prior to giving three loud, clear "Fire in the Hole" from separate directions, allowing a brief delay prior to firing to allow for response.

- l. The DOS will call for silence, the team member will initiate the shot, and all personnel will listen for the detonation. If no shot is heard, start misfire procedures outlined in the GENERAL MISFIRE PROCEDURES section below.
- m. After a five minute wait, the DOS will visually check the site.

POST-OPERATIONAL REQUIREMENTS

- a. All BRAVO flags will be taken down.
- b. All trash and non hazardous residue will be removed from the disposal site area and deposited in an appropriate trash receptacle.
- c. Any explosive material not utilized will be returned to an approved storage facility.

GENERAL MISFIRE PROCEDURES

NOTES

1. SPECIFIC MISFIRE PROCEDURES ARE CONTAINED IN REFS (A) AND (B) AND IN THIS SECTION.
2. DURING MISFIRE PROCEDURES, A SAFETY OBSERVER WILL REMAIN AS FAR AS POSSIBLE FROM THE DETONATION SITE WHILE STILL KEEPING THE DOS IN SIGHT AND BE PREPARED TO RENDER ASSISTANCE IN CASE OF AN ACCIDENT.
3. THE DOS WILL DESIGNATE PERSONNEL TO ASSIST DURING MISFIRE PROCEDURES.

- c. In the case of a misfire the DOS will ensure that all personnel remain in the retreat area.
- d. The DOS will wait a minimum of thirty minutes after the expected detonation time before proceeding to the misfire for corrective action.
- e. All excess personnel will remain in the retreat area until misfire procedures have been completed.

SPECIFIC MISFIRE PROCEDURES

ELECTRIC MISFIRES

******WARNING******

DUE TO THE HAZARDS OF BURNING CHARGES AND DELAYED EXPLOSIONS, ELECTRIC MISFIRES MUST BE CLEARED WITH EXTREME CAUTION.

- a. In the event of a misfire make three successive attempts to fire. If unsuccessful, remove the firing wires from the blasting machine and check continuity of the firing circuit. If continuity is good reattach the firing wires to the blasting machine and make three more attempts to fire. If unsuccessful, disconnect the blasting machine, attach a new blasting machine and make three additional attempts to fire.
- b. If still unsuccessful, disconnect the firing wire ends from the blasting machine and shunt by twisting the firing wire ends together.
- c. Wait a minimum of 30 minutes before investigating an electric misfire.

******WARNING******

DO NOT HANDLE OR DISTURB A MISFIRED BLASTING CAP

- d. At the end of the waiting period execute the following procedures:
 - (1) Do not disturb the old blasting cap. Leave the old blasting cap wires in place.
 - (2) Select a new firing wire set and firing lead. Test the new circuit for continuity.
 - (3) Test a new blasting cap for continuity.
 - (4) Connect the wires of the new blasting cap to the new firing circuit and reprime the charge only if this can be done without disturbing the old blasting cap. Otherwise, prime and place a new charge, next to the original charge, to insure the detonation of both. Do not disturb the original charge, or its blasting cap.
 - (5) Initiate new charge.

MISFIRES WITH DETONATING CORD SYSTEMS

- a. Observe the following procedures for the misfires of various types of detonating cord systems:
 - (1) Electric Cap Fails to Fire - Wait a **minimum** of 30 minutes. Search for breaks and short circuits in the electric firing system. Cut the detonating cord main line between the cap and the charge and fasten the new cap to the detonating cord.
 - (2) Cap Fires but Cord Fails - Wait a **minimum** of 30 minutes. Fasten a new cap to the detonating cord.
 - (3) Main Line Detonates, but Branch Line Fails - Wait a **minimum** of 30 minutes. Fasten a cap to the branch line and fire separately.
 - (4) Cord Fires, but Charge Fails - Wait a **minimum** of 30 minutes. If the charge is still intact, re-prime. If the charge is scattered by the detonation of the original detonating cord, reassemble the explosive as practicable and place a new charge and insert a new primer. Every attempt must be made to recover all explosives scattered by the misfire. If the charge is buried carefully remove the earth cover and reprime the charge if intact or place a new charge along side of the failed charge.

FIRE FIGHTING

- a. The fire fighting equipment shall consist of a fire extinguisher, two shovels, and a rake located inside the crew support vehicle.
- b. For fires that exceed these capabilities contact the local Emergency Services dispatcher (Orange County Sheriff/Fire Department Emergency Dispatch - 911 or 714 726-3917). Do not continue to fight any fire once explosives have become involved.

SECURITY

Security will be maintained by keeping the site access gates closed and locked.

HOURS OF OPERATION

Operations shall only be conducted during daylight hours.

SITE ACCESS

- a. During operations, access into the ESQD arc shall be restricted to those authorized personnel directly involved with the operation.

ACRONYMS AND ABBREVIATIONS

DOS- Demolition Operation Supervisor

INST- Instruction

MEDIVAC- Medical Evacuation

OSHA- Occupational Safety and Health Administration

REF- Reference

RSO - Range Safety Officer

APPENDIX B

ECOLOGICAL THREAT MITIGATION MEASURES



DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-1190

11015
Ser 5GPN.JL/210
March 22, 2001

Mr. James Bartel, Field Supervisor
U.S. Fish and Wildlife Service
2730 Loker Avenue West
Carlsbad, CA 92008

Dear Mr. Bartel:

The following is provided as part of a Habitat Assessment in support of Investigation Activities at Installation Restoration Program (IRP) Site 1 - Explosive Ordnance Disposal (EOD) Training Range at the Marine Corps Air Station (MCAS) El Toro, California. IRP Site 1 is currently being investigated pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Actions at IRP Site 1 will observe avoidance measures with respect to listed species, in accordance with the requirements set forth under Section 7 of the Endangered Species Act of 1973, (19 U.S.C. 1536(c), 50 CFR 402).

This letter and attachments are intended to provide background information and a description of the proposed activities at the IRP Site 1. In addition, this letter provides information on the status of the federally threatened coastal California gnatcatcher (*Poliophtila californica californica*) (gnatcatcher) on the site.

SITE CONDITIONS

MCAS El Toro, encompassing approximately 4,740 acres, is located in a semi-urban, agricultural area of south-central Orange County, California, along the base of the Santa Ana Mountain foothills between Interstate 5 and the Foothill Transportation Corridor (Figure 1). The facility is bordered on the northwest, south, and west by the City of Irvine and on the southeast by the City of Lake Forest. It is approximately 8 miles south of Santa Ana and 12 miles northeast of Laguna Beach. Land use around MCAS also includes commercial and light industrial. MCAS El Toro closed on July 2, 1999 as part of Base Realignment and Closure (BRAC).

IRP Site 1 is located in the northeast portion of MCAS El Toro (Figure 1). It is situated within a tributary canyon of Borrego Canyon Wash, at elevations ranging from approximately 610 to 760 feet above mean sea level. IRP Site 1 is approximately 70 acres in size and supports coastal sage scrub (CSS), non-native grasslands, remnant landscaped (non-native) areas, and unvegetated areas (Figure 3). Small wooden structures, monitoring wells and a storage trailer are also located on the site.

Training in the detonation of munitions was conducted at IRP Site 1 from approximately 1952 through Station closure in 1999 (Earth Tech, 2000). Military

ordnance used in training exercises included hand grenades, land mines, cluster bombs, smoke bombs, and rocket warheads. Civilian and commercial explosives, such as dynamite and plastic and gelatinous explosives have also been used in training at the EOD Range. Munitions were detonated in trenches and pits that were continually filled with soil and re-excavated.

IRP Site 1 is accessible by vehicle over various paved and unpaved roads and is secured with a fence to prevent unauthorized entry. The site is mostly flat in the center with some gently rolling hills around the periphery (Figure 3). A bermed retention pond is present in the northeastern portion of the site (Figures 3 and 4). Seasonal accumulations of rainwater have been observed in the retention pond during high rainfall events.

It is anticipated that IRP Site 1 will be transferred to the Department of Justice (DOJ). As part of the transfer, the Navy will restrict access to portions of the site currently part of the Phase II Remedial Investigation (RI) effort (see below). However, in the interim, the Navy has identified a 5-acre area at the southwestern end of Site 1 that could potentially be used by DOJ (Figure 2).

PROPOSED ACTIONS

There are several Investigation Activity phases planned for IRP Site 1 as part of the base closure and transfer process. These activities are described below.

Environmental Baseline Survey Sampling

The Navy will be conducting soil sampling to determine the environmental condition of the aforementioned southwestern parcel (5 acres) within IRP Site 1 (Figure 2). As part of this effort, the Navy is conducting a Habitat Assessment to document the animal and plant species on the entire site, including any species considered sensitive. Preliminary results have confirmed the presence of the gnatcatcher and CSS on the site (Figure 3). As a result, all subsequent Investigation Activities are being evaluated to assess their possible impacts on the gnatcatcher and its habitat. In addition, the retention pond was reported to contain Riverside fairy shrimp (*Streptocephalus woottoni*) by KEA (1998). The limit of the watershed that contributes to the pond will also be delimited as part of this effort.

The 5-acre southwestern area is vegetated predominantly by non-native grasses. Soil samples within the parcel were collected between one and five feet below the ground surface with a direct push-sampling rig (truck-mounted) during the week of March 5, 2001 (Figure 2). Since there is no CSS within approximately 250 feet of this parcel, the Navy has determined that there was no adverse affect to the gnatcatcher from this action.

Results from this investigation will be incorporated into a Finding of Suitability for

Transfer (FOST)-like summary document for Site 1.

Groundwater Sampling

Selected groundwater wells at Site 1 will continue to be sampled for contaminants as part of ongoing semi-annual groundwater investigations. None of these wells occur in CSS. Sampling will be conducted using existing low-flow pumps, which require the use of a small compressor or a compressed gas cylinder. The next sampling event is scheduled for September, 2001.

Radiological Survey

IRP Site 1 is on the list of sites that will be surveyed as part of the Radiological Survey. The survey will cover portions of the Northern and Southern EOD Ranges (Figure 4) and will involve pulling trailer-mounted sensors with a small tractor. The radiological survey will be conducted adjacent to CSS areas, some of which are occupied by gnatcatchers. The Navy anticipates the radiological survey will be initiated in April, 2001. Monitoring of gnatcatcher status and noise levels from testing equipment will be performed by a qualified biologist to ensure that this activity will not have an adverse effect on the gnatcatcher or its habitat. Activity monitoring will be closely coordinated with the results of the continuing gnatcatcher survey effort on the site, as described below.

Phase II Remedial Investigation

The purpose of this Phase II RI work is to further identify and characterize the potential impact to human health and to the environment resulting from past operations at IRP Site 1, such as EOD training and destruction of unserviceable ammunition.

The scope of the Phase II RI is to collect contaminant data to characterize site conditions; document the nature of waste deposits; 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 consistent with the CERCLA process.

Data gathering tasks for the remedial investigation include:

- Habitat Assessment to identify animal and plant species that are potential ecological receptors present at Site 1.
- Surface (0 to 1.5 feet) and subsurface (greater than 1.5 feet) soil sampling and analysis for metals, general chemistry, perchlorate, explosives, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), dioxins, furans,

and petroleum hydrocarbons to establish chemicals of potential concern (COPCs) and evaluate potential risk posed by the site to human and ecological receptors.

- Soil sampling and analysis for COPCs to define lateral extent of hot spots, if encountered.
- Soil sampling and analysis for COPCs to define vertical extent of contamination and evaluate the potential of impact to groundwater.

In addition, an unexploded ordnance (UXO) evaluation of the site will be conducted as part of the RI. This survey will include a reconnaissance survey for explosives material that may have been "kicked out" during EOD training activities. This survey will be conducted using hand-held metal detectors and will focus on the more densely vegetated areas at the site (mostly CSS). Precautions will be taken to avoid or minimize any damage to native vegetation, as specified below.

The Navy anticipates that this phase of the investigation will be completed between June and September, 2001. The location and status of gnatcatchers within CSS areas to be tested will be regularly monitored throughout the breeding season.

POTENTIAL IMPACTS AND ASSURANCES

Historical (SEB 1994, KEA 1998) and current gnatcatcher survey efforts suggest that this species may nest in appropriate habitat within and/or adjacent to the site. Several scattered incidental gnatcatcher locations during the winter of 2000-2001 suggest some degree of non-breeding use, but six protocol survey visits since December 2000, have revealed the persistent presence of only one pair in a patch of CSS in the north-central part of the site (Figure 3). Complete survey results are pending. In addition, Riverside fairy shrimp (*Streptocephalus wooltoni*) have been detected in the small pond, although no intrusive activities are scheduled for the pond area at this time.

Based on our evaluation of these Investigation Activities, we anticipate that two phases of the IA may have a low potential to adversely affect the gnatcatcher. The first of these, radiological testing, will involve the use of a small tractor-trailer apparatus across non-native grassland vegetation adjacent to CSS. The second phase, UXO evaluation, will involve foot traffic by hand-held equipment operators within CSS vegetation. Neither activity will remove or overtly damage CSS, so the limited potential for take of gnatcatchers will be through disturbance of nests. The Navy finds that these actions may affect, but are not likely to adversely affect the gnatcatcher if the following avoidance and minimization measures are taken:

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- A gnatcatcher survey begun in February, 2001 will continue until all IA phases conducted during the breeding season have been completed. The frequency of survey/monitoring visits for testing activities conducted within CSS will be weekly during active phases and bi-weekly for long periods between phases. Location of active nests will be emphasized in this survey, as these represent the most vulnerable stage of the gnatcatcher annual cycle.
- All areas of potential gnatcatcher habitat will be delimited by flagging before any radiological testing is conducted.
- A qualified biological monitor, familiar with the ecology of the gnatcatcher and possessing a federal 10(a) permit for this species, will be responsible for overseeing any sampling or testing that could disturb gnatcatchers on or adjacent to the Site.
- The qualified biological monitor will have the authority to suspend any activities on the Site that have the potential to adversely affect nesting gnatcatchers. All such activities will be postponed if they are found to occur within 200 feet of an active nest and will not resume until young have fledged and are sufficiently mobile to readily follow their parents.
- A report of monitoring activities and results will be prepared and submitted to the USFWS.

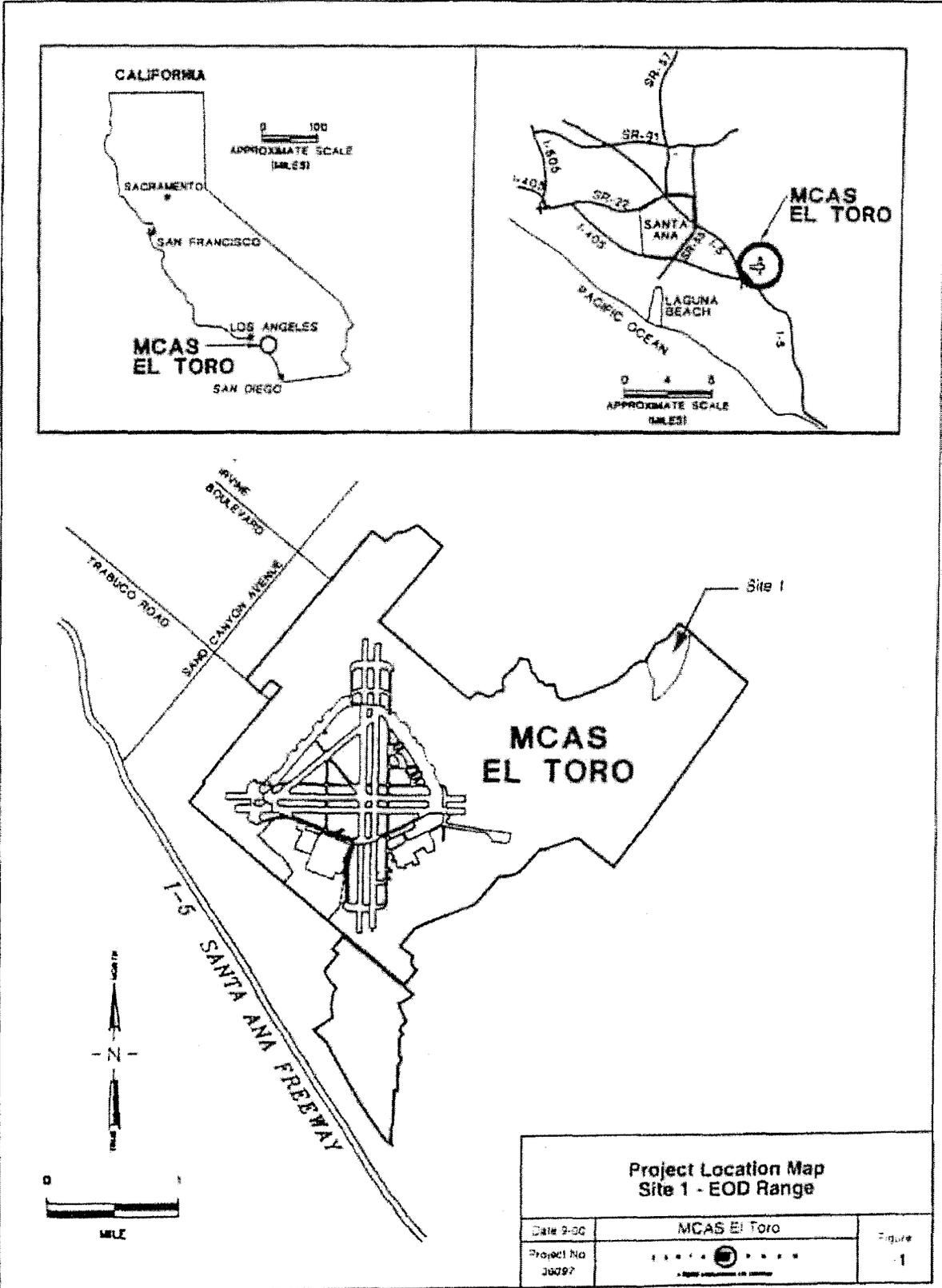
The Navy believes that the above measures will adequately avoid or minimize adverse effects to the gnatcatcher to a level of insignificance. DoN anticipates the radiological survey will begin in late April 2001, and would like to schedule a conference call with the U.S. Fish and Wildlife Service during the week of April 2, 2001 to review the proposed actions, address any initial questions, and to schedule a formal meeting before the middle of April. Please refer any questions or comments at any time to Mr. John Lovio, of the Natural/Cultural Resources Support Team, Southwest Division, Naval Facilities Engineering Command at 619-532-1166.

