Final Site Health and Safety Plan

Unexploded Ordnance (UXO) Model Cleanup
Kaho'olawe Island, Hawaii

PACDIV Contract No. N62742-93-D-0610, Delivery Order No. 0015
OHM Project No. 17760
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Project Health and Safety

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FOR THE
SITE HEALTH AND SAFETY PLAN (SHSP)

1.0 INTRODUCTION

OHM Remediation Services Corp. (OHM), a subsidiary of OHM Corporation, has developed this Site Health and Safety Plan (SHSP) specifically for the Naval Facilities Engineering Command, Pacific Division (PACDIV) Contract No. N62742-93-D-0610, Delivery Order No. 0015 to perform UXO cleanup activities on Kaho'olawe Island, Hawaii.

This SHSP establishes the policies and procedures which protect workers and the public from potential hazards posed by work . OHM considers safety the highest priority during work potentially containing hazardous materials and has established a policy of minimizing exposure which must be upheld on all projects. All project activities will be conducted in a manner that minimizes the probability of injury, accident or incident occurrence. All OHM employees, subcontractors, and visitors are required to read and sign the applicable portions of the SHSP prior to entry.
This SHSP and all activities will be in compliance with the most current editions/revisions of the following regulations and guidelines:

- United States Department of Labor, OSHA Standards, specifically:
  - 29 CFR 1910
  - 29 CFR 1910.120 -- Hazardous Waste Operations and Emergency Response
  - 29 CFR 1910.1200 -- Hazard Communication
  - 29 CFR 1926 -- Health and safety Regulations for Construction
- DOSH Regulations
- United States Army Corps of Engineers (USACE), Health and safety Requirements Manual, EM 385-1-1, October 1992
- OP5 VOL 1, Ammunition and Explosives Ashore Safety Regulations for Handling, Storing, Production, Renovation and Shipping
- DOD 4145.26-M, DoD Contractor's Safety Manual for Ammunition and Explosives.
- DOD 6055.9-STD, DoD Ammunition and Explosives Safety and Standards
- ANSI/ASQC Q9004-1-1994, Quality Systems
- TB 700-4, Decon of Facilities and Equipment
- DOD 4160.1M
- ER 385-1-92, USACE Health and safety Requirements for HTRW and OEW Activities
- NAVSEA OP 2239, Motor Vehicle Driver's Handbook Ammunition, Explosives and Related Hazardous Materials
- NAVSEA OP 3681, Third Revision
- OHM Health and Safety Procedures Manual, April 1994 (available on island)

1.1 Purpose of the Model UXO Cleanup Project

The purpose of the Model UXO Cleanup Project is detailed in the Model Action Plan

1.2 Island History

The island's history is described in the Model Action Plan.

1.3 Scope of Work

The Model Action Plan outlines the Scope of Work.

Although the SHSP focuses on the specific work activities planned, it must remain flexible because of the nature of this work. Conditions may change and unforeseen situations may arise that require deviations from the original plan. This flexibility allows modification by the OHM project superintendent and health and safety officials to take into account changing conditions such as new data on chemical hazards, weather, and deviations to scope of work.

Changes to the SHSP must be approved before implementation by the Navy NTR, Safety Officer (SO), Project Health and Safety Manager (PHSM), and Project Manager or Project Superintendent and recorded on the Safety Plan Change Approval Form provided in Attachment A of this SHSP. This SHSP takes into account the information currently available from discussions with the project management team and materials provided by the Department of the Navy.

2.0 ORGANIZATION/RESPONSIBILITIES

This section discusses health and safety responsibilities of the Project Manager, Project Health and Safety Manager, Range Control Officer, UXO Safety Officer, BPI Safety Officer, Construction Safety Officer, and the BPI Senior UXO Supervisor. All OHM, NTR representatives, KIRC representatives, subcontractors, and visitors will be required to become familiar with and adhere to the requirements of this SHSP. The project health and safety organization is outlined in Figure B-1.

2.1 Project Manager (PM)

The OHM Project Manager, Mr. Todd Barnes, will be responsible for all health and safety practices performed by project personnel. The responsibilities of the PM include:

- Ensuring and enforcing compliance with the SHSP
- Ensuring entry to the Restricted Zone is controlled
- Ensuring project activities are coordinated so that they are performed in an efficient and safe manner, consistent with the SHSP
- Monitoring and revising the SHSP as necessary
- Ensuring ready access to and availability of all safety equipment

2.2 Project Health and Safety Manager (HSM)

The Project HSM is Deborah Dunkle Kemp. Ms. Kemp is a Certified Industrial Hygienist (CIH) with fifteen years experience. She will be responsible for review and approval of the SHSP, and will supervise and direct the activities of the OHM UXO Safety Officer and the OHM Construction Safety Officer.

Project Health & Safety Organization

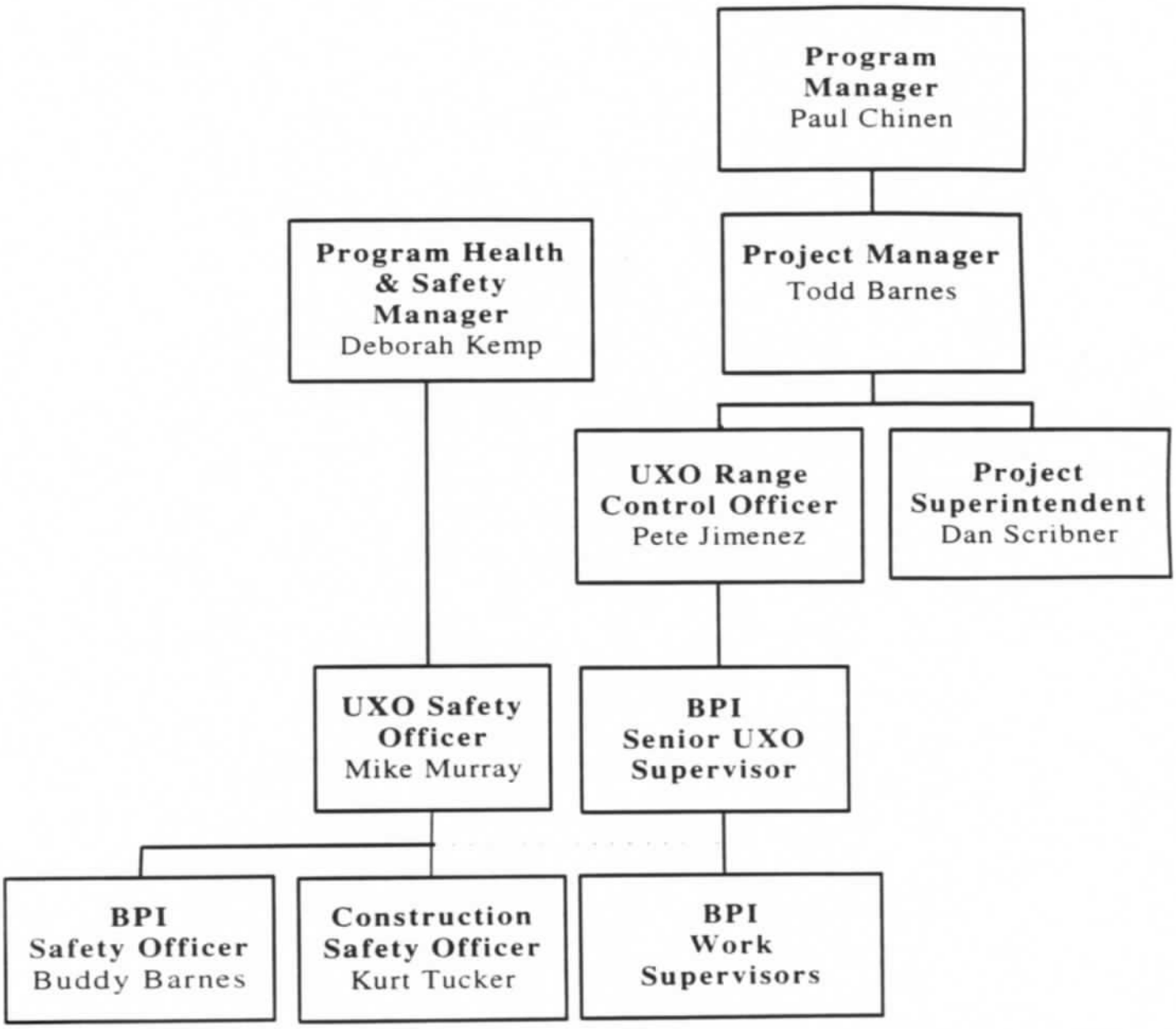

Figure B-1

2.3 OHM UXO Safety Officer (UXO SO)

The OHM UXO Safety Officer for the project is Mike Murray. Mr. Murray has twenty-two years of UXO/EOD safety experience. He is a graduate of the Naval School Explosive Ordnance Disposal, Indian Head, Maryland and is a Master Explosive Ordnance Disposal Technician. He is responsible to the Project Manager for the health and safety of all personnel during UXO activities in the Restricted and Exclusion Zone. The responsibilities of the UXO SO include, but are not limited to:

- Ensure maintenance of personal protective equipment
- Establish and monitor UXO procedures to ensure compliance with the SHSP and Work Plan
- Brief personnel on special hazards associated with UXO operations
  Conduct and document the daily necessary safety meetings
- Monitor the handling, storage, and control of UXO
- Coordinate safety requirements with all project safety personnel
- Coordinate emergency responses and MEDEVAC activities
- Conduct random safety checks
- Conduct UXO accident investigations
- Maintain a safety log
- Conduct and Document morning safety briefs

The UXO SO has stop work authority for any operation that threatens the health and safety of employees and subcontractors or causes adverse impact to the environment.

2.4 UXO Range Control Officer

The UXO Range Control Officer is Pete Jimenez. Mr. Jimenez has twenty years of UXO/EOD operations and safety experience. He is a graduate of the Naval School Explosive Ordnance and Disposal, Indian Head, Maryland and is a Master Explosive Ordnance Disposal Technician.

The UXO Range Control Officer is responsible for:

- Scheduling, control, security, and execution of all UXO clearance, demolition, destruction, transportation, storage, and disposal activities
- Coordination and control of all personnel access and/or materials movement to and from the island
- Coordinate UXO activities with the PS, PM, QC, and Safety personnel
- The Range Control Officer has stop work authority and can deny range access for any personnel for failure to comply with the SHSP, QC Plan, or SOPs

2.5 Construction Safety Officer

The Construction Safety Officer is Kurt Tucker. The responsibilities of the Construction Safety Officer are:

- Monitor field construction procedures to ensure compliance with the SHSP
- Brief personnel on special hazards associated with the project operations
- Monitor the handling and control of non-UXO hazardous materials
- Coordinate safety requirements with the PS, PM, and UXO Safety Officer
- Ensure maintenance of personal protective equipment
- Report monitoring results, accidents, injuries, etc. to the HSM
- Conduct routine safety inspections
- Conduct all non-UXO accident investigations

The Construction Safety Officer has stop work authority for all non-UXO operations.

2.6 Project Superintendent

The Project Superintendent is Dan Scribner. He will be responsible for road restoration and base camp infrastructure improvements. He maintains communication with the UXO Range Control Officer and the Project Manager. Mr. Scribner will assume the duties and responsibilities of the Project Manager when he is not on-island.

2.7 BPI Safety Officer (SO)

The BPI Safety Officer, Stuart (Buddy) Eanes, is responsible to OHM for overall health and safety of BPI personnel. Mr. Eanes meets the USACE requirements as a graduate of the U.S. Naval School of Explosive Ordnance Disposal, a Master UXO Technician/Instructor, with over 19 years of experience. Mr. Eanes is a nationally-registered Emergency Medical Technician.

Responsibilities include:

- Complete Confidential Personal Data forms on all BPI employees
- Ensure compliance with the provisions of the SHSP
- Conduct and document the daily morning safety meetings
- Provide and document training of employees regarding specific hazards
- Investigate accidents, incidents, and reports of unsafe actions or situations
- Conduct and document visitor briefings
- Conduct random safety audits of the operations and document findings in the Safety Inspection Log (Form 1.0024)
- Conduct safety inspections of the operations, document findings, and implement corrective action
- Provide weekly safety updates to the OHM UXO Safety Officer. This report will be made as soon as possible in the event of an accident or incident.

The BPI Safety Officer has the authority to temporarily stop work to correct safety deficiencies.