Sincerely,

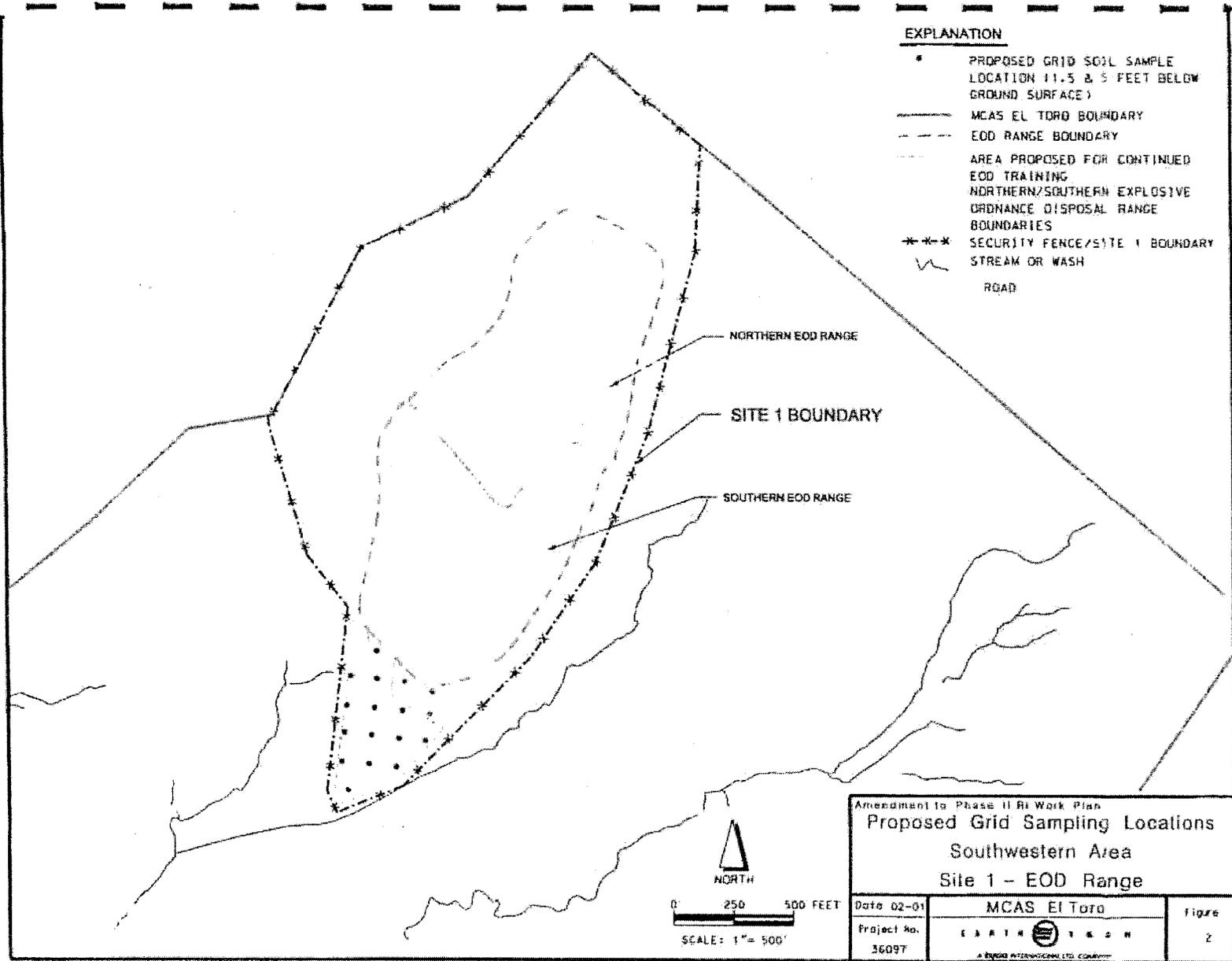


MICHAEL C. STROUD
Natural and Cultural Resources Lead
By direction of the Commander

Encl:
(1) Figures 1, 2, 3 and 4.



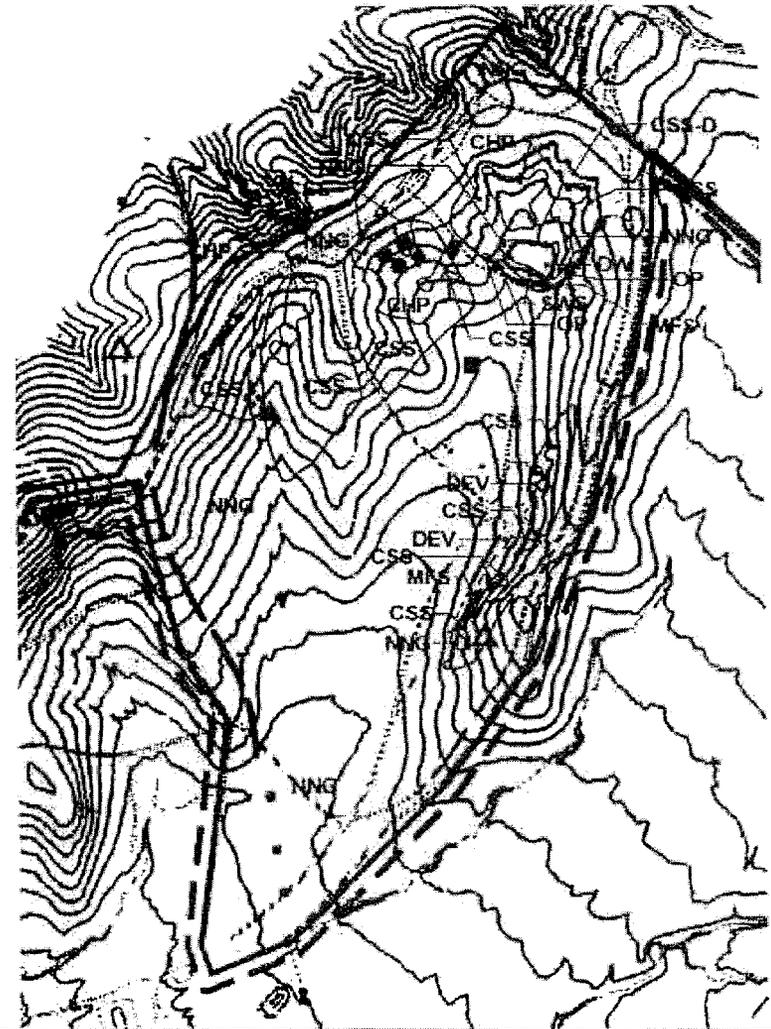
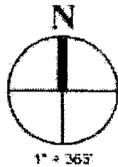
36097 00 22 02



LEGEND

CSS VENTURAN-DIEGAN TRANSITIONAL COASTAL SAGE SCRUB
CHP TOYON-SUMAC CHAPARRAL
SWS SOUTHERN WILLOW SCRUB
MFS MULE FAT SCRUB
NNG NON-NATIVE GRASSLAND
DW DISTURBED WETLAND
OP ORNAMENTAL PLANTINGS
DEV DEVELOPED

- ▲ Coastal California Gnatcatcher (Pair)
- △ Coastal California Gnatcatcher (Indiv.)
- ◆ Southern California Rufous-Crowned Sparrow
- Grasshopper Sparrow
- Cactus Wren
- ◇ San Diego Black-Tailed Jackrabbit
- Watershad Boundary for Riverside Fairy Shrimp



EL TORO SITE 1
HABITAT ASSESSMENT

Sensitive Resources
Figure 3

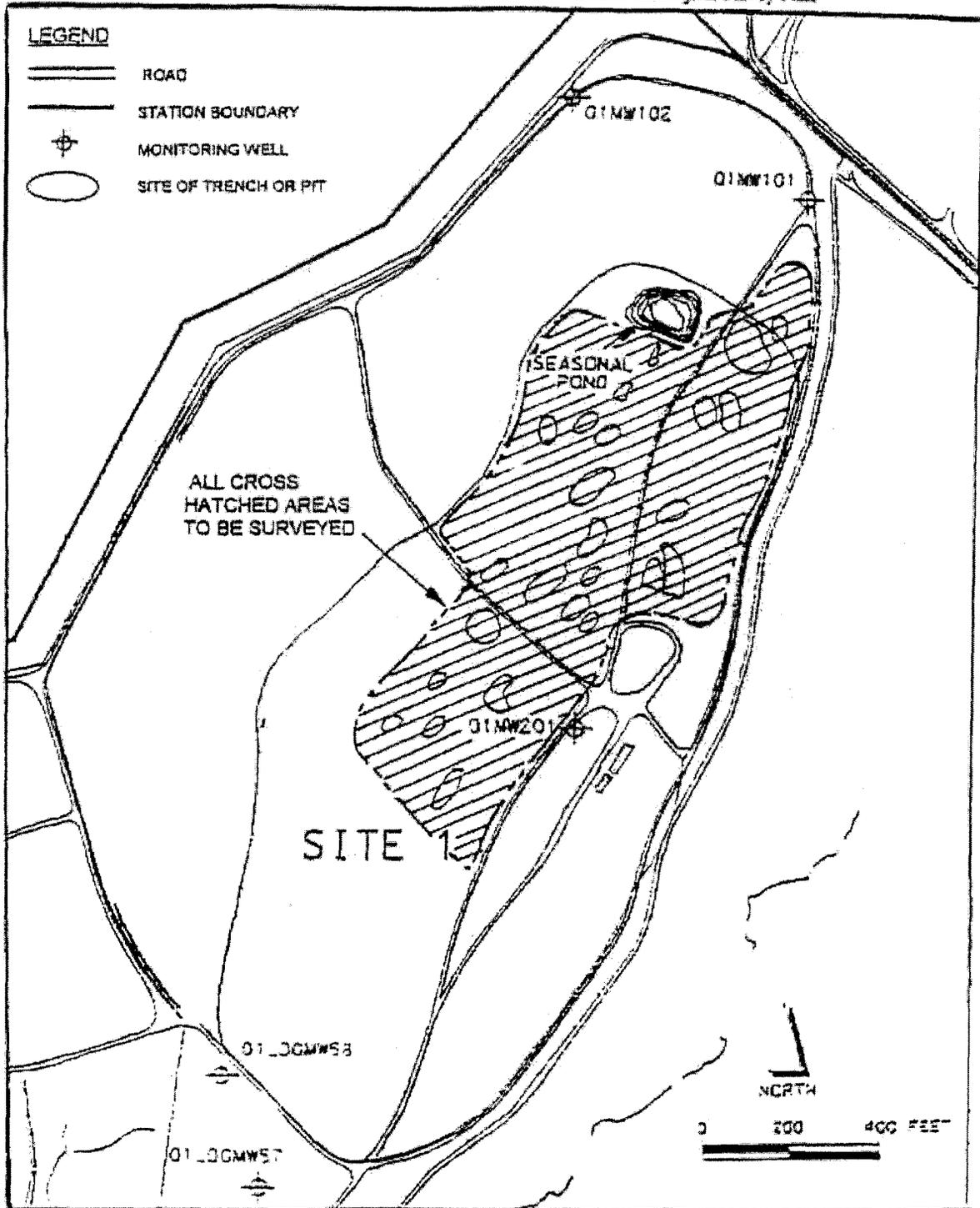


Figure 4
EOD Range (IR Site #1) - Survey Map

JULY 2000
REV 1
PAGE 89



**UNEXPLODED ORDNANCE (UXO) SURFACE SWEEP
HEALTH AND SAFETY PLAN**

**EOD RANGE (SITE #1)
MARINE CORPS AIR STATION (MCAS)
EL TORO, CALIFORNIA**

April 4, 2001

PART 2 OF THE UXO SURFACE SWEEP WORK PACKAGE

Prepared by: Roy F. Weston, Inc.
Vallejo Site Office (UXO Program)
Vallejo, California

**SITE SPECIFIC HEALTH AND SAFETY PLAN
EOD RANGE SURFACE SWEEP
MCAS EL TORO**

Review and Approval:

By their specific signature, the undersigned certify that this Health and Safety Plan is approved for utilization. Expiration for this SSHASP is 6 months from the approval date.

REVIEWED BY:

| | |
|--|--------------------|
| <u>Gregory J. Kruse, P.E.</u> Engineering Review | Date <u>4/5/01</u> |
| <u>[Signature]</u> Radiological Project Engineer | Date <u>4/4/01</u> |
| <u>[Signature]</u> UXO Project Manager | Date <u>4/4/01</u> |
| <u>[Signature]</u> Vallejo Site Office Engineering Manager | Date <u>4/5/01</u> |
| <u>[Signature]</u> Senior UXO Supervisor | Date <u>4/4/01</u> |
| <u>[Signature]</u> Vallejo Site Office Health & Safety | Date <u>4/4/01</u> |
| <u><Wayne Wright></u> WESTON Senior UXO Manager | Date _____ |
| <u><George Crawford></u> WESTON Division Safety Manager/CIH | Date _____ |

REVISION LISTING

| Rev. | Description | Approval | Date |
|------|-------------|----------|------|
| | | | |

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REFERENCES

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3. Weston Construction Health and Safety Guidance Document
4. Weston Injury and Illness Prevention Program
5. Weston VCA Incident Response Procedures
6. RFW Hazmat Plan
7. Title 8 CCR General Industry Safety Orders
8. 29 CFR Parts 1910 and 1926

1. INTRODUCTION

1.1 PURPOSE / OBJECTIVES

The purpose of this document is to establish standard safety and health procedures for use by Roy F. Weston, Inc. (WESTON®) personnel in performance of their work. This document is subject to change based on review and the implementation of additional tasks. Specific hazards control methodologies have been evaluated and selected in an effort to minimize the potential of accident or injury.

All project activities shall be performed in accordance with this document, the Work Plan, and other referenced documents. This Site Specific Safety and Health Plan (SSHASP) includes by reference, the WESTON Safety Officer's Field Manual and the WESTON Construction Safety Guidance Document. The initial site briefing will include these two references.

The purpose of this SSHASP is to supplement the Weston Health and Safety Program documents and is subject to change based on periodic review and the implementation of higher authority directives.

The levels of personal protection and the procedures specified in this SSHASP are based on the best information available from reference documents and current site data. Therefore, these recommendations represent the minimum health and safety requirements to be observed by all personnel engaged in this project. Unforeseeable site conditions or changes in Scope of Work (SOW) may warrant a reassessment of protection levels and controls stated.

All ordnance surface sweep operations will be conducted by Weston Unexploded Ordnance Specialists because of the possible presence of unexploded ordnance. All aspects of ordnance location, evaluation, and disposition will be accomplished in rigid compliance with the established site work procedures. All explosive safety guidelines are based on, and meet the requirements of, NAVSEA OP 5 and DODINST 4145.26M.

1.2 SITE BACKGROUND

Former Marine Corps Air Station (MCAS) El Toro is located near the city of Irvine in Orange County, California. During the period between 1943 until its recent closure in 1999, the base provide operational and maintenance facilities for fixed and rotary wing Marine aircraft. Several sites on the base, including Installation Restoration Program (IRP) Site #1, are suspected to contain discarded radiological material that historically was used in aircraft for its luminescent properties. The planned work area within Site #1 encompasses approximately 10 acres and was used as an EOD range by military units and civilian agencies since 1952. Military ordnance used at the site included hand grenades, land mines, cluster bombs, smoke bombs, and rocket warheads (Jacobs Engineering Group [JEG], 1993). Because of the hazards associated with potential

unexploded ordnance (UXO) material that may be present at the site, an ordnance surface clearance is required to ensure the safety of radiological survey workers.

2. PROJECT ORGANIZATION

All personnel entering the site are subject to the requirements of this SSHASP. Work shall not be performed in a manner that conflicts with the intent of, or the inherent safety health or environmental precautions expressed in this plan. After due warnings, personnel violating safety procedures will be dismissed from the site. Personnel responsibilities are summarized in Table 1.