2.8 BPI Senior UXO Supervisor

The Senior UXO Supervisor is the most senior UXO-qualified BPI representative on-island. The Senior UXO Supervisor will monitor all aspects of the UXO project to ensure efficient performance of the approved Work and Health and safety Plans. The Senior UXO Supervisor has the authority to temporarily stop work to correct safety deficiencies. The Senior UXO Supervisor makes daily progress reports to the OHM Project Manager and is also responsible for monitoring on-island UXO project expenditures, finances, and equipment use and maintenance. The Senior UXO Supervisor meets the USACE requirements as a graduate of the U.S. Naval School of Explosive Ordnance Disposal; 40-hour and 8-hour Hazardous Waste Area Worker; Supervisor courses in accordance with 29 CFR 1910.120; and has at least 15 years of UXO experience, ten of which have been in supervisory UXO positions. Three years of documented UXO contractor experience may be substituted for three years of active duty UXO experience. Duties/responsibilities include:

- Responsible for project UXO work
- Responsible for compliance with all safety and work related SOPs, including the HSP
- Responsible for meeting schedule timelines and budgetary control amounts
- Responsible for all Federal and State compliance
- Coordinates with the BPI/UXB Safety Officer to ensure all safety considerations are being enforced

2.9 Personnel Responsibilities

All OHM, subcontractors, and visitors will be responsible to the PM, UXO Safety Officer, Range Control Officer, and the BPI Safety Officer for all activities. Personnel must:

- Comply with all aspects of the SHSP
- Follow the directions of the PM, Range Control Officer, UXO Safety Officer, and the BPI Safety Officer
- Notify the PM, Range Control, UXO Safety, or BPI Safety of hazardous or potentially hazardous incidents or working conditions
- Report all accidents, injuries and near-misses in a timely manner.

3.0 SAFETY PLAN

Personnel involved with this project will receive health and safety indoctrination and continuing training to enable them to perform their assigned tasks in a safe and efficient manner. The BPI Senior UXO Supervisor is responsible for implementing all safety plans and monitoring work performance of team members to assure personnel are observing health and safety rules. The Senior UXO Supervisor reviews all Safety Inspection Logs and takes the necessary corrective actions. The Senior UXO Supervisor also reviews all Employee Injury/Property Damage Reports.

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3.1 Indoctrination

Indoctrination will be based on the health and safety issues at Kaho'olawe and the tasks to be performed. All personnel will receive an overview of the objectives; they will be required to read and acknowledge understanding of the work/safety plan, and they will attend a briefing on the daily operations that will be conducted to meet the task objectives. Field operations personnel and supervisors will be encouraged to keep the lines of communication open to permit the free flow of information and exchange of ideas.

3.2 Training

Personnel assigned to or entering Kaho'olawe Island will receive the required training to safely conduct the Kaho'olawe clean-up operation. Documentation of training shall be provided to the NTR. Specialized, specific training will be documented on the Specialized Training Form. The following are the minimum training requirements:

- UXO Training - All UXO personnel will be graduates of the Naval Explosive Ordnance Disposal School, Indian Head, MD and must complete the 40 hour UXO refresher course approved by EOD TECHDIV.

- Escort Personnel must complete the 24 hour USNEODTECHDIV Escort Course.

- UXO Sweep Personnel must complete an Explosive Ordnance Reconnaissance Course.

- Hazardous Waste Operations and Emergency Response Training - 29 CFR 1910.120. All personnel operating in the Exclusion Zone must complete the OSHA 40 hour Hazwoper Course, an annual 8 hour refresher (required if the initial 40 hour training is over one year old), and 8 hour Supervisory Training, if applicable.

  All personnel operating in the Restricted Zone must have completed the OSHA 24 hour course.

- Specific Health and Safety Training - Specific Health and Safety Training will consist of: Project Organization, including names of personnel responsible for health and safety ; safety, health, and other on-island hazards; use of protective equipment; safe work practices expected; safe and effective use of on-island equipment; medical surveillance requirements, including recognition of symptoms and signs of exposure to hazards; decontamination procedures; and the emergency response plan.

- Specific Ordnance Awareness and Safety - Prior to on-island operations, all personnel shall view the 15-minute Ordnance Awareness tape provided by the U.S. Navy.

- Cultural Training - Prior to on-island operations, all personnel shall attend a cultural training class provided by the KIRC -- covering historical, cultural, and religious (HCR) issues pertinent to Kaho'olawe Island.

- Hazard Communications Training - This is an eight-hour training course. The principle of communicating the hazards of materials used in the workplace relates to all firm-wide activities -- from informational programs on the conduct of hazardous waste activities to the project's insistence upon adequate health and safety training. It is also important for all personnel to have an awareness of client concern for Hazard Communication due to Federal, State and local regulations directly affecting certain client activities. The project shall comply with all Federal and State Hazard Communication Standards. The Hazard Communication training may be incorporated into the specific health and safety training.

- Hearing Conservation Training - Personnel exposed to excessive noise levels will be provided training on the: physical and psychological effects of high noise levels; noise exposure limits; and selection, use, and limitations of hearing protection devices specified in the task hazard analysis for PPE requirements.

- Helicopter Safety Brief - For all personnel working around or flying in helicopters.

- First Aid and CPR - All safety officers shall have training in First Aid and CPR that is equivalent to the American Red Cross training.

- Bloodborne Pathogen Training - On-island personnel may be required to render assistance in providing first aid to a casualty. Training in controlling exposure to bloodborne pathogens will be provided to all personnel and will include the use of protective equipment, containment of waste, and waste disposal in accordance with OSHA 29 CFR 1910.1030.

- UXO Refresher - UXO personnel will be refreshed on the ordnance items known to be on-island. As additional ordnance is encountered, training will be provided to assure all UXO personnel are alerted to the additional hazards. The UXO SO will be informed of additional ordnance encountered and shall direct upgrades to PPE and sampling protocols, as deemed necessary and in conjunction with the project's CIH.

- SHSP - All persons entering the island will be trained on all hazards and the contents of this SHSP. All training documentation will be maintained on-island in the Training Log and will include: employee name, content of training, duration and date of training, and signatures of the employees trained.

3.2.1 Visitor Training

The Range Officer will be notified of the planned visit, number of visitors in the party, duration, and

purpose of the visit. All hazardous UXO activities will halt while visitors are present in the exclusion zone. All visitors to the island will receive a safety briefing that outlines the tasks being performed and the on-island hazards. Visitors will be briefed on the boundaries of the work areas, the procedures for entrance and exit from the area, emergency evacuation procedures and assembly points, environmental hazards, and biting insects. If required on-island, limited protective clothing items consisting of hard hats, toe caps, and safety glasses, will be provided. Visitors will be required to view specific ordnance awareness and safety tapes provided by the U.S. Navy. Visitors must also complete the required cultural training.

3.3 Safety Meetings

Meetings shall be conducted at least once a month for all supervisors on the project location and at least once a week by supervisors or foremen for all workers.

3.3.1 Tailgate Safety Meetings

Prior to entering and commencing work each day, all personnel must attend a morning safety briefing conducted by the appropriate Safety Officer. The briefing will include, at a minimum, the ordnance and hazards associated with the area and confirmed encounters with hazardous materials or ordnance to date. Briefings will be documented on the Safety Meeting Attendance Log.

As the project progresses, the briefings will include refresher discussions in the use of safety equipment, emergency medical procedures, emergency assistance notification procedures, accident prevention, and discussion of the work plan.

3.4 Medical Surveillance

Medical surveillance will be provided in accordance with 29 CFR 1910.120, and other applicable OSHA and DOT standards.

All personnel will participate in a medical monitoring program which consists of a baseline examination, annual re-examination, periodic review of exposure and health history, specific examinations when required for the duration of a project, and an exit examination upon completion of the project, if required.

All examinations shall be performed by or under the supervision of a licensed physician who is knowledgeable in occupational medicine. Exam/test results will be reviewed by the occupational physician.

The written opinion (medical certificates) of the attending physician will be maintained on island for OHM and on Maui for BPI.

3.4.1 Licensed Occupational Physician

All field personnel receive examinations that are conducted under the auspices of a board-certified occupational physician.

3.4.2 Medical Examinations

The examinations consist of a baseline health assessment consisting of medical and occupational history review, blood and urine tests for contaminants of interest, electrocardiogram, pulmonary function tests, chest x-ray, and general physical examination including hearing and vision. When specific requirements dictate, personnel comply with all applicable standards including 29 CFR 1910.120. Records of examination results are maintained at the respective Corporate Offices.

3.4.3 Termination Examination

Employees who terminate employment after having worked at a hazardous waste project area will be offered to undergo an examination equivalent to the baseline health assessment.

3.4.4 Exposure Monitoring

Exposure monitoring will be conducted during specific on-island tasks to evaluate hazards, to determine the required level of personal protection equipment, to ensure safe work practices are being implemented, and to determine the effectiveness of the control measures in effect. Exposure monitoring will include dust level and heat stress monitoring. All monitoring results will be submitted weekly or sooner if PEL's are exceeded.

3.5 Inspection Requirements

The following inspections for health and safety related issues shall be conducted by all the Project Safety Officers to ensure the requirements are in accordance with this Site Health and Safety Plan. Upon mobilization, the UXO SO will establish an inspection schedule that will efficiently cover these inspection requirements.

DESCRIPTION	TYPE	FREQUENCY
Personal Protection	Observation	Daily
Work Practices	Observation	Daily
Area Control	Observation	Daily
Emergency Response/ First Aid Equipment	Observation	Weekly

3.5.1 Reporting

The UXO SO will maintain all Safety Inspection Logs. A weekly written report will be prepared and submitted to the PM which will identify the task or area inspected, type of inspection, the number of demo operations, safety topics covered in the morning safety meetings, findings, actions implemented to correct discrepancies, and date for follow-up inspection, if required. Follow-up inspection results will be reported in writing to the PM.

3.5.2 Correction

The Senior UXO Supervisor will be briefed on the findings of each inspection conducted by the UXO safety officer, and he will review the Safety Inspection Logs. Actions to correct deviations in safe work practices will be implemented, and all personnel will be briefed on the findings.

Safety violations that could result in injury, occupational illness, or damage to equipment will be halted immediately by the UXO SO, the situation stabilized, and the Senior UXO Supervisor notified of the work-stoppage. Work will not commence until the safety issue is resolved and effective corrective action is implemented.

3.5.3 Follow-Up Inspection

The UXO SO will schedule a follow-up inspection to re-evaluate the task or area that failed to meet safety standards and assure the corrective action remedied the situation. At the conclusion of the follow-up inspection, the Senior UXO Supervisor will be briefed.

3.6 Health and Safety Work Precautions

In compliance with EM 385-1-1, the project shall require that employees be physically able, medically qualified, and trained to perform the tasks assigned; they must also be able to wear the protective clothing and devices required at the job area.

3.6.1 Personal Protective Equipment

Modified Level **"D"** will be the initial level of protection for each task conducted. The UXO SO, in conjunction with the project CIH, will make any applicable changes to the level of protection; there shall be no downgrading from Level D protection. Refer to Table 2 for the specific personal protective equipment (PPE) by task.

Slippery rocks are an additional hazard for operations conducted in low water mark areas. During operations in these areas, Level D PPE will be further enhanced with the addition of USCG approved personal flotation devices, which personnel will be provided and required to wear.

Personnel using protective equipment and devices will be trained and demonstrate proficiency in its proper wear, maintenance, inspection, and testing. They must be knowledgeable of the limitations of the equipment, as well as the reduced performance levels that may result from wearing the equipment while conducting assigned tasks.

Protective equipment must be maintained in a serviceable condition at all times; defective equipment will not be used. Before storage or reissuance to another person, equipment must be cleaned, disinfected, inspected, and repaired, as necessary.

All BPI UXO employees will wear highly-visible orange outer wear, pull-on shirts, long pants, or coveralls. Employees must wear clothing suitable for the weather and work conditions -- in hot weather conditions, personnel are authorized to wear orange colored T-shirts and Khaki pants in lieu of coveralls. UXO Supervisors Specialists and magnetometer personnel will have no metal parts in or on their footwear.

Hand protection will be worn while performing tasks that could result in injury such as cuts, scrapes, or skin contamination.

3.6.2 Foot Protection

Everyone in the Restricted Area must wear footwear conforming to ANSI Z41, steel toe or non metallic electricians' type shoes as appropriate unless specifically exempted in the Activity Hazard Analysis.

3.6.3 Eye and Face Protection

Eye protection that meets the requirements of the American National Standards Institute Standard Z87.1 will be used on the job area. Personnel requiring corrective lenses will be protected by eyeglasses with ANSI approved corrective lenses, or will wear goggles or face shield over normal eyeglasses.

Each work area will have an ANSI approved portable eye wash for use by personnel. Each unit will require daily inspection to ensure the water level is sufficient. Each unit will be filled and readily

TABLE 2
Personal Protective Equipment

TASK	PPE
Selective pruning and clearing	Level D, kevlar chaps, safety glasses or face shield, leather gloves.
Operations in restricted area	Level D, hearing protection around heavy equipment.
Helicopter transport	Level D , hearing protection as needed
Transport of equipment (Receiving equipment from helicopter)	Level D, hearing protection, goggles, helmet with chin strap.
Mobilization (moving heavy equipment)	Level D, hearing protection as needed
Site restoration and demobilization	Level D, hearing protection with high noise levels
Surface sweep*	Level D. Remove hard hat for UXO investigation, non-metal electrician type safety shoes
Ordnance identification*	Level D. Remove hard hat for UXO investigation, non-metal electrician type safety shoes
Magnetemeter Sweeps in excavation *	Level D. Remove hard hat for UXO investigation, non-metal electrician type safety shoes
Transportation of explosives	Level D.
Transportation of UXO	Level D.
Transportation to explosive holding area	Level D.
Conventional UXO disposal	Level D.
Road repair/maintenance	Level D.

SLEEVED

BASIC LEVEL D PPE: HARD HATS, LONG PANTS, SHIRTS, WORK GLOVES, SAFETY GLASSES, SAFETY BOOTS

NOTE: HARD HATS SHALL BE WORN DURING UXO OPERATIONS AS DIRECTED BY PACDIV-OSH MGR EXCEPT AS NOTED, EVEN IT THERE IS NO OVERHEAD HAZARD.

*CLOTHING MATERIAL MAY NOT BE MADE OF WOOL, SILK, OR SYNTHETIC TEXTILES

TABLE 2
Personal Protective Equipment

Driving ATV's	Level D, motorcycle helmet with full face shield or goggles.
Performing work adjacent to water	Level D.
Rock crusher operations	Level D, hearing protection.
Road improvements	Level D, dust mask as required.
Exhaust hood installation	Level D.
Composting toilet installation	Level D.
Unloading of MIC boats	Level D, personal flotation devices.
Electrical upgrades	Level D, non conducting shoes, insulating gloves, non conductive hard hat.
Air conditioner installation	Level D.
Reverse osmosis unit installation	Level D.

Note: Personal floatation devices will be worn during sweep operations between the high and low water levels.

BASIC LEVEL D PPE: HARD HATS, LONG PANTS, SHIRTS, WORK GLOVES, SAFETY GLASSES, SAFETY BOOTS
NOTE: HARD HATS SHALL BE WORN DURING UXO OPERATIONS AS DIRECTED BY PACDIV-OSH MGR EXCEPT AS NOTED, EVEN IF THERE IS NO OVERHEAD HAZARD.

available for immediate use in the event of an emergency. Each eye wash will be emptied and refilled in accordance with the manufacturers specifications for anti-bacterial additive.

3.6.4 Hearing Protection

The UXO Safety Supervisor will monitor noise levels when equipment or machinery is being used. Those working in areas where noise levels can be expected to reach or exceed 85 dBA, 8-hour TWA will be issued hearing protection to reduce the level below the threshold. The continuing hearing conservation program shall be administered in accordance with 29 CFR 1910.95.

3.6.5 Head Protection

All personnel working in or visiting the restricted zone, exclusion zone, or other hard hat area will be issued and *required to wear* protective headgear, meeting the ANSI Z89.1 standards. Hard hats will be required outside the support zone during all operations unless specifically exempted in the Activity Hazardous Analysis.

On a daily basis, headgear and components will be visually inspected for signs of cracks, dents, or other defects that may reduce the effectiveness of the equipment.

3.6.6 Personal Hygiene

Personnel will be briefed on the importance of maintaining good personal hygiene while working on-island. An adequate supply of soap and water will be provided so that personnel can wash hands and face prior to leaving the work area; personnel will be reminded to wash prior to eating or drinking after exiting the Restricted/Exclusion Zones.

3.7 Exposure/Physical Hazards

3.7.1 Heat Stress

Heat Stress manifests itself in four disorders. From the most severe to the least severe, they are: Heat Stroke, Heat Exhaustion, Heat Cramps, and Sunburn.

3.7.1.1 Heat Stroke

Heat stroke (sometimes called sun stoke) is the most serious of the heat stress disorders, and it is lethal in its most serious form. It results from excessively high body temperature, which disturbs or interferes with the body's own heat regulating system.

Normally, the body sweats, producing moisture for evaporation from the skin. As most individuals know from standing wet in a breeze, evaporation is an effective cooling process. During heat stroke, this perspiration evaporation cooling process is interrupted, resulting in the quick rise in a person's internal body temperature.

Continuous exposure to high temperatures for as little as three hours can produce heat stroke. RAPID COOLING IS URGENT TO PREVENT DEATH.

Symptoms of Heat Stroke - Any or all of these symptoms may be present:

- Body temperature is extremely high, often 106° Fahrenheit and above
- Skin is red, hot, and dry; sweating is absent
- Pulse is rapid and strong
- Convulsion or collapse is possible
- Delirium, disorientation, or unconsciousness is possible

If the person's body temperature is elevated to or above 104° Fahrenheit but sweating is occurring, the person is probably in a state leading to heat stroke -- the person should be treated for heat stroke.

Emergency Treatment for Heat Stroke

With the advent of heat stroke, immediate action must be taken if the life is to be saved.

- Call for emergency help
- COOL THE PERSON RAPIDLY

Remove the person from the heat stress area to an air-conditioned room, vehicle, or at a minimum to a shaded area. Remove the person's clothing and begin to bathe the body continuously with water, chilled if possible. Fans or air currents such as hand fanning will assist in the cooling evaporation process. If possible, submerge the body completely in chilled water and massage continuously. Apply cold packs, if available.

In the event the victim is in a remote location where it is difficult to immerse him in water, remove the victim's clothing and use a sponge and basin to bathe the body until help arrives. Monitor the victim's body temperature. When the back of the hand held against the victim's cheek indicates normal skin temperature, or when the internal body temperature reads 102° F or below, discontinue the cooling process and wrap the person in a blanket to prevent shock. If the person is conscious, let him sip liquids -- DO NOT give alcoholic beverages or stimulants, such as coffee or tea. If the person's body temperature begins to rise again, repeat the cooling process.

Prevention of Heat Stroke

The likelihood of heat stroke can be lessened by protecting the body from radiant heat, breaking the work day into short work/rest periods, and drinking enough fluids to replace those lost by sweating.

3.7.1.2 Heat Exhaustion

Heat exhaustion, also known as heat prostration or heat collapse, results when: 1) the circulatory system fails to sufficiently compensate for increased blood flow demands imposed by the need to cool

the body, and 2) dehydration is caused by profuse sweating. It is considered less severe than heat stroke. If recognized and treated immediately, heat exhaustion usually results in no permanent damage; failure to quickly treat heat exhaustion can lead to heat stroke.

Symptoms of Heat Exhaustion

- Body temperature is normal or slightly elevated
- Skin is clammy and pale, and there is moist, profuse sweating
- Pulse may be weak with low blood pressure
- The person is tired and weak
- The person may complain of dizziness or giddiness, and fainting is possible
- Possible muscle cramps
- Possible nausea or vomiting
- The mental state is generally rational

Emergency Treatment of Heat Exhaustion

- Seek medical help
- Move the victim into shade, an air-conditioned room, or a vehicle
- Have the person lie down
- Elevate the feet 8"-12"
- Loosen tight fitting clothing
- If the victim is conscious, have him sip a glass of electrolyte replacement solution: Gatorade, ERG, or Squincher. Repeat every 15 minutes to 1 hour; stop fluids if vomiting occurs.

If the symptoms persist or return, immediately summon medical assistance.

Prevention of Heat Exhaustion

To prevent heat exhaustion, schedule frequent rest periods. Replace lost body fluids by drinking electrolyte liquids every 15 minutes to one hour.

3.7.1.3 Heat Cramps

Heat cramps are muscle pains and spasms caused by the loss of salts (electrolytes) due to sweating over an extended period of time. Personnel working prolonged hours where profuse sweating takes place may experience heat cramps; simple replacement of lost fluids with water without electrolyte may be insufficient to prevent them. Although not life-threatening, the resultant painful cramps may hinder work or cause a potential hazardous situation, such as when working at heights.

Symptoms of Heat Cramps

- Seek medical help
- Painful muscle cramps and spasms

- Heavy sweating, vomiting, and or convulsions
- Normal, or near normal, pulse and blood pressure
- Irrational behavior

Emergency Treatment for Heat Cramps

- Quiet rest in a cool shaded area
- Gentle massage of affected area
- If the person is not vomiting, give electrolyte fluids every 15 minutes to one hour

Medical Treatment of Heat Cramps

If the heat cramps are not relieved by fluid intake and the symptoms persist, the victim should be transported to the nearest medical facility. Persistent symptoms may be symptomatic of heat exhaustion or the beginning of heat stroke.

Prevention of Heat Cramps

- Salt food more heavily than normal
- Drink electrolyte solutions
- Eat salty foods during heavy sweat producing activities. (Salt tablets are no longer recommended for general use)

If you are on a low sodium diet or are taking diuretics, consult your physician regarding the replacement of salts prior to field activities. Be sure to explain any such problems to the Senior UXO Supervisor.

3.7.1.4 Sunburn

Sunburn is the least serious but most common of the four heat disorders. It can cause painful, red, swollen, or blistered skin that may result in the inability to continue work. Advanced cases may require medical treatment and should be viewed as a precursor to more serious heat disorders.

Sunburn is usually a first-degree burn of the epidermis (first layer of skin). The effects of a sunburn may not be noticed or felt until many hours after exposure.

Symptoms of Sunburn

- Skin redness
- Pain
- Swelling
- Blisters, nausea, vomiting, chills (in severe cases)

Emergency Treatment of Sunburn

- Put cold water on the burned area as quickly as possible
- Severe burns should be submerged in cold water or soaked with wet cloths
- Elevate burned limbs
- Do not break a blister, as this increases the chance of infection

Medical Treatment of Sunburn

- Seek medical help if pain, chills, or vomiting persist

Prevention of Sunburn

The first line of defense against sunburn is to cover exposed parts such as the head, arms, and legs. If a job requires a great deal of exposure to the sun, gradually expose the skin to the sun for 20 minute intervals per day, extending the time as the skin builds its own natural protection in the form of a tan. If this is not possible, sun lotion, sun block, and sun shields should be used as a safeguard.

Lotion and ointments come in various degrees of protection. Personnel with fair skin, or those being exposed for the first time, should use maximum protection. The level of protection should be gradually reduced as the skin tans.

Over time, heavy sweating can reduce the protection levels of ointments and lotion. Personnel who experience heavy perspiration should reapply protection approximately every hour. It should be remembered that the ultraviolet rays of the sun can penetrate thin layers of cloud, so sun protection should be worn on days that are lightly overcast.

3.7.1.5 Heat Stress Monitoring and Work/Rest Cycle

The following procedures will be implemented during field activities conducted in hot weather -- when the temperature exceeds 70° Fahrenheit; these procedures are the responsibility of the individual work unit supervisor.

- Measure Heart Rate - Measurement of the heart rate will be conducted for 30 seconds as early as possible during the rest cycle. The rate should not exceed 110 beats per minute for most people. If the heart rate is higher during the next rest period, the following work cycle should be shortened 33 percent. The reduction in the work cycle will continue until the pulse rate reaches 110 beats per minute.

- Establish Work/Rest Schedule - The SO will monitor personnel every two hours at temperatures above 70°F and every hour at temperatures above 90°F. Cool drinks will be kept for worker consumption during rest periods.

The Senior UXO Supervisor will determine the appropriate work/rest schedule and ensure all workers take the appropriate breaks; additional breaks will be approved as necessary.

3.7.2 Poisonous Insects

Kaho'olawe Island's insect pests include: bees, wasps, spiders, centipedes, scorpions, and ants. Report all bites to the first aid personnel for medical attention and observation.

If a person is allergic to certain insect/spider stings/bites, his circulatory, respiratory, and central nervous systems can go into severe anaphylactic shock. The allergic person must:

- keep their prescribed medication with them at all times
- advise first aid personnel of the allergy and location of the prescribed medication

A delay in seeking immediate medical attention in personnel who are allergic to the insects, have hay fever, or asthma, can be fatal.

3.7.2.1 Spiders

Spiders -- including centipedes and scorpion -- inhabit Kaho`olawe Island.

The symptoms of a spider bite are:

- Slight local reaction or severe pain produced by nerve toxin
- Profuse sweating
- Nausea and painful cramps in the abdominal muscles

The majority of bites can be handled with basic first-aid treatment; the bites of certain spiders contain sufficient poison and will warrant medical attention.

Field personnel should use extreme caution when lifting items, since spiders are typically found in these areas. Personnel should exercise due care when working in the field, and they should shake out their boots before putting them on.

3.7.2.2 Other Insect Bites

Symptoms of an insect bite are normally a sharp, immediate pain in the body part bitten.

3.7.2.3 General First Aid for Poisonous Insect Bite

Bees and wasps inhabit Kaho`olawe Island.