TABLE 1 – PERSONNEL RESPONSIBILITIES

| POSITION | ASSIGNED PERSONNEL |
|---|--|
| Navy Remedial Project Manager | Content Arnold (619) 532-0790 |
| Weston Project Manager (Radiological) | Ron Leneker (707) 562-3464 |
| Weston Project Manager (UXO) | Harry Englehart (707) 562-3309 |
| Weston VCA Health and Safety Officer | Greg Rodgers (707) 562-6534 |
| Weston Regional Health and Safety Officer | Mike Stuart (505) 837-6566 |
| Certified Industrial Hygienist (CIH) | George Crawford (610) 701-7406 |
| Site Safety Officer | Larry Maggini (707) 562-3310 |
| Weston Vallejo Site Office Manager | Chris Jespersen (707) 562-3268 |
| Site Manager/Senior UXO Supvrs (SUXOS) | Dave Cruzen (TBD) |
| UXO Safety Officer | Stan Lykins (TBD) |
| UXO Technician/First Aid Provider/Excavation Competent Person | Rich Gray (TBD) |
| Navy BRAC Environmental Coordinator | Dean Gould (619) 532-0784 |
| Navy CSO Officer in Charge | Ron Johnson (619) 572-1403 |
| Navy CSO Engineer | Scott Kehe (949) 726-2506 or cell (619) 778-7464 |
| Navy CSO Engineer Tech | Joe Bucho (949) 726-2902 |
| Navy Biologist | John Lovio (619)-532-1166 |

2.1 PROJECT MANAGER

The Radiological Project Manager, Ron Leneker, has overall responsibility for the project and will coordinate with the Senior UXO Supervisor, the Certified Industrial Hygienist, and the UXO Safety Officer to ensure that the clearance goals are completed in a manner consistent with the SSHASP.

2.2 PROJECT CERTIFIED INDUSTRIAL HYGIENIST (CIH)

The CIH for this project is George M. Crawford, CIH. Mr. Crawford is certified in the comprehensive practice of industrial hygiene (CIH) by the American Board of Industrial Hygiene (ABIH). He has over 20 years of industrial hygiene and safety experience. The CIH will have the following responsibilities:

- Final approval of the SSHASP
- Ensure that the SSHASP complies with all federal, state, and local health and safety requirements
- Evaluate and authorize any changes to the SSHASP
- Implementation and oversight of the Health and Safety Program.
- Assist in acting as liaison with government officials regarding health and safety related site matters.

2.3 SENIOR UNEXPLODED ORDNANCE SUPERVISOR (SUXOS)

The SUXOS, Dave Cruzen, reports to the PM and is responsible for supervising field implementation of the project. He provides direct supervision of field staff and, together with the UXO Safety Officer, is responsible for ensuring that all personnel adhere to the requirements of the SSHASP.

2.4 SITE SAFETY OFFICER (SSO)

The SSO, Larry Maggini, has the following responsibilities:

- STOP WORK authority for health and safety reasons.
- Implementation and enforcement of the SSHASP.
- Training of employees in site specific hazards and completing the Documentation of Training Form.
- Specify proper levels of Personal Protective Equipment (PPE) according to the specifications of this SSHASP.
- Develop additional health and safety procedures, as required.
- Investigate accidents/incidents and "near misses".
- Coordinate visitor orientation.
- Coordinate weekly safety audits and completion of required documentation.
- Coordinate with CIH concerning monitoring, PPE and other safety issues.
- Conduct monitoring as specified in this SSHASP.
- Ensure field implementation of the WESTON Safety Program.

2.5 UXO SAFETY OFFICER

The UXO Safety Officer, Stan Lykins, has the following responsibilities:

- Onsite safety representative, specifically tasked with UXO specific hazard management
- STOP WORK authority for health and safety reasons.
- Enforcement of the SSHASP.
- Conduct visitor orientation.
- Conduct weekly safety audits and complete required documentation.
- Coordinate monitoring, PPE and other safety issues.
- Conduct monitoring as specified in this SSHASP.
- Ensure field implementation of the WESTON Safety Program.

2.6 PERSONNEL ASSIGNED TO THE PROJECT

All WESTON site personnel are responsible for the following:

- Taking all reasonable precautions to prevent injury to themselves and to their fellow employees and being alert to potentially harmful situations.
- Performing only those tasks that they believe they can do safely and have been trained to do.
- Notifying the SSO of any special medical conditions (i.e., allergies, contact lenses, diabetes) which may impact their ability to perform site work or require assistance from others.
- Notify the SSO of any prescription and/or non-prescription medication which the worker may be taking that might cause drowsiness, anxiety or other unfavorable side affects.
- Practicing good housekeeping by keeping the work area neat, clean, and orderly.
- Immediately reporting all injuries to the SSO.
- Complying with the SSHASP and all health and safety recommendations and precautions, properly using all PPE as directed.

3. SCOPE OF WORK

An unexploded ordnance surface clearance will be conducted within a 10 acre defined area of IRP Site #1 to enable safe completion of the site radiological survey. The clearance will include the location and evaluation of suspected surface ordnance material that might be actuated by survey personnel or equipment.

4. EMERGENCY RESPONSE AND CONTINGENCY PLANS

This section describes actions that will be taken by WESTON site personnel in the event of an emergency and is in compliance with the requirements of OSHA, specifically 29 CFR 1910.38 (8 CCR 3220) and 29 CFR 1910.120 (8 CCR 5192). The administrative procedures provided in reference (5) shall be followed for all incidents.

4.1 PRE-EMERGENCY PLANNING

Planning and training is essential in order to handle emergencies properly and effectively. Site personnel must be knowledgeable of their roles and responsibilities and act within their abilities and training. WESTON prohibits its employees from responding to emergency situations that would require them to be exposed to hazards beyond their degree of training. Since this site has potential hazards which could affect the safety of persons outside the immediate worksite, the work plan will be discussed and coordinated with local emergency response agencies (fire, police, and medical) before field work begins. Local medical facilities will also be notified of the planned site activities and potential medical needs prior to the start of work at the site.

4.2 ROLES AND RESPONSIBILITIES

The Senior UXO Supervisor (SUXOS) will be the primary Emergency Response Coordinator (ERC). The SUXOS (or UXO Safety Officer as his designated alternate) will contact the appropriate personnel or authorities as determined by the type and nature of incident. A complete list of emergency contacts is contained in Table 2. Contact information will be verified by the SUXOS prior to the start of site work.

ERC responsibilities during emergency situations are as follows:

- Evaluate emergency situation and special needs.
- Direct all emergency efforts, including evacuation of personnel.
- Notify and interact with emergency response agencies.
- Oversee medical and decontamination procedures.
- Serve as the point of contact for local fire department(s) and/or hazardous material team(s).

TABLE 2 - SUMMARY OF EMERGENCY CONTACTS

| | |
|-----------------------------|--|
| FIRE or EXPLOSION | Orange County Sheriff/Fire Departments - Emergency Dispatch - 911 or (714) 726-3917 |
| PERSONAL INJURY or EXPOSURE | Irvine Medical Center – (949) 753-2000 or Saddleback Family & Urgent Care – (949) 770-1023 |
| WESTON EMERGENCY CONTACTS | Ron Leneker, Weston Project Manager, (707) 562-3464 |
| | Larry Maggini, Site Safety Officer, (707) 562-3310 |
| | George Crawford, CIH (610) 701-7406 |
| | Chris Jespersen, Office Manager (707) 562-3268 |
| | Continuum Healthcare - 24-hour. (Weston) National Medical Emergency Service (800) 229-3674 |
| | Greg Rodgers, Weston Vallejo Health and Safety Office, (707) 562-6534 or (707) 529-3963 |
| OTHER EMERGENCY RESOURCES | Content Arnold, EFDSW RPM (619) 532-0790 |
| | Navy BRAC Environmental Coordinator, Dean Gould (619) 532-0784 |
| | Navy CSO Officer in Charge, Ron Johnson (619) 572-1403 |
| | Navy CSO Engineer, Scott Kehe (949) 726-2506 or cell (619) 778-7464 |
| | Navy CSO Engineer Tech, Joe Bucho (949) 726-2902 |
| | Navy Biologist, John Lovio (619)-532-1166 |
| | Lee Saunders, EFDSW Public Affairs (619) 532-3100 |
| | Mongo Klabenes, 858 577-7696 |
| | USMC Explosive Ordnance Disposal (TBD) |
| | U.S. Coast Guard Emergency Response Team, (800) 424-8802 |
| | Agency for Toxic Substances and Disease Registry (ATSDR), (404) 639-0700 |
| CHEMTREC, (800) 424-9300 | |

4.3 COMMUNICATIONS

Emergency communications will be voice, audible alarm or cellular (Nextel) radio. Emergency telephone numbers will be kept immediately available (radio and/or hardhat stickers). Personnel will be instructed to immediately contact the SUXOS if an emergency situation arises.

A backup emergency notification system will also be used during all site activities (e.g., air horns located at each work location). In the case of an emergency the signal for personnel to evacuate the area will be a series of long blasts. The assembly/gathering point for individual work locations will be provided during the daily safety briefing. After a head

count has been taken, further evacuation may be required based on wind direction and weather conditions. Workers will not return to designated work areas until directed by the SUXOS. Each type of communication will be periodically tested to insure that site personnel can identify the signals above background noise, as well as to verify system effectiveness.

In the event of an emergency requiring outside assistance, the SUXOS (or designated alternates) will request outside help using a cellular telephone.

All radio and cellular phone communication devices at the site will be used in accordance with applicable HERO restrictions (25 foot minimum cellular phone standoff distance to HERO Unsafe ordnance items).

4.4 FIRE PREVENTION

The following rules developed from EM 385-1-1, OSHA, and WESTON Field Procedures will be enforced to prevent fires:

- Smoking will be prohibited at, or in the vicinity of, operations which may present a fire hazard; "No Smoking or Open-Flame" markings will be conspicuously posted.
- Flammable/combustible liquids will be stored in a designated area posted as a "No Smoking" or "No Open Flame" area with a 4A:20BC rated fire extinguisher located 25 to 75 feet away.
- When used on-site, flammable and/or combustible liquids must be handled only in approved, properly labeled metal safety cans equipped with flash arrestors and self-closing lids.
- Transfer of flammable liquids from one metal container to another will be done only when the containers are electrically interconnected (bonded).
- The motors of all equipment being fueled will be shut off during the fueling operations.
- When necessary for use on-site, flammable/combustible liquids stored in metal drums will be equipped with self-closing safety faucets, vent bung fittings, and drip pans. Such containers will be stored outside buildings in an area approved by the SSHO and will be properly grounded.

4.5 EMERGENCY EQUIPMENT

Fire extinguishers will be provided in the following locations:

- Any equipment (backhoes, front loaders, etc.) will be equipped with a fire extinguisher rated 2A:10BC or higher.
- All vehicles used to transport fuel will be equipped with a minimum of one extinguisher rated 2A:20BC or higher.

- Temporary offices will be equipped with a fire extinguisher rated 2A:10BC or higher.
- At least one portable fire extinguisher rated 4A:20BC will be located at each work site.

First aid kits shall be provided (size, specific content, and number of kits) sufficient to accommodate the maximum number of people (including visitors) on the worksite at any given time. An emergency eyewash station will be available at the site. Emergency equipment will be located in clearly marked and readily accessible locations. Adequate water and other supplies necessary to cleanse and decontaminate burns or other wounds will be available near the first aid kits. All site workers/visitors will be instructed in the locations of emergency equipment.

4.6 EMERGENCY PROCEDURES

General guidelines for rescue/response include the following:

- Assessment: Assess the type and extent of the emergency, then determine and verify existing and potential hazards to site personnel and the off-site population. Determine, based on the type and extent of the emergency, the following:
 - Whether and how to respond.
 - The extent of any injuries and/or damage.
 - The need for evacuation of site personnel and off-site population.
 - The resources needed for evacuation and response.
- Evacuate:
 - Move site personnel to a safe distance upwind of the incident.
 - Monitor the incident for significant changes. The hazards may diminish, permitting personnel to re-enter the site, or hazards may increase and require public evacuation.

Note: When the incident involves the potential for an unintentional detonation of explosive material, the Orange County Sheriff's Department will evacuate the public to an appropriate Public Withdrawal Distance as determined by the SUXOS for the anticipated blast/fragmentation hazard.

- Survey casualties:
 - Locate all victims and assess their condition.
 - Determine resources needed for stabilization and transport.
- Request aid: Contact the required off-site/on-site personnel or agencies (such as the ambulance, fire department, police, etc). Ensure that potential off-site emergency response agencies/resources have been contacted and briefed on

planned site activities prior to the start of site operations. In certain cases (e.g., confined space rescue) the off-site responder(s) must be brought to the site before work is initiated so that an evaluation of and training on the confined spaces is accomplished.

- Allocate resources: Allocate appropriately qualified on-site personnel and equipment to the rescue and initiate incident response operations.
- Remove or assist victims from the area, using appropriate equipment and procedures.
- Control measures, including containment: Assist in bringing the hazardous situation under complete or temporary controls and use measures to prevent any escalation of the emergency.
- Decontaminate: Use established procedures to decontaminate personnel in the decontamination area if appropriate. If the emergency makes this area unsafe, establish a new decontamination area at an appropriate distance. Decontaminate victims before or after stabilization as their medical condition indicates. Decontamination may be delayed if the injuries suffered by the victim pose an immediate threat to the victim's life or health. Instead, the victim should be placed on a tarp, sheet of plastic or non-absorbent backboard to allow handling of the victim without the threat of contaminating support personnel until the victim is stabilized.
- Stabilize: Administer any medical procedures that are necessary before the victim can be moved. Stabilize or permanently remediate the hazardous condition. Address the cause of the emergency and anything that was damaged or endangered by the emergency (e.g., drums, and tanks).
- Transport: No one will be transported without being decontaminated or protected from contaminating others. Measures will be taken to minimize chemical contamination of the transport vehicle, ambulance, and hospital personnel.
- Casualty Logging: Record the names(s) of the victim(s), the time, the destination, and their condition upon transport.
- Casualty tracking: Record the disposition, condition, and location of the casualties.
- Media Reporting: Navy EFDSW Public Affairs will act as the media contact for the project.

4.7 INJURY OR ILLNESS

In the event of injury or illness, site personnel will take the following action:

- Evaluate the scene for safe entry
- Notify SUXOS and UXO Safety Officer
- Assess the type and extent of injury

- Provide initial First Aid to injured person
- Decontaminate the injured personnel, if necessary
- If injury or illness is not potentially life-threatening, transport to local medical facility if required
- If injury or illness is potentially life-threatening, notify emergency medical services for assistance
- Notify VCA Safety Officer and Program Manager
- Notify EFDSW RPM and provide completed Contractor Significant Incident Report (CSIR) Form within 24 hours in accordance with NAVFAC Guide Specification 01450..

4.8 EXTRICATION

In the event a person becomes trapped and requires extrication site personnel will take the following action:

- Notify SUXOS and UXO Safety Officer
- Evaluate the scene for safe entry
- Contact the Fire Department
- Provide first aid as necessary
- Notify VCA Safety Officer and Program Manager

4.9 CHEMICAL EXPOSURE

In the event of chemical exposure site personnel will take the following action:

- Evaluate the scene for safe entry
- Notify SUXOS and UXO Safety Officer
- Provide assistance with emergency shower, eyewash, or other initial First Aid, as required
- Decontaminate exposed personnel
- Notify emergency medical services of need for transportation as necessary.
- Notify VCA Safety Officer, Continuum Healthcare, and Program Manager

4.10 SMALL FIRE

A small fire is defined as a fire that can be extinguished with a 4A:20BC type fire extinguisher or incipient stage fires, which can safely be extinguished with material readily at hand. In the event of a small fire, site personnel will take the following actions:

- Evacuate all unnecessary personal from the area, if possible, to an upwind location
- Notify SUXOS and UXO Safety Officer
- Attempt to extinguish fire using portable fire extinguishers or by smothering from an upwind location
- Request emergency response assistance as appropriate
- Notify the VCA Safety Officer (RSO) and Program Manager

4.11 LARGE FIRE

In the event of a large fire, or a small fire, which cannot be extinguished, the following actions will be taken:

- Sound alarm.
- Evacuate all unnecessary personnel from the area, if possible, to an upwind location.
- Notify local fire department; request other emergency response services (police, ambulance, and hospital) as needed.
- Notify VCA Safety Officer (RSO), Program Manager, and other appropriate personnel or agencies.

4.12 EXPLOSION

In the event of an explosion, all nonessential personnel will evacuate the site. Required support equipment, services, and personnel will be requested. Response will follow steps identified under the appropriate section for the type(s) of casualties involved. Notification action as indicated in the Large Fires section will be followed.

4.13 SMALL SPILL

In the event of a small spill, appropriate actions will be taken to prevent the spill from reaching groundwater, surface water or drains.

Actions include:

- Verification of spilled material, volume and hazards.
- Determine appropriate response procedures including PPE (see MSDS).
- Assess quantity and size of the spill to determine the level of response to contain and clean it up.
- Confine or contain spill with booms, pads, or berm.
- Neutralize spill with appropriate agents (if safe/possible).
- Notify VCA Safety Officer and SUXOS.
- WESTON will collect spilled material including absorbent material and place in appropriate containers. All hazardous material shall be disposed of in accordance with all applicable hazardous waste regulations and client requirements.

WESTON will keep all records related to the spill of hazardous waste for a period of at least three years after the spill has been cleaned up or such longer period of time as required in any unresolved enforcement action.

Note: MSDSs for onsite materials with the potential to spill (e.g., gasoline, diesel, acids, solvents) will be available at the site. Procedures and requirements for spill response will follow criteria outlined in the MSDS.

4.14 LARGE SPILL

A volume equal to or greater than State or Federal reportable quantity and/or those beyond the capabilities and resources of on-site personnel defines large spills. Appropriate remedial actions will be conducted according to State and Federal Regulations.