1. Minor Bites and Stings

- Apply a cold pack to the affected area
- Apply soothing lotions, such as calamine as advised by an EMT or physician

2. Severe Reactions

- Give artificial respiration if breathing stops.
- Loosely apply a constricting band above the injection area on the victim's arm or leg (between the area and the heart). If medical care is readily available, leave the band in place; otherwise, remove it after 30 minutes.
- Keep the affected part down, below the level of the victim's heart
- Apply ice contained in a towel, plastic bag, or cold cloths to the area of the bite or sting.
- In case of a bee sting, remove and discard the stinging apparatus and venom sac.

3.7.3 Vermin

Ants and mice contaminate and destroy unprotected foodstuffs. Therefore, food must be stored properly. All food, regardless of perishability, will be refrigerated (this does not apply to canned goods). It is important that there be no eating in bed, as the crumbs will attract the ants and mice. Proper housekeeping and storage in the galley, mess areas, and berthing areas will prevent any serious ant or mouse related problems.

There shall be no eating or drinking in work areas; and all generated trash from breaks shall be placed in appropriate waste receptacles for daily disposal.

3.7.4 Feral House Cats

While presenting no significant health related threat, the feral house cats have frequent cat fights at night that are an irritation. Personnel shall not feed or pet the cats.

3.8 Infection Control

Bloodborne Pathogens are pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to: Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and Human Immunodeficiency Virus (HIV).

In the event of an accident or incident requiring first aid treatment, the following guidelines will minimize the transmission of bloodborne pathogens.

3.8.1 General Precautions

- Avoid eating, drinking, or smoking where exposure to blood or body fluids may occur.

- Minimize splashing, spraying, and spattering when potentially contaminated blood or body fluids are involved.

- Wash hands with liquid soap and running water before and after direct contact with the victim, after removal of gloves or any other personal protective equipment, and immediately after blood or body fluids come in contact with the skin.

3.8.2 Personal Protective Equipment for Inspection Control

Personal Protective Equipment is the first line of defense against bloodborne pathogens. The following protective equipment will be available for personnel administering first aid.

- Gloves - must be worn when hand contact with blood or other body fluids is possible or the care provider has non-intact skin areas on their hands.

- Masks/Eye Protection/Face Shields - will be worn when slashes, sprays, or droplets of blood or body fluids are likely to occur and contaminate the eyes, nose, or mouth of the care provider.

- Coveralls/Jacket - will be donned if the possibility exists for contamination of the body of the care giver.

To insure that equipment is used effectively, employees will adhere to the following practices when using personal protective equipment:

- Any garments penetrated by blood or other suspect infectious materials, are to be removed immediately, or as soon as feasible.

- All personal protective clothing/equipment shall be removed prior to leaving the work area and placed in a suitable container for decontamination and/or disposal.

- Disposable gloves are replaced as soon as practical after contamination or if they are torn, punctured, or otherwise lose their ability to function as an "exposure barrier."

- Potential exposure to the body of the care giver will require donning a coat or coveralls to provide protection.

3.8.3 Control of Contaminated Materials

All items that have been exposed to possible contamination will be collected, handled, and controlled. Possible items of concern are discarded bandages, personal protective clothing items, or soil that has been impregnated with body fluids or blood.

Material will be carefully collected and placed in "red" containers or plastic bags and appropriately labeled to identify them as potentially infectious. Containers and bags will be closeable, puncture-resistant if the discarded material has the potential to penetrate the container, and leak-proof if the potential for fluid spill or leakage exists.

The local medical facility will be contacted to assist in determining the disposition of the containers and bags containing the potentially infectious material.

3.8.4 Treatment for Exposure

- Wash contaminated area with liquid soap and running water for at least ten (10) seconds
- Report exposure to immediate supervisor to assure initiation of incident/infectious disease exposure reports
- Report to nearest medical facility for evaluation and treatment per hospital protocol

3.9 Lightning

Electrical storms occurring during the spring, summer, and fall; pose a safety hazard to field personnel. Since the storms are often fast moving, field personnel should watch for indications of electrical storms (forecasts should be covered in the morning safety briefing). National Weather Service shall be called 3 times daily by OHM to monitor weather conditions.

The distance to an electrical storm can be estimated by observing the interval between the lightning flash and the sound of the thunder. Since sound travels approximately 1,100 feet per second, an interval of 5 seconds corresponds to a storm distance of approximately 1 mile.

If caught in the open by an electrical storm, all personnel will immediately seek shelter in their vehicle and proceed to the base camp for further instructions. In the event that their vehicle is inaccessible, personnel should follow these rules:

- Move to a topographically low area away from tall objects and conductors (trees, transformers, fences, pipelines, power lines, metal sheds) and wait for the storm to leave the area.

- If you feel your hair stand on end (an indicator that lightning is about to strike), drop to your knees and bend forward, putting your hands on your knees. Do not lie flat on the ground (be wary of seeking shelter in washes, ravines, or gullies during heavy downpours because of the risk of flash floods).

3.10 Emergency Equipment

The UXO work supervisors shall maintain an emergency eye wash station and a Class 1A-10BC fire extinguisher at each work location. This equipment is as required in all personnel transport vehicles.

3.11 Hazard Identification/Evaluation

The identification of hazards or suspected hazardous conditions must be identified to assure workers are properly protected. All employees must be alert in identifying hazards at the work area and notifying supervisory personnel.

Supervisory personnel will determine the impact or risk that the potential hazard poses to the work force, environment, or local community. The NTR shall be informed of new hazards as they are identified. The hazards and exposure prevention procedures will be reviewed and all personnel and NTR informed of the findings.

3.11.1 Chemicals

This section covers potential chemical contaminants. The island is not believed to be contaminated with any hazardous substances. However, in the event an unexpected situation is encountered, the possibility exists that hazardous substances may be present at or above the act in level or TLV. The Safety Officer, in conjunction with the Health and Safety Manager, will use his judgment in evaluating and taking proper action to deal with any unexpected conditions.

A list of contaminants present at Kaho'olawe Island is shown in Table 1. Permissible exposure limits (PEL) and Threshold Limit Values (TLV) are also identified in Table 1. This list was compiled from information provided by the Department of Navy regarding ordnance known to be present on the island. Analytical information from qualitative sampling conducted on Kaho'olawe and provided by the Navy was reviewed to determine air monitoring requirements for the project.

Exposure to these chemical hazards may occur through inhalation, dermal absorption, or accidental ingestion. Inhalation could occur during operations that may generate airborne dusts, vapors, gases, or mists. During this project, no contact or exposures to hazardous chemicals is expected above the PEL or TLV. However, if hazardous chemicals are encountered, appropriate measures will be implemented to control any potential uptake or absorption when handling chemicals or contaminated soils. If control measures are not feasible, respiratory protection determined appropriate by the Construction Safety Officer in consultation with the Health and Safety Manager will be used.

If chemicals are present in subsurface soils, inhalation and dermal exposure may occur during such operations such as trenching or grading. If unanticipated chemical contaminants are detected, potentially exposed personnel will use appropriate protection and good personal hygiene practices to minimize risks from these exposures.

Because no hazardous chemicals are believed to be present at, it is anticipated that all work will be

conducted in Level D personal protection. The level of protection may be upgraded by the Safety Officers in consultation with the Health and Safety Manager. If any new hazardous materials or hazardous chemicals are brought on-island, a copy of the MSDS will be provided to the Health and Safety manager and the Safety Officer and NTR for review and assessment of impact on the level of PPE required.

3.11.2 Exposure Monitoring

Particulate contaminants are expected to be the potential contaminants of concern through via the inhalation pathway due the hot, dry conditions on Kaho'olawe. Direct reading instruments for dust will be used to monitor the potential exposures to respirable dust, and to determine the 8 hour time weighted average exposure to dust. The PEL for dust is 10 mg/m3. All monitoring will be documented, and all monitoring equipment will be calibrated daily before use in accordance with manufacturers' instructions.

Table 1
Chemical Contaminants

CONTAMINANT	OSHA PEL	ACGIH TLV	DERMAL ABSORPTION
Ammonium Nitrate	NE	NE	No
Antimony Sulfide*	0.5 mg/m3	0.5 mg/m3	No
Ballistite	NA	NA	NA
Barium Nitrate	0.5 mg/m3	0.5 mg/m3	No
Barium Peroxide	NE	NE	No
Black Powder	NE	NE	No
Calcium Resinate	NE	NE	No
Charcoal	NE	NE	No
Chloroacetophenone	0.3 mg/m3	0.3 mg/m3	No
Dibutylphthalate	5 mg/m3	5 mg/m3	Yes
Dinitrotoluene*	1.5 mg/m3 (5 kin)	0.15 mg/m3	Yes
Diphenylamine	NA	10 mg/m3	No
Hexachloethane-Zinc	10 mg/m3	9.7 mg/m3/(skin)	Yes
Iron Oxide, Ferric	10 mg/m3	5 mg/m3	No
Lead Azide*	0.15 ppm	0.15 ppm	Yes
Lead Thiocyanate	NA	NA	NA
M7 Powder	NA	NA	NA
Magnesium Aluminum Alloy	10 mg/m3	10 mg/m3	No
Magnesium Powder	10 mg/m3	10 mg/m3	No
Mercury Fulminate*	0.05 mg/m3	0.05 mg/m3	Yes
NH Powder	NA	NA	NA
Nitrocellulose	NE	NE	No

Table 1 (continued)

CONTAMINANT	OSHA PEL	ACGIH TLV	DERMAL ABSORPTION
Nitrogen	NE	NE	No
Nitroglycerin	0.1 mg/m3	0.46 mg/m3 (SHA)	Yes
Pentolite	NA	NA	NA
PETN	NE	NE	Yes
Polyvinyl Chloride	NE	NE	No
Potassium Perchlorate	NE	0.1 mg/m3	Yes
Potassium Nitrate	NE	NE	No
Potassium Chlorate	NE	NE	Yes
Red Phosphorus	0.1 mg/m3	0.2 mg/m3	No
Sodium Nitrate	NE	NE	No
Sodium Oxalate	NE	NE	No
Starch	NE	10 mg/m3	No
Strontium Nitrate	NE	NE	No
Strontium Peroxide	NE	NE	No
Sulfur	NE	NE	No
Tetryl	NE	NE	Yes
Titanium TetraChloride	NA	NA	NA
Trinitrophenylmethylnitramine	NA	NA	NA
Trinitrotoluene	NE	0.5 mg/m3	Yes
White Phosphorus	0.1 mg/m3	0.1 mg/m3	No
Zinc Oxide	NA	NA	NA
Zirconium	5 mg/m3	5 mg/m3	No

NA = not available
NE = not established

* Data identified in literature search

4.0 DECONTAMINATION PROCEDURES

This section describes the procedures necessary to ensure that both personnel and equipment are free from contamination when they leave the work area.

Exterior surfaces of small equipment (e.g. air monitoring equipment, shovels, hard hats) may be wiped down with a damp cloth.

4.1 Personnel Decontamination

Decontamination of personnel shall be accomplished to ensure that any material, which personnel may have contacted in the exclusion zone, is removed.

4.1.1 Level "D" Dry Decon Procedures

Wash hands and face.

4.2 Personal Hygiene

Before any eating, smoking, or drinking, personnel will wash hands and face. Washing facilities with soap will be available in the support zone.

4.3 Equipment Decontamination

All heavy equipment to be decontaminated will be hand washed. Small equipment will be hand washed clean of dust.

4.4 Waste Handling

Simple trash will be segregated from hazardous waste and disposed of as (non-hazardous) trash.

4.5 Emergency Decontamination

In the event of an emergency requiring decontamination, the OHM Range Control Officer will be immediately notified. The OHM Range Control Officer will have a Safety Officer and an emergency decon team dispatched to the incident. The Safety Officer will determine the level of decon required to safely clear the incident.

5.0 HEALTH AND SAFETY WORK PRECAUTIONS

A preliminary evaluation of each major task to be performed on Kaho`olawe Island has been identified and the hazards associated with performance of the task. **Appendix 4** identifies the Tasks Hazardous Analysis, and protective equipment to be implemented to mitigate the associated hazards.

Evaluation of the work areas and potential hazards are an ongoing process and will continue for the duration of the project. Protective measures/controls for UXO are contained in the work plans.

5.1 General Safety Precautions

Personnel working with UXO or explosives shall comply with the following general precautions:

- Do not carry fire or spark-producing devices.
- Do not eat, drink, chew gum or tobacco, or smoke in work areas.
- Do not have fires for heating or cooking, except in authorized areas.
- Do not conduct operations without approved operating procedures and proper supervision.
- Do not become careless by reason of familiarity with ammunition.
- Do not conduct UXO operations during electrical, sand, or dust storms.
- Avoid contact with suspect chemical hazards.
- Alert team personnel of a suspected or potentially dangerous situation. If an alarm sounds (denoting the presence of a strong nauseating odor) or if fire or smoke are visually observed, all personnel are to evacuate the area and notify the Senior UXO Supervisor.
- Be aware of monitoring equipment, wind direction, nearest water source, evacuation routes, emergency communication, and notification procedures.
- Personnel working in the search area will be restricted to the minimum of two -- the buddy system will be in effect at all times.
- A first aid kit, portable eye wash, and fire extinguisher will be readily available while in the work area.
- Conduct work during daylight hours only.
- 29 CFR 1926.100 requires personnel to wear protective helmets in areas where there is the possibility of head injury from impact, falling or flying objects, electrical shock, or burns.

- All personnel shall be aware of the potential for slips, trips, and falls; always be aware of the placement of your feet. When working off of the ground on large pieces of equipment, maintain at least three points of contact with the equipment.

- A UXO Specialist (or higher level) must be present when excavation operations are being performed.

5.2 Communications

Communications procedures are outlined in the UXO Cleanup Plan (**Annex A**).

6.0 EQUIPMENT SAFETY

Operation of mechanical equipment, motor vehicle, and heavy equipment on the job presents the potential for physical injury. Personnel must be alert to this possibility and observe safe operating procedures at all times. Equipment safety will be in accordance with the most current revision of EM 385-1-1. Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested by a competent person and certified to be in safe operating condition. Vehicles used for transportation of UXO/explosives will be inspected in accordance with EM 385-1-1 Section 16 and 29 and NAVSEA OP 3681 on Form DD 626.

6.1 Motor Vehicles

The guidelines listed in Section 18 of EM 385-1-1 will be observed for operation of motor vehicles and trailer use, including but not limited to:

- Motor vehicle operators will possess a valid permit.

- Vehicles will be inspected prior to use and daily thereafter to assure parts, equipment, and accessories are in safe operating condition and free from apparent damage. Vehicles not meeting the safety standards will be removed from service until the defect is corrected.

- All towing devices will be properly mounted and adequate for the weight drawn.

- No vehicle will be driven on a downgrade with gears in neutral or clutch (if appropriate) disengaged.

- No vehicle will be left unattended until after the motor has been turned off, parking brake set, and the gears engaged in low, reverse, or park.

- Park vehicle towards emergency egress route. Turn wheels so that if vehicle rolls; it will roll towards the area of most resistance, thus stopping the vehicle in the shortest distance.

- A signal person will be used for backing or maneuvering when the: operation area is not in full view, vehicles are backed more than 100 feet, terrain is hazardous, or two or more vehicles are backing in the same direction.

- No person will be permitted to ride with arms or legs outside the vehicle body or while standing on the vehicle body, running boards, or off of the rear of the vehicle.

- Each team vehicle will be equipped with a first aid kit and fire extinguisher.

- Each vehicle transporting personnel will be equipped with proper seats.

6.2 Power Equipment

The guidance provided in Section 16 (Machinery and Mechanized Equipment) of EM 385-1-1 shall be followed when using power tools. These guidelines include but are not limited to:

- Power tools will be procured from a manufacturer listed by a nationally-recognized testing laboratory; the tools will be designed for the specific application on which they are to be used.

- Power tools will be used, inspected, and maintained in accordance with the manufacturer's specifications.

- Equipment will be inspected, tested, in good repair, and equipped with all safety devices to assure it is in safe operating condition prior to use.

- Ground fault circuit interrupters GFCI's will be used with all portable power tools.

- Protective clothing recommended while using the equipment will be made available and used by the operator. Loose and frayed clothing, loose long hair, or dangling jewelry will not be worn while operating power tools.

- Kevlar chaps, hard hats, face screens/shields or safety glasses and hearing protection, will be worn while operating chain saws and weed eaters.

- Chain saw operators will not raise the chain saw above shoulder height.

- Fuel on the work area will be stored a minimum of 50 feet from established break areas. Fuel cans will be placed on drop cloths and absorbing material (when needed). Five cans will be the self closing type and equipped with spark arresters. The cans will be stored in direct sunlight or near any source of heat. Two ABC fire extinguishers will be readily available.

6.3 Hand Tools

The guidelines outlined in Section 13 (Hand and Power Tools) of EM 385-1-1 shall be adhered to when selecting and using hand tools:

- Hand tools will be used, inspected, and maintained in accordance with the manufacturer's specifications
- Tools will be inspected, tested, in good repair, and equipped with all safety devices to assure they are in safe operating condition prior to use
- All powered hard tools will be protected with GFCI.
- Only non-sparking tools will be used in locations where sources of ignition may cause a fire or explosion
- Protective clothing recommended for use while using the equipment will be made available and used by the operator
- Throwing tools from one person to another is not permitted

6.4 Heavy Equipment

The following guidelines for heavy equipment operation are provided in section 16 of EM-385-1-1 and shall be followed for heavy equipment operation. These guidelines include but are not limited to:

- Operation will be limited to authorized and specifically trained personnel who have demonstrated proficiency in its use.
- Operator will visually inspect the equipment prior to placing it into daily use. Equipment will not be placed in service until the noted defects have been corrected.
- Safety devices provided with the equipment will be in good operating condition and used by the operator -- including seat belts, back-up warning devices, and horns.

- Personnel not directly involved with the operation being performed will remain clear of heavy equipment operations. Personnel assisting in the operation will avoid being in the direct path of the operational equipment.

- Additional riders will not be allowed on the equipment unless the machine is equipped with a seat and seat belts and is designed for additional riders.

7.0 EQUIPMENT CALIBRATION

Measurement equipment will be checked for operational reliability and calibration prior to shipment to the field. The equipment operators are responsible for preventative maintenance checks, calibration, checkout, and recording the operational condition of the equipment in the permanent project file. The Supervisor will assure the checks are accomplished and will record the daily test grid checks in the Daily Activities Log.

All equipment shipped to the field will be dedicated solely to the project until the project is complete. If equipment field checks indicate that any piece of equipment is operating incorrectly and field repair cannot be made, the equipment will be immediately tagged and removed from service. Replacement equipment will meet the same specifications for accuracy and sensitivity as the equipment removed from service.

8.0 UXO SAFETY

There is no "safe" procedure for dealing with UXO, merely procedures which are considered least dangerous. However, maximum safety in any UXO operation can be achieved through adherence to applicable safety precautions, a planned approach and intensive supervision. Only those personnel absolutely essential to the operation shall be allowed in the restricted area/exclusion zone during UXO activities (DoD 6055.9-STD). Safety must become a firmly established habit when working with UXO. The U.S. Army Corps of Engineers, Huntsville Division, Safety Concepts and Basic Considerations for Unexploded Explosive Ordnance (UXO) Operations in Appendix 5 shall be used as a guide for all UXO related activities.

8.1 Geophysical Safety Precautions

Personnel conducting surface and subsurface investigations will adhere to the following safety precautions:

- Devices used to mark contacts will not be placed directly on the point of magnetic disturbance

- Personnel will maintain a sweep line and follow the directions of the UXO Specialist to assure proper coverage of the area

- Instrument probes will not be permitted to make contact with a suspected hazardous item, but probes will be placed as close as possible to the ground
- Probe must remain free of dirt and debris that can comprise instrument readings
- Instruments will be properly calibrated prior to use and field tested on a daily basis

8.2 Hazardous Ordnance Items

Items encountered and determined hazardous through on-island EOR evaluations and hazard assessments will be flagged and recorded in the Senior UXO Supervisor's daily field log. Hazardous items will be secured by the UXO specialist and reported to the OHM Command Center to determine course of action. The determination to proceed must take into full account Personal Protective Equipment (PPE) that may be required and approved by the Range Control Officer.

Recovered munition items that are determined by a minimum of two UXO specialist to be potentially hazardous but lack the designed means to function or are damaged beyond the point of functioning may qualify as scrap and can be declared safe for a UXO specialist to move it to an explosive holding area. WP and pyrotechnic munitions will not be transported to the UXO Explosive Holding Area.

If an item is evaluated and its status is questionable, UXO personnel will consider the item dangerous and dispose of it in place.

8.3 Hazardous Materials

Any other discovered hazardous materials or hazardous waste residues will stop work. The Range Control Officer, UXO Safety Officer and the Senior UXO Supervisor will immediately be notified to determine a course of action and the proper PPE.

9.0 RANGE CONTROL

Range control will be especially important in emergency evacuation situations. Range control procedures will be implemented to reduce worker and public exposure to potential hazards while UXO operations are being conducted.

The Exclusion Zone (EZ) will consist of an area surrounding the location where UXO operations are to be conducted. The Exclusion Zone will be established to prohibit non-essential personnel from accessing the UXO operational area during intrusive activities.

The dimensions of the zone will vary in accordance with area conditions. No unauthorized personnel will be admitted to the EZ. The perimeter of the zone will be visually monitored for possible entry by non-team members.

Operations will not start until an area scan for personnel outside the zones has been completed.

10.0 SANITATION

Personnel will be briefed on the importance of maintaining good personal hygiene while working on-island. An adequate supply of soap and water will be provided to allow personnel to wash their hands and face prior to leaving the area. Personnel will be reminded to wash prior to eating or drinking after working.

Personnel will maintain the facilities in a clean, neat, and sanitary condition at all times. The following facilities and equipment will be provided:

10.1 Drinking Water

An adequate supply of drinking water will be provided at all work areas. An approved water supply will be stored in portable water coolers. Coolers will be marked to show contents. Disposable cups will be used to dispense the water from the water cooler. Waste containers will be provided to dispose of paper/plastic cups.

Water shall not be obtained from any other sources on the island.

10.2 Latrine Facilities

Personnel will use the provided latrine facilities in lieu of the natural surroundings. Facilities provided meet the requirements of OSHA and GN 385-1-1.

10.3 Washing Facilities

Washing facilities will be supplied with potable water and handi-wipes.

10.4 Waste Disposal

All work areas will be equipped with trash receptacles for administrative waste.

11.0 FIRES

Dry grasses, foliage, and trees are the principal fire risks. The primary fire protection issues are the protection of life and personnel safety, the protection of historic, religious, and cultural areas (HCRs); and the protection of facilities.

11.1 Fire Protection

In operational areas, the following shall be adhered to for UXO sweeps and ordnance operations:

- Where necessary and if approved, cut grasses to height of 4 inches or less to provide a minimum fire break clearance zone of 50 feet surrounding equipment and personnel staging and operations areas.

- Align fire breaks with natural separations in grasses and barren areas to the maximum extent possible to take advantage of naturally occurring fire breaks.

- Demolition areas should be cleared of grasses to the maximum extent possible, consistent with UXO operational orders and personnel safety.

- Employ pressurized water type fire extinguishers to wet peripheral grasses in UXO operations areas, as needed, to reduce the risk of fire to personnel and to prevent fire from spreading.

- In the event of an uncontrollable grass fire, exit the area quickly to preclude possible injury.

11.2 Fire Fighting Procedures

Personnel shall report all fires immediately. Personnel may attempt to put out incipient stage fires with fire extinguishers if they are trained to do so, and can do so safely without endangering themselves or other personnel.

11.2.1 Restricted/Exclusion Zone Fire Plan

- Report fire immediately to OHM Command Center

- Attempt to put out fire with fire extinguishers and other work equipment without endangering personnel.

- Exit area immediately if fire becomes uncontrollable. Retreat to a safe distance, preferably upwind.

- UXO supervisor will direct exit in consideration to UXO hazards.

- The Range Control Officer will direct immediate evacuations using all resources available to ensure the safety of personnel.

- Range Control Officer will direct fire trucks and/or helicopter with water bladders as appropriate.

11.2.2 Base Camp Fire Plan

The camp manager is directly responsible for the operational preparedness and fire fighting

capabilities of personnel assigned to fire fighting duties. The following procedures are guides for combating actual and/or training type fires:

- When a fire is detected or suspected, personnel in immediate danger shall be warned while spreading the alarm for assistance

- Other than assigned fire party, personnel shall muster with the camp manager at the edge of the base camp near LZ-Smuggler's Cove and shall stand by to give assistance as directed by the camp manager.

- Upon notification of fire, a fire party shall be assembled and shall take appropriate fire fighting action as directed by the camp manager. The camp manager will investigate suspected fire and take appropriate action as required, i.e., determine type of fire, direct fire party, evacuate personnel, secure electrical power, etc.

- Upon completion of regularly scheduled fire drills and/or as directed by Kaho'olawe Project Officer for on-island users, the camp manager will log all particulars concerning said drill for future reference. Any problem areas shall be rectified immediately.

- Upon completion of and/or containment of actual fire, the camp manager will notify COMMAVBASE as to cause and extent of damage, identify injuries (Note: follow MEDEVAC procedures) and post fire watch for at least three (3) hours to guard against flarebacks.

- Grass fires outside Smuggler's Cove area should be monitored for possible hazard to camp facilities -- due to possible presence of live ordnance. Actual fire fighting should be limited to protection of these facilities with personnel safety foremost.