General procedures are as follows:

- Verification of spilled material, volume and hazards.
- As safe to do so, confine the spill to the smallest area possible using booms, pads, berms or any other effective material.
- Assess type and extent of damages and injuries to personnel; take appropriate first aid steps if necessary.
- Notify VCA Safety Officer and SUXOS.
- In the event the additional emergency clean-up assistance is needed, WESTON will request assistance from off-site response contractors.
- WESTON will collect all hazardous waste including contaminated booms and absorbent material. All hazardous clean-up residues shall be disposed of as hazardous waste in accordance with all applicable hazardous waste regulations.

- All emergency equipment will be decontaminated prior to being put back into service. Expendable or damaged supplies will be immediately replaced.

WESTON will keep all records related to the spill of hazardous waste for a period of at least three years after the spill has been cleaned up or such longer period of time as required in any unresolved enforcement action.

In the event of a spill or a release requiring agency reporting, the Program Manager will notify the client and appropriate regulatory agencies.

4.15 HOSPITAL AND EVACUATION ROUTE

Figure 1 illustrates the route from the worksite to the designated critical care medical facility, Irvine Regional Hospital, located in Irvine, California at 16400 Sand Canyon Avenue (phone 949-753-2000).

The route begins at the IR Site #1 access gate and proceeds to the hospital as follows:

- 1-1/4 miles south on Magazine Road to Irvine Blvd
- Right onto Irvine Blvd and proceed 2.9 miles to Sand Canyon Ave
- Left onto Sand Canyon Ave and proceed for 3.4 miles toward Alton Pkwy.
- Turn left onto Hospital Street and follow the signs to the hospital at 16400 Sand Canyon Ave

Figure 2 illustrates the route from the worksite to the occupational injury medical facility, Saddleback Family & Urgent Care, located in Lake Forest, California at 22855 Lake Forest Drive (phone 949-770-1023).

The route begins at the IR Site #1 access gate and proceeds to the hospital as follows:

- 1-1/4 miles south on Magazine Road to Irvine Blvd
- Left onto Irvine Blvd and proceed 2.4 miles to Lake Forest Drive
- Right onto Lake Forest Drive and proceed for 2 miles to Saddleback Family & Urgent Care at 22855 Lake Forest Drive

The local medical facility will be notified of the planned site activities and potential medical needs prior to the start of work at the site.

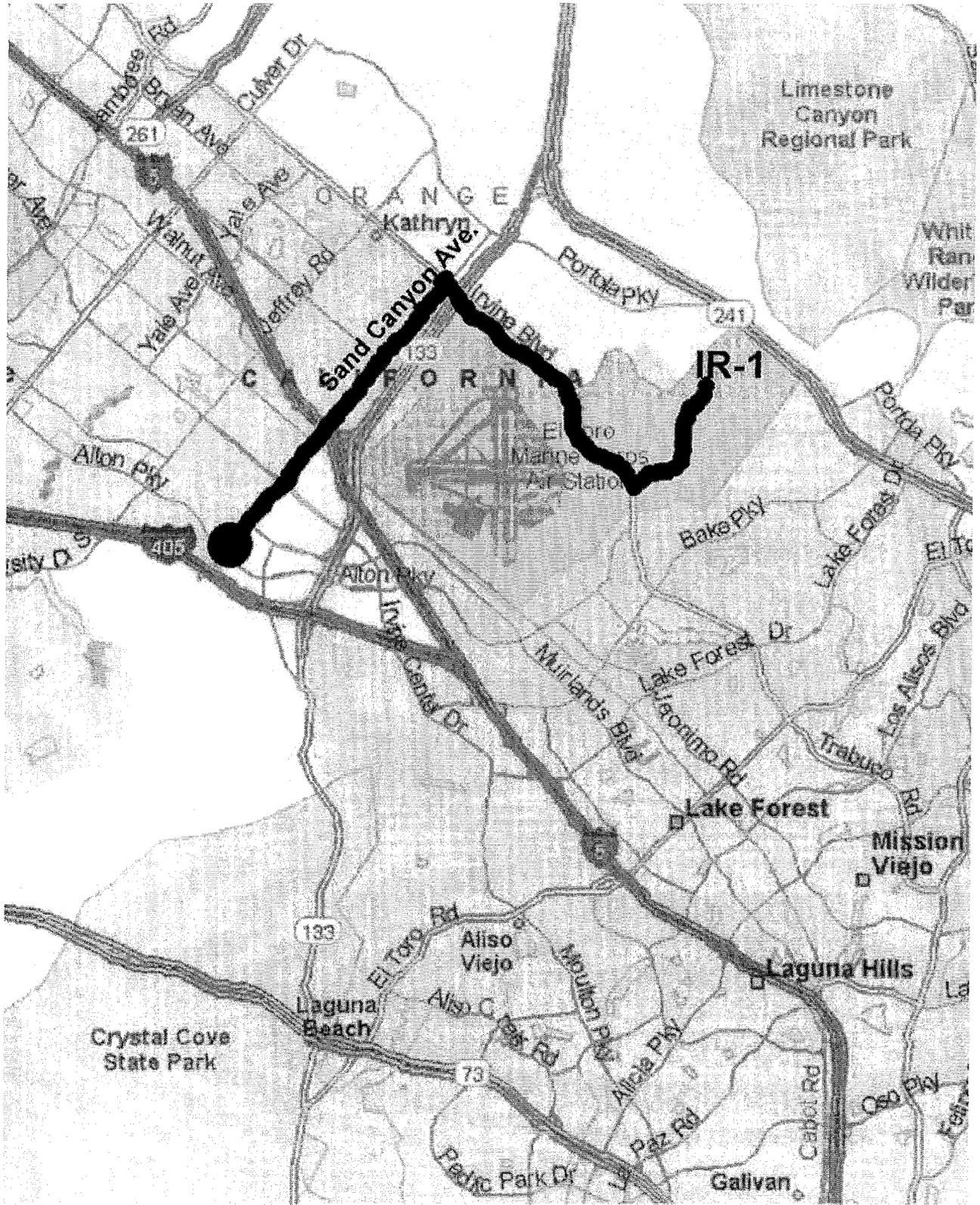


FIGURE 1. HOSPITAL ROUTE MAP (EMERGENCY)

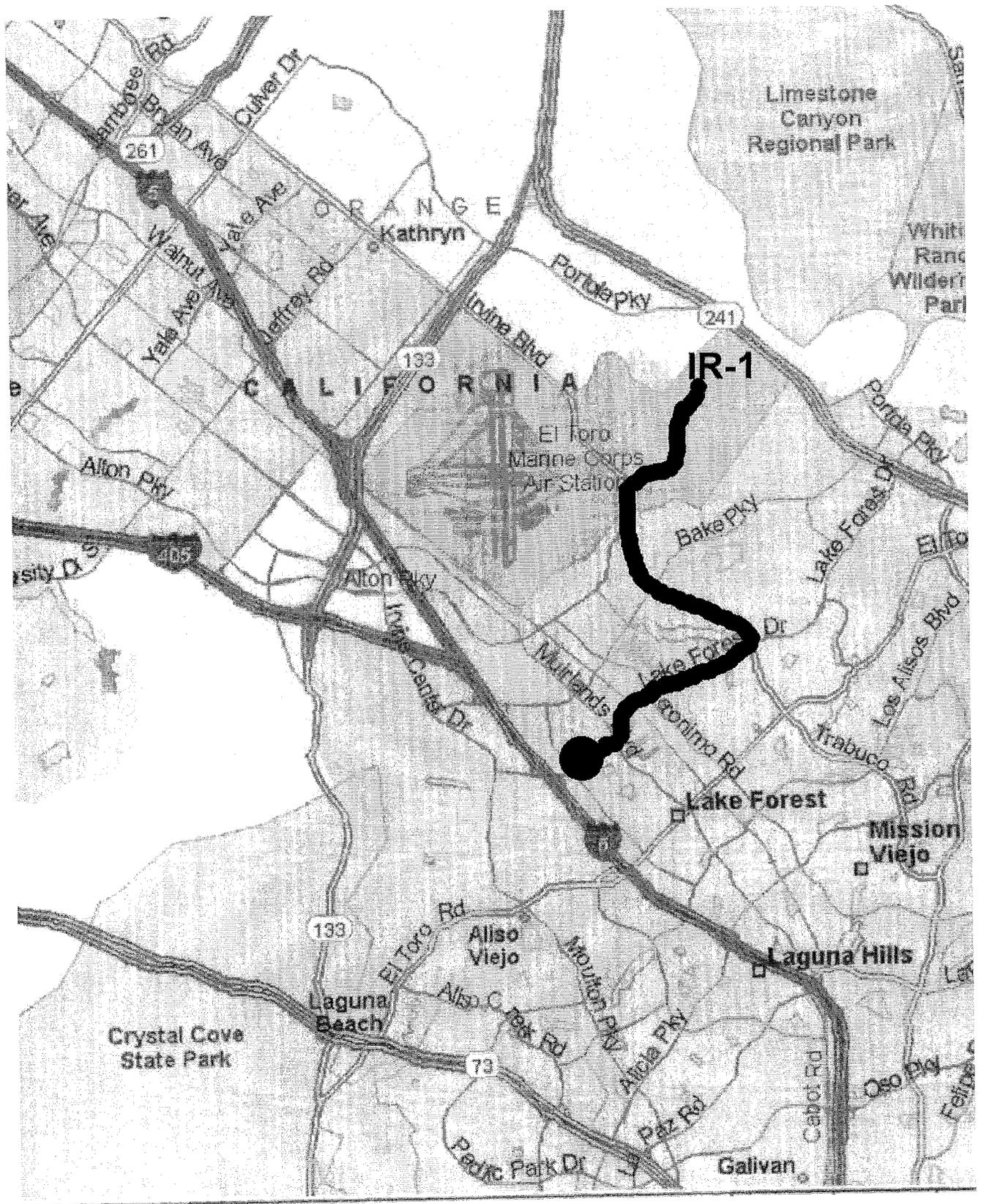


FIGURE 2. HOSPITAL ROUTE MAP (OCCUPATIONAL INJURY)

5. TRAINING PLAN

5.1 GENERAL

All personnel assigned to the project site will have received the required training. In accordance with 29 CFR 1910.120 (8CCR 5192) and other OSHA/USACE regulations, applicable required training for all site workers shall be in accordance with the following:

- *Basic OSHA Training* - 40 hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course and 3 days field experience under the direct supervision of a trained experienced supervisor (the SSO must have an additional 8 hours of specialized safety supervisory training). All workers must have an annual refresher (8 hours) if initial training is over 1 year old.
- *First Aid and CPR Training* - At least two employees per site will be certified in First-Aid and CPR by the American Red Cross or equivalent
- *Bloodborne Pathogen (BBP) Training* - Persons designated as first aid providers will receive training in controlling exposures to Bloodborne Pathogens (BBP). This training will consist of the following:
 - Review of the bloodborne pathogen standards.
 - Requirements of the Exposure Control Plan.
 - Description of the risks of exposure and how BBP are transmitted.
 - Management and Employee responsibilities.
 - Methods of protection against exposure and procedures for decontamination.
 - Post-exposure procedures.
 - Labeling and color coding of infectious waste.
- *Site-Specific Safety and Health Training* - Site-specific health and safety (Type I) training will be conducted prior to field activities. The training will stress emergency response procedures and will cover the chemical and physical hazards of the site and site operations.
- *Trenching and Excavation Competent Person(s)* – A qualified excavation competent person shall be assigned with responsibilities to include the daily inspection of all site excavations to ensure they meet safety requirements. The designated trenching and excavation competent person for this project is Rich Gray.
- *Explosives Safety Training* – All persons designated to accomplish tasks at this site are graduates of the Naval EOD School with extensive field experience in the location and handling of unexploded ordnance.

- *Hearing Conservation* - All site personnel exposed to noise levels exceeding 85 dBA 8-hour time-weighted average (TWA) will be provided with training which addresses the following topics:
 - Physical and psychological effects of high noise exposure.
 - Noise exposure limits.
 - Elements of the Hearing Conservation Program.
 - Selection, use and limitations of hearing protection devices.
- *Respiratory Protection Training* - In accordance with 29 CFR 1910.134 and Title 8 CCR 5144, all site personnel required to use respiratory protection devices will have received equipment specific training. This training covers the use, limitations, inspection, maintenance and cleaning of respiratory protection devices required for use under the conditions of this SSHP. Site-specific briefing/training will reinforce knowledge as necessary. WESTON's Respiratory Protection Program can be found within the Safety Officer's Field Manual.
- *Personal Protective Equipment* - All personal protective equipment will be provided, used and maintained in a sanitary and reliable condition in accordance with OSHA 29 CFR 1910, Subpart I (Personal Protective Equipment) and Title 8 CCR Subchapter 7, General Industry Safety Orders Group 2, Safe Practices and Personal Protection Article 10, Personal Safety Devices and Safeguards. All personal protective equipment (PPE) will be of construction, design, and material to provide employees protection against known or anticipated hazards. PPE will be selected which properly and appropriately fits the employee. WESTON employees have been provided with training in accordance with the standard. Any concerns regarding the use of appropriate PPE will be brought the attention of the SSO, who is directed to contact the CIH for assistance in evaluation of PPE as necessary. WESTON's PPE Program can be found within the Safety Officer's Field Manual.

5.2 DAILY SAFETY MEETINGS

Each day, prior to commencing work on site, all site workers will be given a safety brief by the SUXOS that identifies potential hazards and risks that may be encountered during that day's activities. Additional training in the use of safety equipment, emergency medical procedures, emergency assistance notification procedures, accident prevention and discussion of the work plan will serve to insure that accomplishment of the work project can be carried out in a safe and effective manner. After the briefing has been completed, workers will complete an individual Task Safety Analysis Card demonstrating their awareness of potential site work hazards and associated safety measures.

5.3 VISITORS

Site visitors are defined as persons who are not directly involved with the ordnance sweep. Visitors who enter the worksite are required to meet the requirements of Sections 5 and 6. Visitors will receive a site specific briefing, complete an entry in the visitor's log, and be escorted by a WESTON representative at all times (the SUXOS or his designee). Because of the inherent risk associated with ordnance operations, no visitors will be allowed on the site (or within the established safety arc if it extends outside site boundaries) during evaluation, handling, or blowing in place of suspected live ordnance. Documentation of Training and Medical Surveillance will be presented to the SSHO prior to entry into the EZ (if established).

5.4 WEEKLY TRAINING

At the start of each work week, a site-specific safety topic will be selected and discussed in detail. All site personnel are required to attend the training and the SUXOS will document this training. The training will consist of site-specific hazards and/or appropriate safety related concerns.

6. MEDICAL SURVEILLANCE

The following sections describe the medical surveillance program requirements for site workers, including health monitoring, documentation and recordkeeping, and medical support and follow-up.

6.1 MEDICAL TESTING

All personnel involved in on-site activities that result in exposure to contaminant levels exceeding permissible exposure limits must participate in a health monitoring program as required by OSHA 29 CFR 1910.120(f) and Title 8, CCR 5192 (f)(2) and (3). Medical examinations and consultations by a board-certified occupational medicine physician will be provided prior to assignment, at termination, and under certain conditions of reassignment. In order to comply with the requirements of 29 CFR 1910.120 and 8 CCR 5192, WESTON has designated Dr. Elayne F. Theriault of Continuum Healthcare, Inc. (CHI) to oversee the site-specific medical surveillance and OHP. Dr. Theriault is a board-certified physician in internal and occupational medicine.

After laboratory tests have been completed, the examining physician will prepare a documented written opinion that will be documented in the Weston Medical Qualification database in accordance with 29 CFR 1910.120(f)(7). A letter will be issued to the employee and to the employee's organization containing the following information:

- The physician's opinion as to whether or not the employee has any medical conditions that would place the employee at an increased risk of health impairment

from work in explosive handling operations, hazardous waste operations, or during an emergency response.

- Recommended limitations, if any, upon the employee's assigned work. Special emphasis is placed on fitness for duty, including the ability to wear any required PPE under conditions expected on-site.
- A statement that the employee has been informed by the physician of the medical examination results and of any medical conditions that require further examination or treatment.
- A respirator medical clearance.

The medical examination and consultations will also be available to employees at more frequent intervals if the examining physician determines that an increased frequency of examination is medically necessary. Any worker receiving a potentially harmful level of exposure to hazardous chemical/biological material or exhibiting signs or symptoms of possible exposure will undergo a supplemental examination. The physician will certify in writing that the employee is fit to return to work. If necessary, activity restrictions will also be specified in writing. Additional tests will be conducted if contaminants/potential exposures so dictate and will be determined by the examining physician.

6.2 DOCUMENTATION/RECORDKEEPING REQUIREMENTS

Weston and Continuum will maintain medical surveillance records in compliance with 29 OSHA CFR 1910.120(f) for Weston Vallejo Site Office employees performing hazardous waste site activities. Copies of medical clearances for all site workers will be maintained at the site. Site visitors will be required to provide records in compliance with OSHA 29 CFR 1910.120(f) before entering the site.

The Project Manager will be responsible for recording and reporting near-misses, accidents, illnesses, and injuries involving employees in accordance with 29 CFR 1910/1926, Title 8 CCR, and Weston corporate requirements (reference 6). A Weston Notice of Incident and an EFA Contractor Significant Incident Report (CSR-1) will be completed by the OHSC, assisted by the Site Safety Officer. A copy of this completed report will be added to Weston employee medical surveillance records in the event of a reportable accident, illness, or injury.