To ensure fire safety awareness, on-island personnel utilizing Smuggler's Cove facilities will be assigned to the camp manager for indoctrination as to fire fighting duties. Subsequent to this, a surprise fire drill conducted by the camp manager will be initiated during the first two days on the island. The senior person present will be notified of the drill.

12.0 ACCIDENTS

Protection of personnel working in a hazardous environment must include: personnel selection, training, protective clothing, hazard analysis, medical monitoring, accident reporting and investigation, and record keeping. The nature of the work can result in accidents or incidents, regardless of the safeguards. Injury and illness records for each location are maintained by the Human Resources Department at the Corporate Headquarters.

12.1 Responsibility for Investigation

All accidents, including near-misses, associated with this project, on or off-island, will be reported, investigated, and analyzed. Information reflected on the report forms will be the basis to investigate the accident, analyze the cause, and identify the corrective action to be implemented to prevent similar occurrences. The PM and Senior staff members, selected by the executive managers will conduct the investigation.

12.2 Reports (and Reporting Responsibility)

The Respective Safety Officers are responsible for implementing all safety plans. They also maintain records on all health and safety issues and assure reportable accident and incident reports are submitted in a timely manner. All accidents shall be reported to the on-site NTR in accordance with NAVFAC guidance (Appendix 9), summarized below:

Tier I - Serious Contractor Mishaps

Any accident involving a fatality or hospitalization of 3 or more workers must be reported to OSHA within 8 hours.

Tier II - Significant Mishaps

1. Falls $\geq$ 4' resulting in lost time accidents or property damage of $10K or greater.
2. Electrical mishaps which resulted in lost time, property damage $\geq$ $10K, fire department or emergency medical treatment (EMT) assistance.
3. Confined spare mishaps which resulted in a lost time; property damage of $10K or greater; fire department or EMT assistance.
4. Diving mishaps which resulted in lost time; property damage of $210K, fire department or EMT assistance.
5. Crane mishaps which result in lost time, property damage $\geq$ $10K.
6. Trenching/entrapment mishaps which involved a depth of four feet or greater and resulted in lost time due to unstable soil, angle of repose, escape routes, etc.
7. Hazmat/waste mishaps which resulted in lost time, fire or explosion $\geq$ $10K cleanup costs.
8. Equipment mishaps resulting in lost time, property damage $\geq$ $10K involving motorized equipment, tar kettles, backhoes, compressors or lifts.
9. Fire mishaps which result in lost time; property damage $\geq$$10K.
10. Any mishap which resulted in a lesson learned that may affect government contracts or affect a new OSHA standard.

All notification shall be reported to the Project Manager and respective Safety Officers within 24 hours and investigated.

Tier III: General Contractor mishaps reported to PACDIV Site Manager/NTR within 5 working days.

12.2.1 Exposure Data

Regardless of severity, employees are responsible for immediately reporting all occupational illnesses, abnormal conditions, or disorders caused by exposure to environmental factors associated with the work area. The immediate supervisor must document the incidents; medical treatment will be provided to determine the nature of the illness and cause.

12.2.2 Accident Data

Reporting will be accomplished by completing the Employee Injury/Property Damage Report Form.

Employees are responsible for reporting all injuries (cuts, fractures, sprains, or amputations), incidents, and safety infractions to their immediate supervisor as soon as possible. Immediate supervisors will notify the Senior UXO Supervisor, who within 24-hours will notify appropriate Corporate office.

The following reporting criteria must be used. Refer to PACDIV Reporting Hierarchy in Appendix 9.

- Death (must be recorded regardless of the length of time between the injury and death)
- One or more lost workdays
- Restriction of work or motion
- Loss of consciousness
- Transfer to another job area
- Medical treatment required (other than first aid)
- Vehicle accidents
- Property damage

12.2.3 Logs

The Senior UXO Supervisor will document accidents, incidents, and exposure data in the log books that control specific tasks. The log entries will be as complete as soon as possible -- carefully recording as many facts concerning the accident/incident as possible. Log entries are invaluable when completing the accident forms and notifying responsible personnel and/or agencies. Other logs maintained on-island include: Training, Daily Safety Inspections, Equipment Maintenance, Employee/Visitor Register, Environmental, Personnel Exposure Monitoring with results, and Visitor Safety Briefings.

The following logs, reports, and records will be developed and maintained by the SO. Appendix 6 contains recordkeeping forms.

- Daily Safety/Tailgate Meetings
- Phase Safety Plan/Hazard Analysis

- Training Logs - specific and visitors
- Project Safety Checklist
- Project Site Safety Inspection Checklist (weekly)
- Daily Heavy Equipment Safety Inspection Checklist
- Portable Fire Extinguisher Checklist
- Employee/Visitor Sign-in
- Accident/Injury/Illness Report Form, Witness Form
- Injury/Illness Status Report
- Notice of Lost Time Injury/Death
- OSHA 200 Log
- OSHA Federal Poster #2203 or DOSH equivalent
- Contractor QC Report.
- Equipment certification form

12.3 Medical and Other Emergency Services

This section provides an overview of the emergency procedures that may be implemented for the Kaho'olawe Island Model Cleanup.

12.3.1 Project Emergency Coordinator

The OHM Project Emergency Coordinator or an alternate will implement this contingency plan in the event of an explosion, fire, medical emergencies, or whenever conditions on Kaho'olawe Island warrant such action. The coordinator will be responsible for ensuring emergency treatment and emergency transport of personnel as necessary. The coordinator will also notify emergency response units and appropriate management staff. The Project Emergency Coordinator will be Mr. Mike Murray, OHM UXO Safety Officer, and the alternate will be Mr. Pete Jimenez, OHM UXO Range Control Officer.

12.3.2 Emergency Services

A tested system shall exist for the implementation of emergency services. The OHM UXO Safety Officer and BPI SO will verify daily that all phone systems properly function, that radio communications properly function, and that all personnel are familiar with emergency procedures prior to commencing work.

Two State of Hawaii Emergency Medical Technicians-Paramedics (MICT) will be on-island to support the project. Emergency first-aid will be performed as deemed necessary. All medical emergencies requiring further medical treatment will be flown to Maui Memorial Hospital by helicopter.

12.3.3 Project Communications

Communications among all work crews, MEDEVAC helicopter, Navy representatives, the MICT, and the OHM Command Center will be by radio. Communications shall be tested daily prior to the commencement of work.

12.3.4 Medical Emergency Procedures

Only qualified personnel shall give first aid and stabilize an individual needing assistance. Life support techniques such as CPR and treatment of life threatening problems such as airway obstruction, and shock will be given top priority. At least two persons certified in First Aid techniques and CPR will be on-island at all times. The Safety Officer will be current in First Aid and CPR. First aid will be administered in accordance with the universal precautions required by the OSHA Bloodborne Pathogens Standard. Professional medical assistance shall be obtained at the earliest possible opportunity. Personnel mobilizing to the island will fill out a medical survey questionnaire to identify potential medical emergencies. The SO will maintain these questionnaires.

Figure 11-1 is provided as a decision aid for emergency treatment. The following procedures should be observed if an injury occurs:

- Minor Injury
  - Contact Supervisor or "buddy"
  - Treat injury
  - Investigate injury and record information on accident/injury forms as appropriate
- Medical Emergency/Trauma
  - Personnel will render first aid as necessary.
  - Works area supervisor to notify OHM Command Center immediately and request MEDEVAC if required.
  - Work area supervisor will survey scene and evaluate whether the area is safe for entry
  - Work Area supervisor will direct the removal of the sick/injured person(s) from immediate danger.
  - Work Area supervisor will monitor and direct helicopter approach to safe location. Direct personnel to avoid the aircraft and assist MICT with MEDEVAC.
  - OHM Command Center will alert Maui Memorial Hospital to receive casualty and to provide MEDEVAC emergency information. Refer to MEDEVAC emergency information sheet, Appendix 6.
  - Site will be secured until accident investigation is conducted.

Should multiple injuries occur, additional air ambulance services will be requested through Mercy Air Hawaii and/or the Joint Rescue Coordination Center.

- Fatal Injury

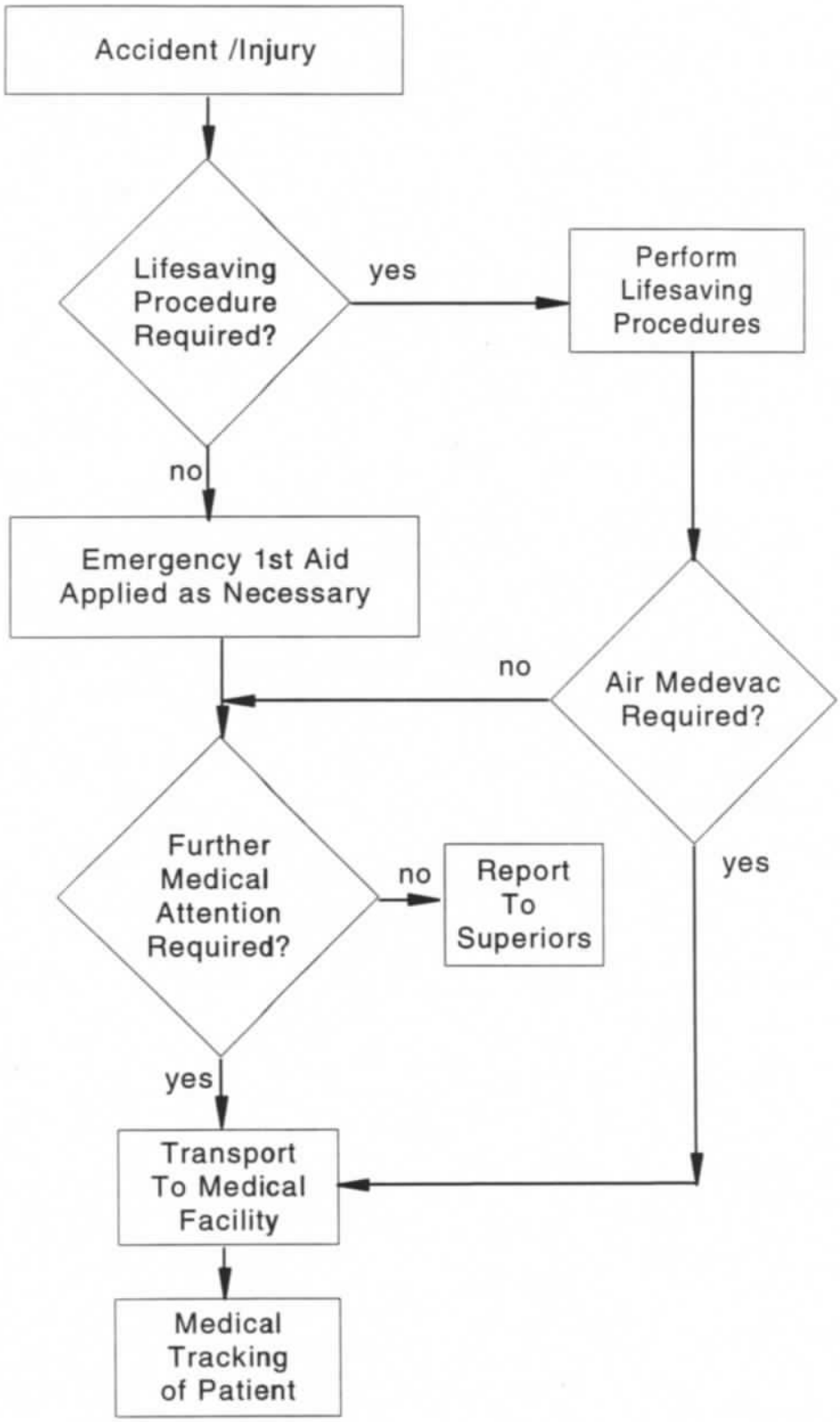
  - Notify OHM Command Center immediately
  - Clearance operations will be suspended and area secured for investigation
  - Notify Project Manager, Project HSM and OHM Program Office who will initiate contact with OSHA and other appropriate agencies
  - Notify COMNAVBASE Pearl Harbor (N-3) and PACDIV Code OOK within one hour
  - Assist OSHA as directed

12.3.5 Emergency and Hospital Information

Primary MEDEVAC Service	On standby on Kaho'olawe at Smugglers's Cove Available daily during clearance operations Initiate request through OHM Command Center
Secondary Air Ambulance	Mercy Air Hawaii, Inc. Maui Office 1-800-200-0909 1-808-244-1466 Joint Rescue Coordination Center 1-800-541-2500
Primary Facility	Maui Memorial Hospital 221 Mahalani - Wailuku 1-808-242-2343 Emergency Room 1-808-242-2036 Hospital Administration
Secondary Facility	Queen's Medical Center 1301 Punchbowl Street Honolulu, Oahu, HI 1-808-547-4311 1-808-538-9011
OHM Project Manager	Todd Barnes 808-471-1125
OHM Range Control	Pete Jimenez 808-471-1125
OHM UXO Safety	Mike Murray 808-471-1125
Health and Safety Manager	Deborah Kemp 808-471-3183

Figure 11-1

Emergency Response



12.3.6 Other Emergency Services

For other emergency services, each work crew will have radio communications with the OHM Manager, who will contact other emergency response personnel as required.

12.3.7 Evacuation Procedures

Evacuation from work areas, if required, will be directed along approved paths. During evacuation, any equipment left will be placed so as not to impede emergency escape and evacuation along cleared pathways. Evacuation routes from each work area will be discussed by the work supervisor as part of the daily briefing. Worldwide Services will be included in all evacuation plans and details.

12.3.7.1 Storm and Tsunami Warning

COMNAVBASE, PEARL HARBOR (N-3) and PACDIV Duty Officer will notify OHM Command Center or Base Camp Manager of impending storm and/or Tsunami conditions by telephone or other appropriate means. Storm conditions will be set by COMNAVBASE, PEARL HARBOR after they receive notice that sustained winds of 50 knots (57.5 mph) or more are expected as follows:

a. Storm Condition IV - within 72 hours
b. Storm Condition III - within 48 hours
c. Storm Condition II - within 24 hours
d. Storm Condition I - within 12 hours.

12.3.7.2 Tsunami

The OHM Command Center/Base Camp Manager will notify all supervisor personnel and provide instructions on how and where to proceed.

12.3.7.3 Storm Action

The PACDIV Manager/NTR (Mr. Clyde Higa), the Base Camp Manager and the OHM Project Manager (Mr. Todd Barnes) will make the decision to evacuate the island as weather conditions deteriorate. The following actions are based on COMNAVBASE, PEARL HARBOR STORM CONDITIONS:

<u>Condition IV (72 hours)</u>

- PACDIV Manager/NTR, OHM Project Manager and Base Camp Manager will make the decision on when to begin and the order of the evacuation.

- Base Camp Manager will take action to secure the Base Camp area.

- OHM will take action to secure the restricted zone.

- Helicopter transport will be arranged and coordinated by the OHM Command Center.

- BPI Personnel will return to Maui and be transported to Maui Civil Defense shelters or other safe areas by BPI management.

- OHM Personnel will return to Oahu and return home or be directed to Oahu Civil Defense Shelters by OHM Management.

- Base Camp Personnel (World Services) will proceed to those locations directed by World Services Management.

- NAVBASE/PACDIV/EODTECHDIV personnel will return to Oahu to those locations identified by their respective management.

- KIRC personnel will be evacuated to Maui or Oahu as directed by the KIRC.

A list of Oahu and Maui Civil Defense shelters are listed on pages B46 and B47.

12.3.7.4 Emergency Phone Numbers

PACDIV Command Duty Officer		
OHM Remediation Services	-	808-471-1125
BioGenesis Pacific, Inc.	-	808-533-2225
UXB	-	800-803-3338
COMNAVBASE Duty Officer	-	808-474-9201
COMNAVBASE (N-3)	-	808-474-4762
Maui Civil Defense	-	808-243-7721
Oahu Civil Defense	-	808-523-4121
National Weather Service	-	808-973-5286/5280
Pacific Tsunami Warning Center	-	808-689-8207
Marine Weather Service	-	808-836-3921
Air Traffic Control - Kahului	-	808-877-0725
National Poison Control Center	-	808-362-3585
FAA Honolulu	-	808-541-1238
US Coast Guard	-	808-424-8802
Maritime Police	-	808-587-2000
Maui County Police	-	808-244-6400
US Coast Guard Searches & Rescue	-	808-541-2450
PACDIV OSH Manager	-	808-474-7066/6734

OAHU SHELTERS

HURRICANE/TROPICAL STORM SHELTERS

Shelters will be opened selectively depending on storm severity.
Listen to radio and television for shelter designations and opening schedule.

NORTHSHORE (KAENA PT.-KAHUKU)

Kahuku High and Intermediate
Kahuku Elementary
Waialua High and Intermediate

WINDWARD COAST (KAHUKU-MAKAPUU PT.)

Brigham Young University-HC
Castle High
Heeia Elementary
Kahaluu Elementary
Kahuku High and Intermediate
Kahuku Elementary
Kailua High
Kaiaheo High
Kaneohe Community Park
Kaneohe District Park
Keolu Elementary
Kapunahala Elementary
Parker Elementary
Pope Elementary
Puohala Elementary
Waiahole Elementary
Waimanalo Elementary and Intermediate
Waimanalo District Park

CENTRAL OAHU (WAHIAWA-MILILANI & VICINITY)

Iliahi Elementary
Kaala Elementary
Kipapa Elementary
Leilehua High
Mililani High
Mililani-Uka Elementary
Mililani-Waena Elementary
Wahiawa Elementary
Wahiawa Intermediate

PEARL CITY-SALT LAKE & VICINITY

Aiea High
Ailamanu Intermediate
Halawa District Park
Highlands Intermediate
Lehua Elementary
Moanalua High
Palisades Elementary
Pearl City High
Radford High
Red Hill Elementary
Salt Lake Elementary
Waiau Elementary
Webbling Elementary

LEEWARD COAST (MAKUA-WAIPAHU & VICINITY)

August Ahrens Elementary
Campbell High
Ewa Elementary
Honowai Elementary
Ilima Intermediate
Kaleiopuu Elementary
Kanoelani Elementary
Leihoku Elementary
Makaha Elementary
Makakilo Elementary
Nanakuli Elementary
Nanakuli High
Waipahu High

SALT LAKE-PUNCHBOWL & VICINITY

Central Intermediate
Dole Intermediate
Farrington High
Fern Elementary
Hawaiian Mission Academy
Kaahumanu Elementary
Kalakaua Intermediate
Kalihi-Kai Elementary
Kalihi-Uka Elementary
Kapalama Elementary
Kauluwela Elementary
Kawananakoa Intermediate
Lanakila Elementary
Likelike Elementary
Maemae Elementary
Moanalua High
Nesi Blaisdell Center
Pauoa Elementary
Roosevelt High
Royal Elementary
Stevenson Intermediate

PUNCHBOWL-WAIALAE & VICINITY

Anuenue Cafetorium
Hawaiian Mission Academy
Jefferson Elementary
Kaahumanu Elementary
Kaimuki Intermediate
Kuhio Elementary
Liholiho Elementary
Liliuokalani Elementary
Manoa Elementary
Manoa Recreation Center
McKinley High
Neal Blaisdell Center
Noelani Elementary
Palolo Elementary
Palolo Pavilion
Roosevelt High
Stevenson Intermediate
Waialae Elementary
Waikiki Elementary
Wilson Elementary

AINA HAINA-HAWAII KAI & VICINITY

Aina Haina Elementary
Hahaione Elementary
Kaiser High
Kamiloiki Elementary
Koko Head District Park
Niu Valley Intermediate

OAHU CIVIL DEFENSE AGENCY

City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

MAUI

ATTN: MIKE MURRAY

APPENDIX A (revised 5/1/94)

EMERGENCY CENTERS/SHELTERS
LIST OF QUALIFIED STATE, COUNTY, AND OTHER STRUCTURES
COUNTY OF MAUI

A. ISLAND OF MAUI

HAIKU	
1. HAIKU SCHOOL	105 Pauwela Road, Haiku
HANA	
2. HANA SCHOOL	Hana Highway, Hana
KAHULUI	
3. KAHULUI SCHOOL	410 Hina Avenue, Kahului
4. LIHIKAI SCHOOL	355 South Papa Avenue, Kahului
5. MAUI COMMUNITY COLLEGE	Kaahumanu Avenue, Kahului
6. MAUI HIGH SCHOOL	660 Lono Avenue, Kahului
7. MAUI WAENA SCHOOL	795 Onehee Avenue, Kahului
KIHEI	
8. KIHEI SCHOOL	250 E. Lipoa Street, Kihei
9. LOKELANI SCHOOL	250-A E. Lipoa Street, Kihei
KULA	
10. KULA ELEMENTARY SCHOOL	Kula Highway, Kula
LAHAINA	
11. LAHAINA INTERMEDIATE SCHOOL	Lahainaluna Road, Lahaina
12. LAHAINALUNA HIGH SCHOOL	Lahainaluna Road, Lahaina
13. PRINCESS NAHIENAENA SCHOOL	816 Niheu St., Lahaina
MAKAWAO	
14. KALAMA SCHOOL	120 Makani Road, Makawao
15. MAKAWAO SCHOOL	Baldwin Avenue, Makawao
PAIA	
16. PAIA SCHOOL	Baldwin Avenue, Paia
PUKALANI	
17. PUKALANI ELEMENTARY SCHOOL	2945 Iolani Street, Pukalani
WAIHEE	
18. WAIHEE SCHOOL	Kahekili Highway, Waihee
WAILUKU	
19. BALDWIN HIGH SCHOOL	1650 Kaahumanu Avenue, Wailuku
20. IAO SCHOOL	1910 Kaohu Street, Wailuku
21. WAILUKU ELEMENTARY SCHOOL	
355 High Street, Wailuku	

B. ISLAND OF MOLOKAI

1. KILOHANA SCHOOL	Kam V Highway, Ualapuc
2. KUALAPUU SCHOOL	Farrington Highway, Kualapuu
3. MOLOKAI HIGH SCHOOL	Farrington Highway, Kualapuu

C. ISLAND OF LANAI

1. LANAI SCHOOL	Fraser Street

12.3.8 Spill Response Procedures

OHM anticipates a low potential risk of hazardous materials spillage. The appropriate spill response materials will be staged in the area(s) where liquids are stored, and have a potential to be spilled:

- Determine a spill has occurred.
- Notify the Superintendent.
- Identify protective clothing or equipment required to respond.
- Contain the spill.
- Over excavate to clean soil/sand.
- Contain the spill materials.
- Notify NTR immediately.

13.0 PREVENTION OF ALCOHOL AND DRUG ABUSE

13.1 Scope and Intent

All employees participating in this project are subject to the provisions of this policy.

The primary objective in adopting this policy is to contribute to the maintenance of a safe and productive work environment. We believe that it is in the best interest of the project and its employees to maintain a work environment in which the health and safety of employees and guests are protected. This policy requires the Project to maintain a drug and alcohol-free work environment. This drug and alcohol policy shall be administered in accordance with all applicable Federal, State, local, and corporate guidelines.

13.2 Responsibilities and Prohibitions

13.2.1 Employees

All employees are prohibited from manufacturing, distributing, using, or possessing prohibited drugs or unauthorized alcohol in any manner on company property, project area, or at any time during employment.

Reporting to work, working, or being on company property under the impairment or constructive impairment of drugs, medications, or alcohol in any form is prohibited. The term "impairment" means to be under the influence of a drug or controlled substance so that motor senses (sight, hearing, balance, reflex, or reaction) are adversely affected or may be presumed to be so affected.

All employees are covered by this policy and will receive a copy of this policy plus drug information discussed in the Employee Assistance Program (EAP).

Project personnel taking prescription medications or with known allergies or allergic reactions to medication shall notify their respective Safety Officer.

13.2.2 Supervisors

Supervisory responsibilities include: participating in communicating this policy to their employees, identifying any employee behavior that indicates a violation of this policy, and reporting to management when he/she has reason to believe this policy may have been violated.

Every supervisor covered by this policy will have received training that will assist in identifying performance indications of probable drug use.

13.3 Test for Prohibited Drugs

It is a violation of this policy for an employee(s) or prospective employee(s) to test positive for a prohibited drug.

Drug tests will be conducted in a confidential manner, according to procedures adopted by the company and in compliance with applicable law.

13.3.1 Refusal to Test

Any employee refusing to submit to a required drug test, including refusal to sign a written release or inspection under all sections of this policy, may be removed from his/her position and subject to discipline -- up to and including termination. Any employee that does not report to the collection area within 24-hours of notification is considered as refusing to test and will be subject to discipline -- up to and including termination.

13.3.2 Violation of a Policy Provision

Any violation of the provision of this Substance Abuse Policy by an employee will result in disciplinary action -- up to and including termination.

13.4 Failure of a Drug Screen and Retesting

Any employee testing positive for a prohibited substance may be removed from his/her position and subject to discipline -- up to and including termination. Within 60 days of notification of the positive result, an employee may request (in writing) a second analysis be performed on the original urine specimen.

The employee may also request the retest be performed by a different NIDA certified lab, as long as the original laboratory follows the approved custody transfer procedures. The employee may be required to pay for the cost of any re-analysis; unless the retest is negative.