6.3 MEDICAL SUPPORT AND FOLLOW-UP REQUIREMENTS

Weston employees and contractor personnel will be required to seek medical attention and physical testing in the event of injury or possible unprotected exposure above established exposure limits. Follow-up testing may be required within 24 to 48 hours of the incident, depending on the type of injury or exposure. The type of testing performed to monitor exposure effects will be based on the circumstances involved and will be determined by a certified occupational medicine physician.

7. FIELD ACTIVITIES

Planned field work has been broken down into the following tasks:

| Task/Subtask | Activity |
|--------------|--|
| 1 | Mobilization/Site Preparation/Demobilization |
| 2 | Site Surveying/Establishment of Boundaries |
| 3 | Surface Anomaly Location |
| 4 | Anomaly Evaluation |
| 5 | Disposition of Identified Live Ordnance |

The Project Manager, Ron Leneker, has the overall responsibility for the project and will coordinate with the Senior UXO Supervisor, the Certified Industrial Hygienist, and the Site Safety Officer to ensure that project goals are completed in a manner consistent with the SSHASP.

All site work will be performed in Level D PPE which will consist of (as a minimum); work clothing, safety shoes (or ANSI approved boots), leather gloves, hard hats and safety glasses. Additional PPE required for specific site tasks is indicated in the following task descriptions.

Task 1: Mobilization / Site Preparation/Demobilization

Mobilization/Site Preparation includes (the following are examples): Transporting personnel, equipment, and supplies to the site. Site preparation will include installation of material staging areas, assembly of required support equipment, removal of selected surface vegetation, and establishment of site support facilities. Site preparation activities involving vegetation removal may also require the use of hearing protection and face shields during operation of gas powered string trimmers.

Task 2: Site Surveying / Establishment of Boundaries

Site Surveying involves the establishment of physical boundaries within the 10 acre survey area at the Site #1 EOD Range. A system of 100' by 100' grids will be established to act as a guide for the systematic location, evaluation, and disposition of surface anomalies.

Task 3: Surface Anomaly Location

Surface anomalies present at the site will be located and marked by conducting a sweep of each grid established in Task 2. Metal detectors will be utilized to locate surface metallic items when the ground surface is obscured by vegetation or other material. A system of ¼" lines will be established to guide the search of 5 foot wide lanes by UXO Specialists. Lanes will be overlapped by approximately 6 inches to ensure that no areas are missed. When an anomaly is detected, a pin flag will be used to mark the anomaly.

Task 4: Anomaly Evaluation

Anomalies will be evaluated to determine if they pose an ordnance threat. Threats to the safety of radiological survey personnel are defined as live ordnance or explosive materials that could be actuated by walking or the use of radiological survey equipment. Evaluation of anomalies will take place on a grid by grid basis. Suspect anomalies that are exposed at the surface will be excavated only to the extent required to determine if they pose a hazard. Synthetic clothing will not be worn while evaluating ordnance material that may be susceptible to initiation by static electricity.

Task 5: Disposition of Identified Live Ordnance

The SUXOS will determine if any identified live ordnance poses an immediate threat to human health or the environment. Live ordnance determined to pose an immediate threat will be blown in place by Weston UXO Specialists. Specific procedures are contained in Section 5.4.1 and Appendix A of the work plan. Hearing protection is required during all operations involving the use of explosives.

Live ordnance that is not considered to pose an immediate threat will be left in place. A clearly marked and appropriately sized safety "buffer zone" will be established around the item to prevent inadvertent human contact. Size of the buffer zone will be determined by the SUXOS based on the nature and condition of the item. Written notification detailing the nature and location of the hazard will be provided to the Navy RPM, CSO, and BEC.

8. HAZARD IDENTIFICATION AND RISK ASSESSMENT

8.1 PRELIMINARY EVALUATION

The site comes under the provisions of 29 CFR 1910.120 (8 CCR 5192). Prior to work or specific tasks/activities, a preliminary evaluation of the site's characteristics will be performed by qualified personnel. This preliminary evaluation includes the completion of Hazard Analysis Tables which identify hazardous conditions and enables the selection of appropriate employee protection methods and PPE. Evaluation of work site characteristics and hazards is an ongoing process and will continue throughout the duration of the project.

8.2 CHEMICAL HAZARD IDENTIFICATION

All known or potential physical and chemical hazards that may pose a threat to the health and safety of site workers must be identified to ensure workers are adequately protected. Emphasis is placed on identifying conditions that may cause death or serious harm. All site workers must be vigilant in identifying work place hazards and bringing them to the attention of supervision. Chemical hazards can present exposure hazards via inhalation, ingestion, absorption or contact with contaminants present in liquids, soil or air. There are no known chemical contaminants documented to exist at the site. Material Safety Data

Sheets (MSDSs) for common ordnance related contaminants and for chemicals supporting site work will be maintained at the site.

Potential contaminants based on site historical uses (and typical byproducts of ordnance disposal operations) are listed in Table 3.

TABLE 3 – POTENTIAL SITE CONTAMINANTS

| CHEMICAL | Maximum Concentration (mg/kg unless otherwise specified) | PRG Value or Screening Value (mg/kg) | OSHA PEL | TARGET ORGANS | SYMPTOMS OF EXPOSURE |
|-------------------------------------|--|--------------------------------------|-------------------------------------|--|---|
| METALS | | | | | |
| Zinc | Unknown | 100,000 | 10 mg/ m ³ Total Dust | Respiratory system | Chills, muscle ache, nausea, fever, dry throat, cough, weakness, exhaustion; metallic taste; head; blurred vision; low back pain; vomiting, fatigue; malaise; tight chest, breathing difficulty, rales, decreased pulmonary function |
| Copper | Unknown | 2,800 | 1 mg/ m ³ | Eyes, liver, kidneys, respiratory system, skin | Eye, nose, pharynx irritation, nasal perf, metallic taste, dermatitis |
| Lead*** | Unknown | 1,000 | 50 ug/m ³ | Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue | Weakness exhaustion, insomnia; facial pallor; pal eye, anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist. ankles; encephalopathy; kidney disease; irritation of eyes; hypotension |
| EXPLOSIVES | | | | | |
| TNT (trinitrotoluene) | Unknown | 15.0 | TLV: 0.5 mg/ m ³ | Eyes, skin, central nervous system | Eye/skin irritation, irritability, fatigue, weakness, tremors, nausea, dizziness, vomiting, insomnia, convulsions |
| RDX cyclotrimethylene-trinitramine) | Unknown | 4.0 | 1.5 mg/ m ³ | Eyes, skin, respiratory system, blood, liver, central nervous system, kidneys, cardiovascular system | Skin & mucous membrane irritation, liver damage, jaundice, cyanosis, sneezing, coughing, sore throat, peripheral neuropathy, muscular pain, kidney damage, cataracts, sensi dermatitis, anemia, cardiac irregularity |

- | | | | |
|-------|---|------|--------------------------------------|
| * | Suspected human carcinogen | NPD | No published exposure date available |
| ** | Confirmed human carcinogen | REL | NIOSH Recommended Exposure Limits |
| *** | Chemicals meeting OSHA reporting threshold limits | IP | Ionization Potential - PID |
| NP | No PRG has been established | PEL | OSHA Permissible Exposure Limits |
| NA | Not available | TLV | ACGIH Threshold Limit Values |
| TRPH | Total recoverable petroleum hydrocarbons | resp | Respiratory |
| insol | Insoluble | | |

8.3 PHYSICAL HAZARD IDENTIFICATION

Physical hazards which may be encountered during field activities include: unexploded ordnance, cold stress; heat stress; flammable materials; hazards related to equipment handling; uneven/unstable surfaces; excessive noise; and decontamination. The SUXOS shall be responsible for thoroughly evaluating field operations with respect to potential physical hazards to personnel. These potential hazards and the specific procedures to be

followed to help prevent or reduce exposure shall be reviewed and documented during the daily Safety Briefing.

8.4 BIOLOGICAL HAZARD IDENTIFICATION

Biological hazards which may be encountered in the field includes: poisonous plants, wild and/or rabid animals, snakes, ticks, and insects. The degree of hazard can range from annoyance to death from bites or anaphylactic shock. Recognition and avoidance are critical in maintaining a safe worksite.

8.5 HAZARD COMMUNICATION

In order to comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200 (8 CCR 5194), the following shall apply to all commercial products containing hazardous substances which are brought on-site:

- Copies of the Weston Hazard Communication Program will be made available to site personnel.
- Material Safety Data Sheets (MSDSs) will be maintained for each product containing a hazardous substance which is used on-site and which meets the regulatory requirements of the HCS.
- All containers not supplied with adequate hazard labeling shall have a hazard communication label affixed to the container that communicates the health and physical hazards associated with working with the material.
- Employees working with hazardous substances shall be trained in accordance with the requirements of 29 CFR 1910.1200 (8 CCR 5194).
- An inventory of all hazardous substances used on-site will be maintained.
- Personnel affected by hazardous substances use shall be informed of the hazards and of the location of appropriate MSDS.

Employees required to perform hazardous non-routine tasks will be given information by the SSO about any hazardous chemicals involved. This information will include specific chemical hazards, protective and safety measures the employee can use, and steps being taken to reduce the hazards (including but not limited to: ventilation, respirators, presence of another employee, and emergency procedures).

The SSO is responsible for ensuring that all employees are aware of the following program elements. A health and safety briefing that includes the information will be provided at the time of initial assignment for employees to the work site or whenever a new hazard is introduced into the work area.

- Hazardous chemicals present at the work site.

- Physical and health risks of the hazardous chemicals.
- The signs and symptoms of overexposure.
- Procedures to follow if employees are overexposed to hazardous chemicals.
- Location of the MSDS file and Written Hazard Communication Program.
- How to determine the presence or release of hazardous chemicals in the employee's work area.
- How to read labels and review MSDSs to obtain hazard information.
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals.
- How to reduce or prevent exposure to hazardous chemicals through the use of controls procedures, work practices, and personal protective equipment.
- Hazardous, non-routine tasks to be performed (if any).

9. ACTIVITY HAZARD ANALYSIS

The activity hazard analysis is an ongoing process from the initiation of the SSHASP preparation through the implementation and completion of the project. The activity hazard analyses included in this section are developed for each task associated with the project. WESTON Field Operating Procedures (FLDs) are contained in the WESTON Safety Officer's Field Manual (SOFM) which will be maintained onsite.

Inspection requirements are identified in FLDs referenced in the Activity Hazard Analysis tables in this Section and in Section 17 (Site Field Log Books). Health and safety equipment to be used, such as monitoring instruments and PPE, is specified in Sections 10 and 12 of this SSHASP.

In addition to the physical hazards outlined in the Activity Hazard Analysis table, special physical hazards that have the potential to affect worker and public safety are addressed below.

Working Near Water

WESTON personnel are not expected to perform work over or adjacent to water where a drowning hazard would exist. However, should conditions dictate and work adjacent to water becomes necessary, this SSHASP will be modified to meet the requirements of EM 385-1-1, Section 5 (05.I and 05.J). WESTON's Standard Operating Procedures (SOPs) for working over or near water can be found in Field Operating Procedure 19 of the Safety Officer Field Manual.

Unknown Compressed Gases, and Reactive Materials

In the event that any of the above are found at the site, work will be stopped and an addendum will be made to this SSHASP before site activities resume.

Clearing and Grubbing

Vegetation removal procedures are located in Section 35 of Reference 4 and Clearing, Grubbing, & Logging Operations FLD47. Site operations should be limited to the removal of light brush and grass using hand tools and gas powered string trimmers.

Excavations

Although significant excavation is not anticipated, excavation operations will be in compliance with OSHA, 29 CFR 1926 Subpart P, EM 385-1-1 Section 25, and Excavating/Trenching FLD28 requirements. No operations requiring the entry of personnel into excavations more than 4 feet deep are anticipated (no confined space permitting required).

Soils Handling

Any excavation will be accomplished using hand tools only.

10. AIR MONITORING

Although no known soil contamination is present at the site, potential contaminants related to use of the site as an open burn/open detonation site include TNT, RDX, copper, lead, and zinc. Therefore, dust suppression measures will be followed whenever excavating or processing dry soils. Should site conditions change to indicate the presence of contaminants, this document will be amended to reflect new information and appropriate monitoring will be conducted during specified site activities to evaluate potential physical and chemical hazards. Evaluation of these hazards will assist in determining: the effectiveness of control measures; requirements for upgrading or downgrading PPE; and the effectiveness of work zones and safe work practices. Additional monitoring for physical hazards (e.g., noise, radiation, etc.) may be necessary based upon site conditions.

11. SITE CONTROL

The following sections describe the site control measures required to ensure site security, prevent public health impacts and exposures, and (should chemical contaminants be identified) to prevent the uncontrolled spread of contamination. The site restrictions imposed by Naval Sea Systems Command Ordnance Pamphlet (NAVSEA OP) 5 Volume 1 concerning Explosive Safety Quantity Distance (ESQD) arcs are also discussed.

TABLE 4 - ACTIVITY HAZARD ANALYSIS

Task Definitions:

1. Mobilization/Site Preparation/Demobilization
2. Site Surveying/Establishment of Boundaries
3. Surface Anomaly Location
4. Anomaly Evaluation
5. Disposition of Identified Live Ordnance

| Task | Hazards | Hazard Control |
|-----------|--|---|
| 1,2,3,4,5 | <i>Chemical Hazards</i> —Chemical contaminants may exist at the site (although none have been documented at this time). | Avoid areas with unusual smell, appearance, texture, etc. Background field surveys will be conducted and action levels established if contamination is suspected and cannot be avoided in the course of site work. |
| 1,2,3,4,5 | <i>Physical Hazards</i> —Slip, trips, falls, tools, terrain or vegetation; uneven walking surfaces. Weather hazards, such as snow and ice, lightning; and poor visibility. | The work area shall be visually inspected. Slip, trip, and fall hazards shall be either removed or marked and barricaded. Sufficient illumination shall be maintained. Site personnel shall conduct walkover in groups of two as a minimum. Site personnel shall refer to and follow WESTON FLD 02-Inclement weather and 39-Illumination. Also, see FLD 11 and 12. |
| 1,2,3,4,5 | Housekeeping | Materials will be stored to prevent intrusion into the work areas. Work areas will be kept organized and ice, snow and mud will be cleared from steps to reduce slip hazards. See FLD12 |
| 1,2,3,4,5 | Strains and sprains from manually lifting and moving. | Use proper lifting techniques such as keeping straight back, lifting with legs; avoid twisting back; use mechanical equipment or get help from others. See FLD 10. |
| 1,2,3,4,5 | Fire | Flammable liquids will be stored in safety containers and flammable storage cabinets. Propane cylinders will be stored outside in secured areas. Fuel storage tanks will be placed in impermeable dikes. Properly rated fire-extinguishers will be placed within 50 ft of the fuel storage area, in construction equipment, and strategically in the construction area. |

| Task | Hazards | Hazard Control |
|-----------|---|--|
| 1,2,3,4,5 | Hands or fingers caught between objects; abrasions and lacerations. | Personnel shall be made aware of the hazard and asked to coordinate carefully the handling and placement of heavy objects. Materials and objects being handled will be inspected for rough or sharp edges, and appropriate precautions shall be taken to avoid contact. Personnel shall wear work gloves and avoid placing hands between objects. |
| 1,2,3 | Electric Hazards | Generators will be grounded unless self-grounded. GFCIs will be used as necessary. Extension cords will be properly rated for intended use. Prior to any intrusive activity, authorities will be contacted for permits. Elevated parts of machinery, ladders, and antennas will be kept at least 10' from overhead electric lines. Qualified electricians will make electrical installations. A lockout/tagout program consistent with FLD42 will be used for equipment maintenance. |
| 1,4 | Hand tools, manual and power. | Tools shall be inspected prior to use. Damaged tools will be tagged out of service until a qualified person can perform repair. Use tools properly and for their intended purpose. A ground fault circuit interrupter (GFCI) will protect all power circuits used for hand tools. See FLD 38. |
| 1 | Grubbing and vegetation removal. Chain saws and chippers. | Qualified persons will operate chain saws and chippers. Chain saw operators will wear chaps. Chippers will be inspected before use (operators must have documented formal training) and all guards will be in place per EM 385-1-1. Persons cutting trees will be appropriately trained and experienced. Personal protective equipment and formal training will be in accordance with FLD47. |
| 1,2,3,4,5 | Traffic | Work areas will be clearly barricaded and appropriate signs displayed. Traffic will be rerouted as necessary. Persons working near roadways or directing traffic will wear high visibility vests. See FLD 20. Rt. 191 will be marked in both directions to reduce the speed of traffic due to the blind driveway nature of the site entrance. |
| 1,2,3,4,5 | Inclement weather, Heat/Cold stress | Workers shall be briefed and cognizant of heat and cold stress symptoms. Fluids will be available to workers. See FLD 05 and 06. Work rest periods will be established according to ACGIH and NIOSH guidelines. |

| Task | Hazards | Hazard Control |
|-----------|---|--|
| 1 | Striking and being struck by operating equipment, loads, falling objects, and pinch points. | Workers shall stay out of the swing area of all equipment and from under loads. No personnel shall ride on the equipment unless seats are provided. See FLD 20, 22A, 23, and 24. Workers exposed to traffic hazards will wear traffic/reflector vests. Vehicles will be checked during maintenance and cribbed if wheels need to be changed. |
| 1,2,3,4,5 | <i>Biological</i> —Poisonous plants, insects, snakes. | Review recognition of poisonous plants, insects, or snakes typical of this area. Use appropriate measures as required. Adhere to WESTON Bloodborne Pathogens Exposure Control Plan—First Aid Procedures FLD43. |
| 1,2,3,4,5 | <i>Radiation</i> —Potential sun burn/sun poisoning hazard on bright, sunny days. Radiological material may exist on-site. | Use sunblock as appropriate. Avoid direct exposure to sun for long periods of time. Unsubstantiated reports indicate that radiological material (Radium, etc.) may exist. |
| 4 | Excavation | Personnel shall remain away from the edges of the excavation and equipment. Due to the shallow depth of the excavation, shoring practices are not needed. Excavation equipment and stockpiles will not be placed closer than 2 feet from any excavation edge. Compliance with 29 CFR Subpart D and EM 385-1-1 Section 25 will be maintained. |
| 3,4,5 | <i>Explosion</i> -Encountering potential live ordnance/related materials and the handling of demolition materials | All personnel involved with explosive operations will be properly trained and certified. UXO Specialist will accomplish all operations involving the location, evaluation, and blowing in place of explosive ordnance and related materials. Synthetic clothing will not be worn while evaluating ordnance material that may be susceptible to initiation by static electricity. |

11.1 SITE CONTROL ZONES

The following sections describe the exclusion zone, contamination reduction zone (CRZ), and the support zone, as well as the procedures to be followed if their establishment becomes necessary due to the presence of site chemical contamination. Actual placement of the zones is dependent on specific site conditions and will be determined by the Site Safety Officer.

11.1.1 EXCLUSION ZONE

A defined exclusion zone will be established around sites where chemical contaminants are believed to be present. The perimeter of the exclusion zone will be defined by barricade tape or traffic cones to restrict access and will extend for a minimum of 50 feet from active work areas. Visitors will be permitted to enter the exclusion zone only with the authorization of the Project Manager, with an escort, and after any ordnance operations have been suspended.

11.1.2 CONTAMINATION REDUCTION (DECONTAMINATION) ZONE

The Contamination Reduction Zone (CRZ) is a transition zone between the exclusion zone and the support zone. A decontamination line will be established in a Contamination Reduction Corridor (CRC) within the CRZ. The CRZ decontamination area will contain facilities to decontaminate personnel and portable equipment. A separate area for decontamination of larger equipment will be established at the edge of the CRZ. Equipment decontamination procedures are described in Section 13.3. Visitors will be permitted to enter the CRZ only when authorized by the Project Manager.

11.1.3 SUPPORT ZONE

The support zone will be situated in a clear area outside the CRZ, where the chance of encountering hazardous material or conditions is minimal. Visitors will be permitted to enter the support zone provided no ordnance handling operations are in progress and they wear the appropriate PPE as determined by the SSO.

11.2 EXPLOSIVE SAFETY QUANTITY-DISTANCE (ESQD) ARCS

The principle of Explosive Safety Quantity-Distance (ESQD), as detailed in Naval Sea Systems Command Ordnance Pamphlet (NAVSEA OP) 5 Volume 1, was established to protect targets (personnel, buildings, etc.) from the blast, overpressure, and fragmentation caused by the unintentional detonation of explosive material. A mathematical relationship involving the net quantity of explosive material (W), the distance to a target (D) and a "safety factor" (K) is described by the equation $D=KW^{1/3}$.

The Department of Defense Explosives Safety Board has directed that all unexploded ordnance be treated as Hazard Class 1 Division 1 material regardless of the original classification of the particular ordnance items. An ESQD safety arc will be established during specific site operations involving the evaluation, handling, or blowing in place of suspected live ordnance (whenever the possibility of an inadvertent detonation exists). The exact size of the ESQD safety arc for will be determined by the SUXOS based on the anticipated blast/fragmentation hazards from the specific ordnance type involved (and will in no case be less than 300 feet). Only those persons certified by the WESTON Explosive Safety Manager and performing tasks in direct support of ordnance operation will be permitted inside the ESQD arc.

An ESQD arc will also be established should the blowing in place of identified ordnance item be required. The SUXOS will coordinate with local law enforcement agencies if the required ESQD arc extends beyond site boundaries. Blowing in place will be accomplished by licensed and qualified Weston UXO Specialists in accordance with NAVSEA OP 5 Volume 1 and Section 5.4.1 of the work plan.

11.3 SECURITY

Site #1 is considered a potentially hazardous area because of the potential for live ordnance material to be present. Existing fencing around the site will be maintained throughout the operation and entry points will be secured and clearly posted to indicate site hazards and to provide Weston points of contact for additional information. Access into the work site will be strictly controlled and limited to authorized personnel. Additional site entry procedures will be implemented to further restrict access into the ESQD arcs should their establishment become necessary. A "Bravo" (red) flag flown near the site access gate will provide a visual indicator to emergency responders that personnel are on site and that explosive hazards may be present.

11.4 SITE MAP

The site map (Figure 3) illustrates the location of the 10 acre worksite within Site #1. The map also shows the location of the site perimeter boundary and access roads.

11.5 ENTRY PROCEDURES

An administration area with associated parking facilities will be established outside the site boundary. All persons entering the site will be processed through the administration area. Authorized personnel only will be allowed access to the worksite.

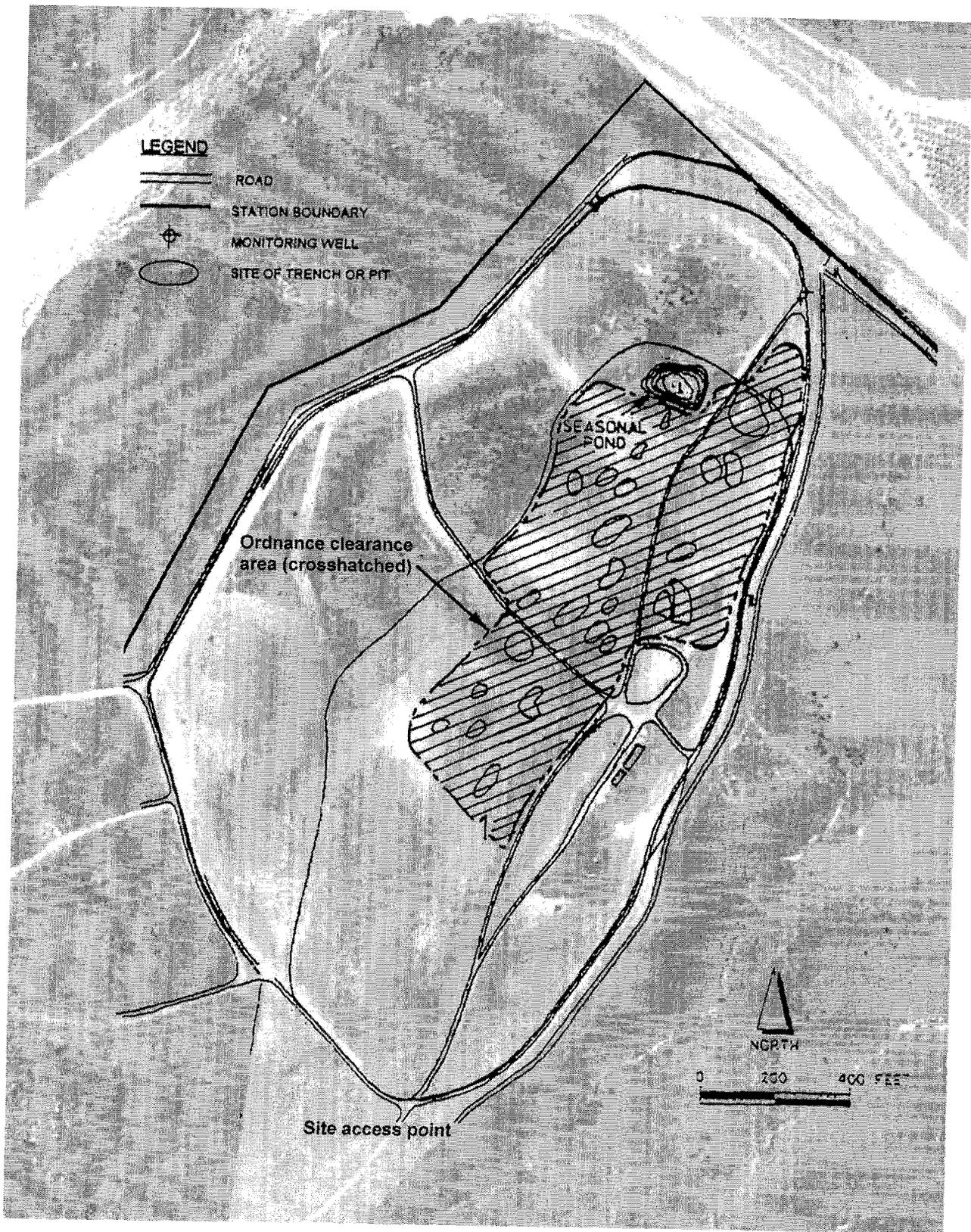


FIGURE 3. SITE MAP

11.6 HAZARDS OF ELECTROMAGNETIC RADIATION TO ORDNANCE (HERO)

Radio, radar, and other electronic transmitting equipment produces electromagnetic radiation which can cause an electrical current to be induced into ordnance items containing sensitive electro-explosive devices (EEDs). This induced current can result in premature actuation (propellant ignition or warhead detonation) of the ordnance item. Unexploded ordnance items must be considered HERO UNSAFE since their condition and history are unknown.

The use of devices which emit electromagnetic radiation (including cellular phones, radio transceivers, etc.) will therefore be strictly controlled by the Project Manager in accordance with the requirements of Naval Sea Systems Command Operating Procedure 3565 (NAVSEA OP 3565), HAZARDS OF ELECTROMAGNETIC RADIATION TO ORDNANCE (HERO). Safe transmitting distances for typical communications devices are:

- Radios (5 watt UHF/VHF handi-talkies) - 23 feet
- Cellular/Nextel phones (in both standby & talk modes) – 25 feet

11.7 COMMUNICATIONS

Both internal and external communications systems will be established during site work. Internal communications used between field team members and the site administrative area may consist of verbal communications only or may be supplemented by flags, radio devices, hand signals, Nextel phones or other methods as required. The internal communications system must be understood by all team members and periodically tested to determine its effectiveness.

An external communication system is required to call for off-site emergency assistance and to conduct essential administrative business. When a telephone is not readily available, an alternative method such as a cellular phone or radio communications will be utilized and periodically tested to ensure satisfactory operation. Every team member will be informed of the location of the nearest telephone and be instructed in the use of other communications devices, such as fire alarm boxes, located near the worksite. All emergency contact numbers shall be posted in a conspicuous place.

All radio and cellular phone communication devices at the site will be used in accordance with the HERO restrictions described in the preceding paragraph.

11.8 ECOLOGICAL RESTRICTIONS

The federally threatened coastal California gnatcatcher (*Polioptila californica*) has been identified on the site. Complete details on the site work restrictions implemented to

avoid adverse impact on the gnatcatcher are described in Section 4.1.2 of the Work Plan.

12. PPE SELECTION

All personnel performing operations on-site shall be required to use the appropriate level of protection as specified in this document. The provisions for use of level D, Modified D, and C as required for the hazards associated with a given task, operation, or expected contaminant level.

Level D PPE

Level D PPE will be worn during mobilization, site preparation, site reconnaissance, surveying, and demobilization and will consist of:

- Work clothes, e.g. coveralls (cotton)
- Work gloves - leather or cotton as necessary for physical hazards
- Safety shoes/boots, ANSI approved
- Safety glasses
- Hearing protection (as necessary)
- Hard hat (as necessary)
- Chemical resistant overboots and gloves (nitrile or latex) will be required when activities are performed in areas suspected of contamination

Modified Level D PPE

Modified Level D PPE will be worn during site activities including: laboratory packaging, demolition, and excavation, when monitoring is within appropriate action levels. In addition to the Level D PPE, modified Level D consists of:

- Chemical resistant coveralls, Tyvek if dry matrix, saranex or equivalent if wet matrix and during container movement (labpacking)
- Chemical resistant overboots or chemical boot covers
- Gloves - nitrile or latex inner; nitrile outer
- Eye protection - safety glasses or goggles

Level C PPE

Although Level C PPE is not anticipated for this project, it is included here for completeness should it's use become necessary. In addition to the Level D PPE, Level C PPE consists of:

- Chemical resistant coveralls - Tyvek if dry matrix, Saranex or equivalent if wet matrix and during container movement (labpacking)
- Chemical resistant overboots or chemical boot covers

- Gloves -nitrile or latex inner; and nitrile outer
- Fullface APR with HEPA OV/AG cartridge (NIOSH/MSHA approved - MSA GME, P100 or equivalent). Organic Vapor Cartridges must have an End of Service Life indicator or a Cartridge Change Schedule calculated by the Site Safety Officer or Health and Safety coordinator (maximum use before change is 8 hours.)

Level A/B PPE

- Level A/B PPE is not anticipated for this project.

13. DECONTAMINATION

Reducing the spread of contamination is the responsibility of each individual worker. Engineering controls to reduce airborne particulates will also be used where possible to minimize the contamination of personnel and equipment working on the site. Another method of reducing contamination is to use a delineated arrangement of hotline, exclusion zone, contamination reduction zone, and support zone. The following procedures for personnel and equipment decontamination will be utilized where deemed appropriate based on existing site conditions.

13.1 EMERGENCY DECONTAMINATION

Should a site worker in the EZ be injured or appear to exhibit signs of chemical exposure, emergency decontamination will be performed. Supplies for the emergency decontamination will be placed in the CRZ prior to site activities, and shall include:

- Eyewash
- First Aid/BBP kit
- Plastic sheeting or disposable rescue blanket

These materials will be required in addition to the general decontamination equipment required for standard decontamination activities.

13.2 PERSONNEL DECONTAMINATION PROCEDURES

The SUXOS or SSO will designate personnel to assist in the donning and doffing of personal protective equipment (PPE) as they proceed in and out of the CRZ. Decontamination is accomplished to ensure the materials that personnel and equipment may have contacted in the exclusion zone are removed in the contamination reduction zone before passing into the support zone. Personnel will be wearing the appropriate level of protection based on the hazard identification and evaluation (level D, modified level D, or level C for this project). Persons performing decontamination duties will wear, as a minimum, the same level of protection as those persons being decontaminated.

MODIFIED LEVEL D

The following sequence of events will be the procedure for modified Level D personnel decontamination:

- Any site equipment will be deposited in a segregated area prior to entering the contamination reduction zone.
- At the perimeter of the exclusion zone, rain gear or splash protection (if worn) will be damp-wiped or wet sprayed to remove any adhered particulates or corrosive liquids.
- Over boots or over-the-sock boots will be scrubbed with a detergent-water solution. The boots will be removed and placed on a rack to dry.
- Hard hats will be removed and properly stored. Hard hats will be scrubbed with detergent if grossly contaminated.
- Outer gloves will be cleaned and removed, and depending on condition, will be discarded (if damaged or uncleanable).
- Splash gear will be removed, cleaned, and hung to dry (if worn).
- Tyvek or Saranex suits will be discarded.
- Latex inner gloves will be discarded.
- Personnel will wash their hands, arms, neck, and face.

At the discretion of the SSO, and based on site conditions, exposure potential, and tasks performed, dry decontamination procedures may be utilized for disposable PPE to eliminate the generation of unnecessary amounts of decontamination water. At a minimum, facilities for washing the face and hands of personnel will be established.

LEVEL C

The following sequence of events will be the procedure for Level C personnel decontamination:

- Deposit any site used equipment in a segregated area prior to entering the contamination reduction zone.
- At the perimeter of the exclusion zone, rain gear or splash protection (if worn) will be damp-wiped or wet sprayed to remove any adhered particulates or corrosive liquids.
- Outer boot covers or over-the-sock boots will be scrubbed with a detergent-water solution. The boots will be removed and placed on a rack to dry.
- Hard hats will be removed and properly stored. Hard hats will be scrubbed with detergent if grossly contaminated.
- Outer gloves will be cleaned and removed, and depending on condition, will be discarded (if damaged or uncleanable).

- Splash gear will be removed, cleaned, and hung to dry (if worn).
- Tyvek or Saranex suits will be discarded.
- Respirators will be removed and prepared for reuse or decontamination.
- Latex inner gloves will be discarded.
- Personnel will wash their hands, arms, neck, and face.

At the discretion of the SSO, and based on site conditions, exposure potential, and tasks performed, dry decontamination procedures may be utilized for disposable PPE to eliminate the generation of unnecessary amounts of decontamination water.

13.3 EQUIPMENT DECONTAMINATION PROCEDURES

Decontamination will be required for all tools, field monitoring equipment, and other equipment used during site activities. The equipment decontamination procedures described in the following sections are based on guidelines appropriate for low-level contamination. When appropriate, a detergent cleaning solution and water rinses will be used to decontaminate equipment. Wastewater from equipment decontamination activities will be stored until proper disposal methods can be determined based on sample analysis.

HAND TOOLS

Hand tools will be decontaminated after use by brushing with a detergent solution, rinsing with water, and allowing to air dry.

VEHICLES

Vehicles should be freed of loose dirt or stabilized material on tailgates, axles, wheels, etc. based on a visual inspection of all exposed surfaces. Equipment will be decontaminated at an equipment decontamination pad located at the edge of the CRZ. Decontamination will be performed after completion of site activities or whenever removal of the equipment from the exclusion zone is necessary for maintenance, repairs, etc.

Decontamination will be accomplished by applying a detergent solution and rinsing with water using a pressure washer. If equipment still has soil on it after rinsing, a brush will be used to loosen debris and the cleaning operation will be repeated. All removed soil and wastewater from decontamination activities will be collected and stored for proper disposal.

13.4 DISPOSAL PROCEDURES

Disposable clothing and equipment will be double bagged and drummed. The items will be tested for possible residual contamination and will be properly disposed of based on analytical results.

Wash and rinse water will be collected and disposal based on grab sample analytical results. All waste management shall be in accordance with reference 6.

14. UTILITY SAFETY PROCEDURES

This section provides procedures for safely accomplishing work around overhead and underground utilities. Although planned site activities should not involve either type of hazard, the procedures have been included to ensure awareness of site workers to the potential dangers of utility lines.

14.1 UNDERGROUND UTILITIES

This section provides the procedures for the safe location, identification, and exposure of underground utilities during excavation activities. Underground utility safety procedures apply to all excavation operations (including but not limited to: general excavation operations, asphalt removal, sampling operations, and the use of hand tools).

14.1.1 DEFINITIONS

Excavation — Any cut cavity, trench, or depression in the earth created by the removal of soil.

Utility Excavation Area of Concern — The anticipated excavation area perimeter plus five (5) feet in all directions.

Equipment Operator — Individual trained, qualified, and currently licensed by WESTON to operate equipment to be used. Has been briefed by the project supervisor and has walked the job site to sight utility markings. Does not perform excavation without spotter in place at the point of excavation.

Spotter — Individual briefed by the SUXOS and stationed at the point of excavation to maintain visual contact at the point of excavation to identify any unidentified utilities or obstacles in the path of excavation.

14.1.2 GENERAL REQUIREMENTS

1. The Project Engineer in consultation with the SUXOS shall determine the need for excavation work.
2. The work plan shall indicate the location and extent of the excavation work to be performed. Final concurrence to the extent of the excavation will be made by the

Project Engineer and the SUXOS when the excavation area is being delineated for the Regional Notification Center (i.e., Underground Service Alert (USA)).

3. The estimated location of utility installations (in particular, those that may not fall under the responsibility of the USA organization) that reasonably may be expected to be encountered during the excavation work, shall be determined prior to opening the excavation.
4. USA (and any other known owners of underground utilities who are not members of USA) shall be advised of the proposed work at least two (2) working days prior to the start of any digging or excavation work. The location request number, provided by the Notification Center, shall be annotated in the site logs.
5. The established utility excavation area of concern will be delineated with white paint on paved surfaces or with flags or stakes on unpaved surfaces.
6. The Project Engineer and the SUXOS will review available utility location information to verify the USA identification of all anticipated utilities. Any discrepancies will be communicated to the utility/installation owners and resolved prior to opening the excavation.
7. The Project Engineer and the SUXOS will investigate the possibilities of deenergizing/depressurizing all active utilities prior to opening the excavation. The Program Manager's concurrence is required, in writing, prior to initiating an excavation near energized/pressurized lines.
8. The SUXOS will verify the following for all excavation work:
 - a. A site specific pre-excavation briefing has occurred and is documented in the Site Safety Log. This briefing will be performed onsite with the operator and the spotter and involve the physical observation of all utility markings.
 - b. The Equipment Operator's license has been verified and is in the operator's possession.
 - c. A utility sketch and a utilities evaluation sheet (see pages A5 and A6) have been documented in the Site Safety Log.
 - d. The SUXOS, equipment operator, and spotter have sighted the anticipated area of excavation, sighted the utility markings both on the ground and in the utilities sketch, and have discussed the planned operation.
 - e. The UXO Specialist Team Leader will be present at the excavation site until all utilities have been located and exposed.
 - f. The SUXOS will ensure that the spotter is present at all times during the use of powered excavation equipment.
9. Utilities within five (5) feet of the excavation area will be exposed every 100 feet (or as necessary) using hand tools or other "safe and acceptable means" to determine the exact location of the utility.

10. When utilities are not located within two (2) feet of their marked location, the utility owner will be notified, and the location resolved before powered equipment is used for excavation.
11. Once utilities have been precisely located, the use of power equipment is authorized up to a minimum clearance of two (2) feet from the utilities. DO NOT use powered equipment within two (2) feet (horizontally and vertically) of active utilities. Excavation within two (2) feet must be removed by the use of hand tools or other "safe and acceptable means" (i.e., vacuum excavator).

14.1.3 REGIONAL NOTIFICATION CENTER

Underground Service Alert (USA) is the Regional Notification Center for California and Nevada (California Government Code 4216). The telephone number for notification is (800) 227-2600. Hours of operation are 0600 hours to 1700 hours, Monday through Friday, except Holidays. Notification of the Regional Notification Center is a mandatory prerequisite for all excavation work.

14.2 OVERHEAD UTILITIES

This section applies to all work near overhead utilities involving the use of equipment or machinery capable of reaching (in any operating mode) within the minimum safety clearance distance of an energized utility line. "*Energized*" high voltage lines are defined as those lines with a potential of 600 volts or more that have not been verified to be de-energized by the owner/operator and are not visibly grounded

Every effort shall be made to have the utility owner/operator of the affected power line de-energize the line prior to initiating any nearby work. Where the power line cannot be de-energized (and visibly grounded) by the owner/operator, the following precautions shall be followed.

1. When work is required near overhead high-voltage lines, suitable barrier tape or other personnel and equipment constraints will be used to mark-off and bar approach to the area of danger. Personnel shall not be permitted to cross into the area of danger until safeguards against accidental contact with energized power lines have been implemented.
2. A "spotter" shall be present to monitor the clearances and give timely warning to personnel.
3. The passing of tools, personnel or equipment over energized power lines shall be prohibited.
4. The minimum clearance requirements of Table 5 shall be strictly followed.

Table 5 - Clearance Requirements from Energized Overhead Conductors

| Normal Voltage | | Minimum Clearance (feet) |
|----------------|--------------|--------------------------|
| 600 | to 50,000 | 10 |
| 50,001 | to 75,000 | 11 |
| 75,001 | to 125,000 | 13 |
| 125,001 | to 175,000 | 15 |
| 175,001 | to 250,000 | 17 |
| 250,001 | to 370,000 | 21 |
| 370,001 | to 550,000 | 27 |
| 550,001 | to 1,000,000 | 42 |

5. Any overhead power line shall be considered energized unless and until notified by the owner/operator that the line has been de-energized AND is visibly grounded.
6. A durable warning sign shall be posted in each piece of heavy equipment (in plain view of the operator) and readable at a distance of 12 feet: "Unlawful to operate this equipment within 10 feet of high-voltage lines of 50,000 volts or less...For minimum clearances of high-voltage lines in excess of 50,000 volts, see California Code of Regulations, Title 8, Article 37, "High-Voltage Electrical Safety Orders."

15. GENERAL SITE SAFETY PROCEDURES

15.1 GENERAL

The following sections contain general site safety information. WESTON Field Operating Procedures, contained in the Site Health and Safety Officer's Manual maintained on-site, will also be followed. Hazards due to normal site activities can be reduced by using common sense and following safe practices. The following practices are expressly forbidden:

- Running and horseplay.
- Smoking, eating, drinking, applying cosmetics, or chewing gum or tobacco within any potentially contaminated area.
- Ignition of flammable materials at the site. Equipment will be bonded, grounded, and explosion resistant, as appropriate.
- Performance of tasks in the restricted area individually (i.e. working alone).

Personnel must keep the following guidelines in mind when conducting field activities:

- Hazard assessment is a continuous process; personnel must be aware of their surroundings and constantly aware of the chemical and physical hazards that are or may potentially be present.
- The number of personnel in the SZ or EZ will be the minimum number necessary to perform work tasks in a safe and efficient manner. The use of the Buddy System is mandatory for EZ work.
- Team members will be familiar with the physical characteristics of each site including wind direction, site access, and the location of communication devices and safety equipment.
- The location of overhead power lines and underground utilities must be established prior to conducting excavation or drilling activities.

15.2 PHYSICAL HAZARDS

15.2.1 MECHANICAL EQUIPMENT OPERATION

Operation of mechanical equipment presents another potential source for physical hazards and includes the following requirements, in addition to EM 385-1-1, OSHA, and WESTON Field Operating Procedures:

- Operation will be conducted by authorized personnel familiar with the machine, its operation, and safety provisions.
- Mechanical equipment will be inspected prior to use.
- Any equipment found to be defective in any manner will be removed from service and repaired prior to use.
- Hands, feet, etc., will be kept away from all moving parts.
- Maintenance and/or adjustments to machinery will be not conducted while in operation. Power will be disconnected prior to maintenance activities.
- An adequate operating area will be provided, allowing sufficient clearance and access for operation.
- Good housekeeping practices will be followed.

15.2.2 MATERIAL LIFTING

Many types of objects are handled in normal day to day operations. Care should be taken in lifting and handling heavy or bulky items because they are the cause of many back injuries. The following fundamentals address the proper lifting of materials to avoid back injuries:

- The size, shape and weight of the object to be lifted must be considered. A worker shall not lift more than one person can handle comfortably.

- A firm grip on the object is essential; gloves shall be used if necessary, to protect the hands.
- The hands and object shall be free of oil, grease and water, which might prevent a firm grip, and the fingers shall be kept away from any points that cause them to be pinched or crushed, especially when setting the object down.
- The item shall be inspected for metal slivers, jagged edges, burrs, rough or slippery surfaces and pinch points.
- The feet shall be placed far enough apart for good balance and stability. The footing surface should be firm.
- The worker shall get as close to the load as possible. The legs shall be bent at the knees.
- The back shall be kept as straight as possible.
- To lift the object, the legs are straightened from their bending position.
- A worker shall never carry a load that cannot be seen over or around.
- When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees, back straight, and the object lowered.

In addition, relevant WESTON Field Operating Procedures shall be followed. When two or more workers are required to handle an object, coordination is essential to ensure that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each worker, if possible, shall face the direction in which the object is being carried.

15.2.3 ELECTRICAL HAZARDS

Electrical wiring and apparatus safety procedures will be conducted in accordance with OSHA, EM 385-1-1, and WESTON Field Operating Procedures.

The requirements include, but are not limited to:

- All electrical wiring and equipment will be of a type listed by Underwriters Laboratories (UL) or Factory Mutual Engineering Corp. (FM) for the specific application.
- All installations will comply with the National Electrical Safety Code (NESC) or the NEC regulations.
- All work will be accomplished by personnel familiar with and qualified for the class of work to be performed.
- Live parts of wiring or equipment will be guarded to protect all individuals or objects from harm.
- Electric wire or flexible cord passing through work areas will be covered or elevated to protect it from damage by foot traffic, vehicles, sharp corners, or pinching.

- Temporary power lines, switch boxes, receptacle boxes, metal cabinets, and enclosures around equipment will be marked to indicate the maximum operating voltage.
- Patched, oil-soaked, worn, or frayed electric cords or cables will not be used.
- Extension cords or cables will not be fastened with staples, hung from nails, or suspended by wire.
- All electrical circuits will be grounded in accordance with the NEC.
- Portable and semi-portable electrical tools and equipment will be grounded by a multi-conductor cord having an identified grounding conductor and a multi-contact polarized plug-in receptacle.
- Semi-portable equipment, floodlights, and work lights will be grounded. The protective ground of such equipment should be maintained during moving unless supply circuits are de-energized.
- Tools protected by an approved system of double insulation or its equivalent, need to be grounded. Double insulated tools will be distinctly marked and listed by UL or FM.
- Ground fault circuit interrupters (GFCIs) are required in all circuits used for portable electric tools. The GFCI will be calibrated to trip within the threshold values of 3-7 mA as specified in UL Standard 943. All GFCIs will be UL listed and installed in accordance with the most recent edition of the NEC. The permanent wiring will be electrical circuits grounded in accordance with the NEC. GFCIs may be sensitive to some equipment such as concrete vibrators. In these instances, an assured equipment grounding conductor program is acceptable.
- Flexible cord will be of a type listed by the UL. Flexible cord sets will contain the number of conductors required for the services plus an equipment ground wire. The cords will be hard usage or extra hard usage as specified in the NEC. Approved cords may be identified by the word "outdoor" or letters "WA" on the jacket.
- Bulbs attached to festoon lighting strings and extension cords will be protected by wire guards or equivalent unless deeply recessed in a reflector.
- Temporary wiring will be guarded, buried, or isolated by elevation to prevent accidental contact by workers or equipment.

15.2.4 PRESSURIZED HOSES

Observe the following rules when using hoses:

- Before use, inspect hoses for defects, cuts, loose clamps, improper fittings, etc.
- Never apply air from an air hose to any part of the body or clothing.
- Use only standard fittings for all hoses.
- All quick make up connections must be secured with safety lashing.

15.2.5 EXPLOSIVE ATMOSPHERE AND IGNITION SOURCES

Explosions and fires may arise spontaneously. However, more commonly, they result from site activities, such as moving drums, accidentally mixing incompatible chemicals, or introducing an ignition source (such as a spark from equipment) into an explosive or flammable environment. Explosions and fires not only pose the obvious hazards of intense heat, open flames, smoke inhalation, and flying objects, but may also cause the release of toxic chemicals into the environment. Such releases can threaten both personnel on-site and members of the general public living or working nearby.

WESTON provides the following to protect against these hazards: monitoring is conducted for explosive atmospheres and flammable vapors using a combustible gas indicator; all potential ignition source are kept away from an explosive or flammable environment; non-sparking, explosion-proof equipment is used; and safe practices are followed when performing any task that might result in the agitation or release of chemicals. Some potential causes of explosions and fires include:

- Chemical reactions that produce explosion, fire or heat.
- Ignition of explosive or flammable chemical gases or vapors.
- Ignition of materials due to oxygen enrichment.
- Agitation of shock or friction-sensitive compounds.
- Sudden release of materials under pressure.

15.2.6 HAND TOOLS

Hand tools will be used according to EM 385-1-1, OSHA, and WESTON Field Operating Procedures. Only tools that are in good condition shall be used. Improper and defective tools contribute to accidents. The following safe practices shall be observed when using hand tools:

- Use tools in the manner for which they were designed.
- Be sure of footing before using any tool.
- Do not use tools that have split handles, mushroom heads, worn jaws, or other defects.
- Do not use makeshift tools or other improper tools.
- Use spark proof tools where there are explosive vapors, gases, or residue.

15.2.7 SANITATION

Applicable sanitation requirements are contained in EM 385-1-1, OSHA, and WESTON Field Procedures and include the following:

- Field office/break trailers will be equipped with power and water. At a minimum, washing facilities will be set up using handi-wipes or a suitable equivalent.

- Appropriate numbers of Port-a-Jons will be obtained. The units will be serviced as necessary.
- All work areas, to include the office/break trailer, will have trash receptacles. Areas will be kept free of trash and any equipment not being used will be removed and stored in the office/break trailer.

15.2.8 ILLUMINATION

Most work will be conducted during daylight hours. If field activities will be conducted from dusk until dawn, appropriate lighting will be supplied to allow illumination according to EM 385-1-1, OSHA, and WESTON Field Procedures.

15.2.9 HEAT STRESS

One of the most common types of stress that can affect field personnel is heat stress. Heat stress may be one of the most serious hazards to workers at waste sites due to the PPE required. Engineering controls should be considered as the first measure to be taken to reduce hazards rather than the donning of PPE.

Heat Stress Causes and Preventative Measures

Heat stress associated with hazardous waste operations is usually a result of protective clothing decreasing natural body ventilation and therefore cooling; however, it may occur at any time work is being performed at elevated temperatures. If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur ranging from mild (such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement) to fatal. Because heat stress is one of the most common and potentially serious illnesses that hazardous waste site workers encounter, regular monitoring and other preventative measures are vital.

Site workers must learn to recognize and treat the various forms of heat stress. Site workers will adhere to the following procedures:

- Suggest workers drink 16 ounces of water prior to the start of work in the morning and during lunch. Provide water and disposable cups. Urge workers to drink 1-2 gallons per day. Provide a cool, preferably air-conditioned area for rest/breaks. Discourage the use of alcohol and discourage the intake of coffee during working hours. Monitor for signs of heat stress. If an individual has high blood pressure, he/she must be monitored more often and take precautions (i.e., drink more water).
- Acclimate workers to site work conditions by slowly increasing work-loads, i.e., do not begin site work activities with extremely demanding activities instead gradually work up to the more physically demanding tasks.
- Consider providing cooling devices to aid natural body ventilation. These devices add weight, however, and their use should be balanced against worker efficiency. An example of a cooling aid is long cotton underwear which acts as

a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.

- Install showers and/or hose-down facilities to reduce body temperature and cool protective clothing.
- Ensure that adequate shelter is available to protect personnel against heat, as well as rain which can decrease physical efficiency and increase the probability of heat stress. If possible, set up the command post in a shady area protected from the wind.
- Good hygienic standards must be maintained by frequent changes of clothing and showering. Clothing should be permitted to dry during rest periods. Individuals who notice skin problems should immediately consult medical personnel.

Specific symptoms, causes, preventive measures and first aid procedures for; heat stroke, heat exhaustion, heat cramps and heat rash are outlined in WESTON's Field OP (FLD05) Heat Stress Prevention and Monitoring.

Heat Stress Monitoring and Work Cycle Management

For field activities that are part of on-going site work activities in hot weather, the measurement of heart rate may be used to monitor the body's physiological response to heat and to manage the work cycle. Heart rate should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats/minute for most individuals. The maximum rate is based on an individual's base rate. Base rates vary across the population. If the HR is higher, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the pulse rate still exceeds 110 beats/minute at the beginning of the next rest period, the following work cycle should be further shortened by 33 percent. The procedure is continued until the rate is maintained below 110 beats/minute.

Additional monitoring procedures, as outlined in FLD05 may be instituted as necessary.

15.2.10 COLD STRESS

Persons working in temperatures at or below freezing may be frostbitten. Experiencing extreme cold for a short time may cause severe injury to exposed body surfaces or result in profound generalized cooling, causing death. Areas of the body which have high surface area-to-volume ratios, such as fingers, toes, and ears, are the most susceptible. Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill describes the chilling effect of moving air in combination with low temperature. For instance, 10 degrees Fahrenheit and a wind speed of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18 degrees Fahrenheit.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air.

Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration-soaked.

Frostbite includes local injuries resulting from cold. There are several degrees of damage.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature but can occur in milder temperatures when the victim becomes wet, typically from water immersion. Its symptoms are usually exhibited in various stages ranging from; shivering, apathy, listlessness, sleepiness, unconsciousness, glassy stare, slow pulse, slow respiratory rate and death.

Specific symptoms, causes, preventive measures and first aid procedures for cold-stress related injuries can be found in WESTON's Field OP (FLD06) Cold Stress.

15.3 BIOLOGICAL HAZARDS

15.3.1 TICK BITES

The Center for Disease Control (CDC) has noted the increase of Lyme Disease and Rocky Mountain Spotted Fever (RMSF) which are caused by bites from infected ticks that live in and near wooded areas, tall grass, and brush. Ticks are small, ranging from the size of a comma up to about one quarter inch and are sometimes difficult to see. The tick season extends from spring through summer Lyme disease has occurred in almost all states and is caused by ticks which have become infected with a type of spirochete bacteria. Standard field gear (work boots, socks and light-colored coveralls) provide good protection against tick bites, particularly if the joints are taped. The following precautions should be taken when working in areas that might be infested with ticks:

- When in the field, check yourself often for ticks, particularly on your lower legs and areas covered with hair. Look for "a freckle that moves".
- Spray outer clothing, particularly your pant legs, crotch, boots, and socks, BUT NOT YOUR SKIN, with an insect repellent that contains permethrin or permethrin.
- Follow manufacture's instructions if using an insect repellent on the skin. For sampling activities be aware of potential cross contamination of samples.
- When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible.
- If you suspect that a tick is present, remove it with tweezers only, and not with matches or a lit cigarette. Grasp the tick near the head with the tweezers and pull gently. Do not use nail polish or any other type of chemical. Be sure and remove all parts of the tick's body. Once removed, disinfect the area with alcohol or a similar antiseptic. Keep the tick in a plastic bag and report the incident to the SSHO.

- Look for signs of the onset of Lyme disease, such as a rash that looks like a bullseye or an expanding red circle surrounding a light area, frequently with a small welt in the center. This rash can appear from several days to several weeks after the tick bite.
- Also look for signs of the onset of RMSF, an inflammation which is visible in the form of a rash comprised of many red spots under the skin, which appears 3 to 10 days after the tick bite. The rash frequently occurs on the ankles and wrists.
- The first symptoms of either disease are flu like chills, fever, headache, dizziness, fatigue, stiff neck, and bone pain. If immediately treated by a physician, most individuals recover fully in a short period of time. If not treated, more serious symptoms can occur.

If any of the signs and symptoms noted above appear, contact the SSHO. Consult with a physician for an examination and possible treatment.

15.3.2 SNAKES

If bitten by a snake, remain calm and keep the affected area below the level of the heart and walk, do not run, to the nearest aid station for assistance. The SSHO will immediately transport the victim to the closest medical facility for treatment or send for appropriate medical assistance, whichever is faster.

THE USE OF SNAKE BITE KITS IS NOT AUTHORIZED. If at all possible, the snake should be identified to assure prompt medical treatment by the physician.

15.3.3 POISONOUS PLANTS

Site personnel will need to be alert to the presence of poisonous plants. The most common types of poisonous plant are poison ivy, poison oak and poison sumac. Skin contact with these plants can cause skin sensitization resulting in reddening, swelling and itching of the affected areas. Skin exposure can result from either direct contact with the plant or contact with clothing/equipment previously exposed to the plant.

Site personnel will receive training in the recognition of poisonous plants and methods for preventing exposure during the site specific safety briefing.

15.3.4 ANIMAL OR INSECT BITES

Animal bites or stings are usually nuisances (localized swelling, itching, and minor pain) that can be handled by first-aid treatment. The bites of certain snakes, lizards, spiders, and scorpions contain sufficient poison to warrant medical attention. In addition, there are several species of caterpillars that contain stinging hairs which may cause a rash on contact or respiratory distress if the hairs are inhaled.

There are diseases that can be transmitted by insect and animal bites (e.g., Rocky Mountain spotted fever, Lyme disease [tick], rabies [mainly dogs, skunks, raccoons, and foxes], malaria, and equine encephalitis [mosquitoes]). The greatest hazard and most-

common cause of fatalities from animal bites, particularly bees, wasps, and spiders, is from a sensitivity reaction. Shocks due to stings can lead to severe reactions in the circulatory, respiratory, and central nervous systems, which also can result in death.

Employee having a history of allergic reactions to bites will be required to have their prescribed treatment with them and notify first aid personnel where it is located. All stings or bites will be taken seriously. Anyone stung or bitten will be required to stop work while that person is observed for signs of severe swelling, shortness of breath, nausea, or shock. If there is any doubt, medical attention will be obtained.

All wild animals are to be avoided, particularly wild animals that are unusually passive or aggressive. Any such animals will be reported to appropriate site personnel. Skunks, raccoons, foxes, and bats are wild animals most frequently found to be infected with rabies; however, any warm-blooded animal could be infected. If an individual is bitten by an animal suspected of rabies infection, an attempt will be made to keep the animal under surveillance until appropriate assistance is called to take care of the animal. The animal should then be tested. A dead animal suspected of infection should also be preserved and tested. Health departments are often sources of testing or obtaining information about where testing can be done. The bite area should be washed with soap and water and disinfected with 70% alcohol as quickly as possible, followed by treatment by a doctor or emergency room. Rabies is preventable, even after being bitten, if treatment is begun soon enough. Hence, prompt medical attention and determining whether the animal that has bitten you is infected are very important. Rabies is not curable once symptoms or signs appear.

15.4 CONFINED SPACE OPERATIONS

A confined space is potentially any space which meets the following characteristics:

- Is large enough and so configured that an employee can enter and perform assigned work.
- Has limited or restricted means of entry or exit.
- Is not designed for continuous human occupancy.

A permit space additionally has the following characteristics:

- Contains or could potentially contain a hazardous atmosphere.
- Contains a material that could potentially engulf the entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated.
- Contains any other recognized serious safety or health hazard.

No confined space operations are planned for this project. WESTON's Confined Space Program, can be found in the Site Safety Officer's Manual maintained on-site.

15.5 EXCAVATION OPERATIONS

In accordance with OSHA requirements, all excavation activities will be in compliance with 29 CFR 1926 Subpart P, 8CCR 1541, and USACE EM 385-1-1, Section 25. Specific requirements include routine inspections by qualified competent personnel to verify safe work conditions, location of utilities, and appropriate worker knowledge of safe work practices. Section 14 contains detailed buried utility and excavation safety requirements.

16. UXO SAFETY PRACTICES

Unexploded ordnance (UXO) operations will be undertaken only by qualified Unexploded Ordnance Specialists. All persons within an established ESQD safety arc must be qualified and certified by the Weston Explosives Safety Manager to perform their assigned tasks. Specific ordnance safety requirements are contained in Section 11.2 and in the Work Plan.

17. SITE FIELD LOG BOOKS

A Major Permanent Job Record

- If completed in the recorder's handwriting, this document can be entered into a court of law without the person present.
- Entries should be legible and made in permanent ink.
- Errors shall be crossed out and initialed. Do not use white out or correction tape.
- Site Field Log Books shall be bound with sequentially numbered pages.
- Complete and maintain Site Field Log Books in accordance with work plan instructions.
- Turn completed Site Field Log Books into the Project Engineer for storage as a permanent record of daily activities.

What to Record

- Location, types, and approximate amounts of all identified ordnance material by grid and total for the site
- Results of suspected ordnance anomaly evaluations
- Detailed description, exact location, and disposition of all live ordnance items
- The Site Field Log Book can be used to substantiate a billing claim.
- The Site Field Log Book becomes a record of the project status on any particular date.
- Production, progress or major events should be recorded.

Examples of Normal Events to Record

- Name, assignment and hours of crew members.
- Names and affiliation of any visitors.
- Summary of daily activities.
- Instructions from Project Manager or Project Engineer.
- Samples or tests performed (i.e., air monitoring) record equipment serial numbers and results.
- Decontamination activities, vehicles or equipment removed from the site.
- Problems include discussion and resolution.
- Deviations from the work plan or other governing document (i.e., PPE changes) include authorization.
- Waste shipments, RFD, weights, containers, haulers, manifests, etc.
- Notifications to Underground Utility Locators (USA site sketches, etc.
- Confined Space Permits, record permit and test results.
- Documentation of required inspections: daily pre-excavation briefing or daily equipment inspections.
- Documentation of all required safety training for equipment used on site (e.g., chainsaws, vacuum excavator, etc.).

Examples of Unusual Events to Record

- Material deliveries.
- Growth or changes in work scope.
- Delays – anything effecting schedules or cost.
- Weather – rain, wind, storms, etc.
- Obstructions, conflicts, or disruptions.
- Accidents and near misses.
- Inspections – local and agency.
- Unusual work problems with discussions and solutions.
- Unexcused absences or tardiness.
- Visitors to the site - any observation noted.

Safety Meeting Sign-Off Sheet

(To be completed each day/shift prior to beginning work)

The Task Safety Analysis Card has been reviewed and completed for all recognized hazards.

| | |
|---|------|
| Site Supervisor / Site Safety Officer Signature* | Date |
|---|------|

*The Site Supervisor / Safety Officer certifies by signature that a comprehensive Site Hazard Assessment was performed on this date and the PPE requirements and the communication of all hazard information was performed. This process will be repeated at subsequent Safety Meetings and as site conditions change by revising the card.

| | | |
|------------------------------------|-----------|----------|
| Underground and overhead utilities | Yes _____ | No _____ |
| Hospital Route: | Yes _____ | No _____ |
| Poison Control Center: | Yes _____ | No _____ |
| Water faucet locations: | Yes _____ | No _____ |
| Fire hydrant locations: | Yes _____ | No _____ |

Attendees:

Team Members:

| <u>Name (Print)</u> | <u>Signature</u> | <u>Date</u> |
|---------------------|------------------|-------------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

Visitors:

| | |
|---------------------|--------------------|
| Name (Print): _____ | Affiliation: _____ |
| Signature: _____ | Date: _____ |
| | |
| Name (Print): _____ | Affiliation: _____ |
| Signature: _____ | Date: _____ |
| | |
| Name (Print): _____ | Affiliation: _____ |
| Signature: _____ | Date: _____ |

Personal Protective Equipment Used

Note: This form is to be completed at initiation of the project. Or; when a change in work conditions requires a change in PPE. This form is to be attached to Safety Meeting Sign off Sheet.

Work Description: _____

Level C PPE may include, but is not committed or limited to, the following as appropriate:

- Respirator: Check appropriate
- | | | | |
|------------------------------------|---|--|--------------------------------------|
| <input type="checkbox"/> Half Mask | <input type="checkbox"/> PAPR | <input type="checkbox"/> HEPA(P100) | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Full Face | <input type="checkbox"/> Negative Pres. | <input type="checkbox"/> Organic Vapor | (describe) |
| <input type="checkbox"/> Hood | <input type="checkbox"/> Supplied Air | <input type="checkbox"/> Acid Gas | |

If air-purifying respirators are designated for VOC's - cartridge change out shall be as follows:

- Every 8 hrs for unidentified VOC's @ < 5 ppm—expressed as benzene, detected with PID.
- Every 4 hrs for unidentified VOC's @ < 10 ppm—expressed as benzene, detected with PID.
- Hooded chemical-resistant clothing (disposable chemical-resistant overalls).
- Coveralls (Tyvek).
- Gloves, outer, chemical-resistant (Latex).
- Gloves, inner, chemical-resistant.
- Boots, outer, chemical-resistant steel toe and shank.
- Boot-covers, outer, chemical-resistant (disposable).
- Hard hat (under suit).
- Escape mask.
- Face shield with safety glasses
- Safety glasses

Level D PPE may include, but is not committed or limited to, the following as appropriate:

- Coveralls _____ (Tyvek, Saranex.
- Gloves _____ (Latex, Nitrile, Butyl, Niton.
- Boots/shoes, chemical-resistant, steel toe and shank.
- Boots, outer, chemical-resistant (disposable).
- Hard hat.
- Escape mask.
- Face shield with safety glasses
- Chemical splash goggles with face shield

Additional equipment required for each level of protection is as follows - (Check or write in)

| | Level C | Level D |
|--|---------|---------|
| Hearing Protection Single = S / Double =D | | |
| Meta-tarsal Guards | | |
| Full body harness | | |
| Other (list appropriate) | | |
| | | |
| | | |

Site Safety Officer: _____

Signature

Date

Supervisor Verification of Worker Training

The Site Foreman acknowledges by signature that the participating worker(s) have the required training and skills to operate the equipment required for the task(s) assigned, including all appropriate personnel protective equipment and that certification of training is current with assigned task date(s). If more than one supervisor oversees the completion of this work document each shall sign for the dates he/she was in responsible charge.

Verification of Worker Training Signoff Sheet

| Worker Assigned | Dates Assigned | Supervisor |
|--|---|--|
| Name: _____ Empl. No.: _____ Date: _____ | Beginning: / / Ending: / / | Name: _____ Empl. No.: _____ Date: _____ |
| Name: _____ Empl. No.: _____ Date: _____ | Beginning: / / Ending: / / | Name: _____ Empl. No.: _____ Date: _____ |
| Name: _____ Empl. No.: _____ Date: _____ | Beginning: / / Ending: / / | Name: _____ Empl. No.: _____ Date: _____ |
| Name: _____ Empl. No.: _____ Date: _____ | Beginning: / / Ending: / / | Name: _____ Empl. No.: _____ Date: _____ |
| Name: _____ Empl. No.: _____ Date: _____ | Beginning: / / Ending: / / | Name: _____ Empl. No.: _____ Date: _____ |
| Name: _____ Empl. No.: _____ Date: _____ | Beginning: / / Ending: / / | Name: _____ Empl. No.: _____ Date: _____ |
| Name: _____ Empl. No.: _____ Date: _____ | Beginning: / / Ending: / / | Name: _____ Empl. No.: _____ Date: _____ |

**Site Specific Health and Safety Plan
MCAS EI Toro IRP Site #1 EOD Range
Contract No. DAAD05-97-D-7004 – DO 124, Mod 1**

INSTRUCTIONS: This form is to be completed by each person prior to beginning work. The supervisor is responsible for providing training on all appropriate sections of referenced documents, which shall be maintained at the work site.

Work Order No.: _____

Project: _____

Location: _____

By my signature below, I acknowledge that I have read and understand the contents of the Site-Specific Health & Safety Plan, the Health and Safety Plan, the Emergency Response and Contingency Plan, in addition to all relevant sections of all referenced documents; and I agree to perform my duties accordingly.

Name

Signature
Date

| | | |
|-------|-------|-------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

cc:

WESTON Project Engineer, Weston Vallejo Site Office

UTILITIES SITE SAFETY FORM

Site: _____

| UTILITY | HAZARD TO WORK | VULNERABLE TO DAMAGE | POLLUTION HAZARD | LOCATION | DATE | SIGNATURE |
|--|----------------|----------------------|------------------|----------|------|-----------|
| Fiber Optic Local Area Network (LAN) Conduit | No | Yes | No | | | |
| Firefighting High-Pressure Mains | Yes | Yes | No | | | |
| Fresh Water Piping | Yes | Yes | No | | | |
| Fuel Oil Distribution Piping (inactive) | Yes | Yes | Yes | | | |
| High-Pressure Compressed-Air Piping* | Yes | Yes | No | | | |
| High-Voltage Above-Ground Electric Power* | Yes | Yes | No | | | |
| High-Voltage Underground Electric Power | Yes | Yes | No | | | |
| Industrial Wastewater Treatment Sewer Piping | Yes | Yes | Yes | | | |
| Natural Gas Piping* | Yes | Yes | No | | | |
| Saltwater Piping | Yes | Yes | No | | | |
| Sanitary Sewer Piping | Yes | Yes | Yes | | | |
| Steam Condensate Piping* | Yes | Yes | Yes | | | |
| Steam (hot) Piping* | Yes | Yes | Yes | | | |
| Storm Water Sewer Piping | No | Yes | No | | | |
| Telephone Lines | No | Yes | No | | | |
| Wheeler Vacuum System Piping | No | Yes | Yes | | | |
| Other: | | | | | | |

The Site Foreman or his designee shall complete this form and a hand-drawn sketch of the utilities USA identifies as present on the site. Include pipe size. (Note: Sketch may be drawn on Sheet 2 or a blank piece of paper).

* Record owner/operator point of contact stipulating that utility cannot be DE-ENERGIZED.
 USA Control Number: _____

UNDERGROUND UTILITY LOCATION SKETCH

Company: _____ Point of Contact: _____ Date: _____
Location: _____ Phone: _____
Description: _____ Fax: _____