13.5 Rehabilitation

An employee with an alcohol or substance abuse problem prior to testing positive for a prohibited substance may be referred to a rehabilitation facility. The employee may be responsible for all charges associated with rehabilitation. Upon acceptance of the offer for rehabilitation, the employee must adhere to the requirement of the rehabilitation program. Any failure to adhere will result in discipline up to and including termination. An employee testing positive for a prohibited substance will be removed from the safety-related position and subject to discipline -- up to and including termination.

13.6 Return to Work

An employee testing positive for a prohibited substance may be returned to his/her position if he/she successfully completes the rehabilitation program, passes a drug test, and receives the recommendation for reinstatement from the Team's senior management. Subsequent to completion of rehabilitation, any failed drug screen will result in immediate termination.

13.7 Types of Tests

Drug testing will be conducted, as required by Title 49 CFR 391, for the following prohibited drugs -- marijuana, cocaine, opiates, amphetamines and phencyclidine (PCP). In addition to the tests below, the Management reserves the right to periodically test an employee or work location at its discretion.

13.7.1 Periodic Testing

Each employee is required to submit a urine specimen for drug testing in compliance with corporate policies.

13.7.2 Random Testing

All temporary or full-time employees working in positions covered by this policy are subject to un-announced, random-selection testing:

- Management may randomly select and test at least 50% of the temporary employees on a periodic basis; all will be subject to this random test at least every two years. A person may be randomly picked more than once, or not at all, during the annual period.

- To ensure that the selection process is random, 50% of the temporary and full-time employees covered by this policy may be placed in a common pool.

- The random selection procedure will be a computer based number generator that is matched with an employee's identification number (assigned and maintained by Management).

The selection procedure may select sufficient additional numbers (names) to be used to reach a cost-effective appropriate testing number of participants during a test period. These alternate numbers (names) will be tested in order of selection only if persons selected are unavailable for testing due to vacations, medical leave, or travel requirements. Upon completion of the random selection, the Team will contact the employee to notify and ensure that the selected employees provide urine samples in accordance with this policy.

13.7.3 Post-Accident Testing

In the event of an accident (as defined below) that may warrant post-accident testing, the employee will contact his supervisor and the Corporation Program Coordinator. The Program Coordinator is responsible for having the supplies available and coordinating the appropriate collection area for conducting all drug screenings. Management shall assist the company Program Coordinator in any manner that is reasonably requested. All reportable accidents shall be reported to the appropriate government agency.

The employee will be tested as soon as possible, but not later than 32 hours after an accident; because certain drugs or drug metabolites do not remain in the body for extended periods of time, testing should be conducted as soon as possible. The following guidelines will prevail:

- A reportable accident is any accident involving intrastate or interstate commerce resulting in a death, bodily injury to a person who immediately receives medical treatment away from the accident location, or property damage totaling $4,400.

- An employee must supply a urine specimen for drug testing following a reportable explosive accident.

- If an employee refuses to provide the urine specimen, or if the test results are "positive," the employee shall be disqualified for a one-year period. The employee will be advised in writing that the refusal to provide the urine specimen or the "positive" test results are a disqualifying violation.

- All reasonable steps will be taken to obtain a urine sample from an employee after an accident. In case of a conscious but hospitalized employee, the hospital or medical facility will be requested to obtain a sample, and if necessary, reference will be made to the Department of Transportation drug testing requirements. If a driver is unconscious or otherwise unable to evidence consent to the procedure, the medical facility shall collect the sample.

- If a driver who is subject to post-accident testing is conscious, able to urinate

normally (in the opinion of a medical professional) and refuses to be tested, he will be removed from duty as an employee covered by this policy and subject to discipline--up to and including termination.

13.7.4 Reasonable Cause Testing

When there is reasonable cause to believe that an employee covered by this policy is using a prohibited drug, the employee will be required to take a drug test. Reasonable cause means that the supervisor believes that the employee's appearance or conduct is indicative of the use of drugs.

The actions or observations of the employee must occur while the employee is on duty. The decision to test must be based on specific contemporaneous physical behavioral, or performance indicators of probable drug use. Examples include: evidence of repeated errors on the job, regulatory, company or city rule violations, or unsatisfactory time and attendance patterns coupled with a specific contemporaneous event that indicates probable drug use. The conduct, appearance, or actions of the employee should, if at all possible, be observed by two supervisors or Corporate officials. If only one supervisor or official is available, one is sufficient. The supervisor(s) or official must have received training in detection of probable drug use by observing the employee's behavior; this training is obtained through the company's Employee Assistance Program.

The employee must be immediately taken to a collection area, and a urine sample obtained.

The employee's action that causes the supervisor or official to require the test must be documented and signed by the witness within 24-hours after the behavior is noticed.

13.7.5 Return to Duty Testing

An employee who returns to work, at the recommendation of a Medical Review Officer (MRO) and in cooperation with the Program Coordinator, will be given unannounced drug tests as scheduled by the MRO. This schedule is confidential and shall be filed in a secure place. The time period for "return to duty" testing will not exceed 60 months. All testing will be done in accordance with drug testing regulations. These "return to duty" tests are in addition to the other types of tests stated in this policy.

An employee will not be returned to active status until such time as the company determines.

An employee who rejects treatment or who leaves a treatment program prior to being properly discharged will be immediately terminated regardless of whether participation is voluntary or mandatory.

No employee will be eligible for more than one drug abuse treatment, as described under this policy.

The recurrence of any positive test (random, return to duty, etc.) or a drug problem will result in termination.

13.7.6 Testing Procedures and Review of Drug Testing Results

Drug testing -- for marijuana, cocaine, opiates, amphetamines, and phencyclidine -- will be performed utilizing urine samples.

A pre-employment applicant who is offered a position covered by this policy may be required to report to a drug testing collection area within 32 hours of notification and provide a specimen of his/her urine.

Upon notification that a drug test is required, an employee will report as soon as possible but not later than 24 hours (32 hours for post-accident) after notification to the drug collection area and provide a urine specimen.

The collection agency shall adhere to all requirements outlined in 49 CFR Part 40, "Procedures for Work Place Drug Testing Program."

13.8 Administration and Record Keeping

The Program Coordinator will be responsible for the Team's Anti-Drug Program records. The following records will be retained:

- Negative Result -- 1 year retention
- Positive Result -- 5 year retention [Records will indicate the type of test, job description, age of employee, name of drug(s) used, accident description, rehabilitation, and disposition (i.e., termination, leave without pay, etc.)]
- Administrative and Collection Process Records -- 5 year retention
- Training Records of Supervisors and Employees -- 5 year retention
- The Corporation shall retain test results and the following information in the employee's file:
    - The types of controlled substance testing for which the driver submitted a urine specimen
    - The date of such collection
    - The location of such collection
    - The identity of person or entity
        - Performing the collection
        - Analyzing the specimens
        - Serving as the MRO

13.9 Employee Assistance Program (EAP)

Every employee covered by this policy will receive the following drug education:

- Drug information will be periodically distributed and displayed in the work areas
- A copy of this policy will be given to each employee and displayed in the work area

Every supervisor who is covered by this policy and who will determine whether an employee must be drug tested will receive the following drug use training:

- A one hour (minimum) training period on the specific, contemporaneous physical, behavioral, and performance indicators of probable drug use
- A review of the Anti-Drug Policy and Program

13.10 Confidentiality

Testing and result records will be maintained, sealed, and confidential. With the exception of the testing laboratory, MRO, designated Program Coordinator, or upon request of FHWA or State agency officials as part of an accident investigation, the results of individual drug tests will not be released to anyone without the express written authorization of the individual tested. Prior to testing, the individual will be informed about who will receive test data (e.g. testing laboratory, MRO, personnel manager).

All written records will be stored in locked containers or in a secure location; only the individuals listed above will have access to the records.

Unless an employee gives his or her written consent, the employee's drug testing and/or rehabilitation records will not be released to a subsequent employer.

13.11 Reservation of Rights

The Management reserves the right to interpret or modify this policy in whole or in part without notice. Nothing in this policy alters an employee's employment at-will status. No one can alter an employee's at-will status except the owner or President, and that must be done in writing.

14.0 HAZARD COMMUNICATION PROGRAM OSHA 29 CFR 1910.1200

The Hazard Communication Standard applies to all personnel and evolutions. All personnel will attend an eight-hour training course on the Standard. MSDS on all hazardous substances brought on to the island will be posted in an accessible location and available to all personnel.

14.1 Hazard Identification

All personnel will be provided a detailed health and safety briefing prior to entering the Restricted Zone. The briefing will outline all the tasks to be performed, hazards, and protective measures to be implemented. Personnel will read the Site Health and Safety Plan and annotate the SHSP Acknowledgment Form.

In order to comply with the Hazard Communication Standard, the following ensures that the hazards of all present or imported chemicals on a work area are evaluated and the information concerning their hazards is transmitted to employees:

- All containers of hazardous chemicals must be appropriately labeled or tagged to identify the hazard and provide information on the effects and appropriate protective measures.

- While the hazard is present, labels, tags, or signs must always be properly affixed and visible; they can be promptly removed when the hazard no longer exists. Precautions must be taken during transport and storage to assure the labels or tags are not removed or defaced.

- Written information on hazardous chemicals in the work place (Material Safety Data Sheets [MSDS]) must be available to employees working with the substance.

- Appropriate MSDS' will be available to any contracted or subcontracted employee working.

- Any required MSDS' for chemicals potentially brought to the island are attached. These MSDS' are for calibration gases and chemicals which may be used in decontaminating tools and other equipment operated in contaminated areas.

14.2 Material Safety Data Sheets (MSDS)

The applicable MSDS' for this project are enclosed as **Appendix 7** to this Annex.

APPENDIX 3
Release of Liability

RELEASE OF LIABILITY

This document does not constitute authorization to visit Kaho'olawe. Such authorization must be obtained from the Kaho'olawe Island Reserve Commission and Commander, Naval Base Pearl Harbor.

I have requested the Department of the Navy and the Kaho'olawe Island Reserve Commission to allow me to enter the island of Kaho'olawe.

I agree and acknowledge that **MY SAFETY IS MY RESPONSIBILITY** and no one else's.

I fully understand, and by my signature acknowledge that I understand, that the island of Kaho'olawe was used from 1941 to 1990 as a live ordnance military training complex: that the island and its waters were used by the United States and its allies as a live ordnance impact training area, that the **ENTIRE ISLAND IS DANGEROUS AND UNSAFE** due to the presence of surface and subsurface **UNEXPLODED ORDNANCE**; that there may be hazardous conditions and ordnance on and under the surface of the island and in the waters surrounding the island; and that unexploded ordnance may explode nearby to me causing me serious bodily harm, injury and death.

I fully understand, and by my signature acknowledge that I understand, that the roads and trails on the island of Kaho'olawe are extremely rough and rugged; and that the military vehicles used on these roads and trails on the island by the Department of the Navy are old, have exposed metal surfaces, do not include typical vehicle safety features, and may break down while some distance from the base camp. I fully understand, and by my signature acknowledge that I understand, that if I ride in any of these vehicles while on the island, **I MAY BE INJURED** and that if the vehicle breaks down, I may be required to walk back to the camp.

I fully understand, and by my signature acknowledge that I understand, that the buildings, boardwalks and pathways in the base camp are roughly-constructed, contain exposed metal surfaces, present many rough and uneven surfaces and do not include typical safety features. I fully understand, and by my signature acknowledge that I understand, that if I utilizes any of these building, pathways or trails, I may be injured.

Knowing that the island is dangerous and unsafe and that the pervasive presence of unexploded explosives present to me **A RISK OF SERIOUS BODILY HARM OR DEATH**, I nevertheless desire to go to the island of Kaho'olawe. Knowing that the roads, vehicles and base camp present

to myself a risk of injury, I nevertheless desire that I visit the base camp and visit sites outside of the base camp in military vehicles. I voluntarily **ASSUME THE RISK OF INJURY OR LOSS** created by the presence of explosives and other hazardous conditions which exist on the island. I voluntarily **ASSUME THE RISK OF INJURY OR LOSS** created by the existing condition of the road, trails, vehicles and base camp. **I RELEASE AND AGREE TO INDEMNIFY AND HOLD HARMLESS AND AGREE NOT TO SUE OR FILE ANY CLAIM AGAINST** the United States of America, the Department of the Navy, the State of Hawaii and any and all of its officers, agents, and employees, for death or injury to me or damage to or destruction of any of my property resulting from the explosives or hazardous conditions, exiting conditions, or acceptance or transportation on or in the island and waters of Kaho'olawe.

In consideration of allowing me the access which I have requested, I, for myself, my heirs, beneficiaries, executors and administers, **REMISE, RELEASE, AND FOREVER DISCHARGE** the United State of America, the Department of the Navy, the State of Hawaii, and any and all of their officers, agents and employees, whether acting in their official capacity or otherwise, from any and all claim(s), demand(s), action(s), or cause(s) of action on account of my death or on account of any injury to me or my property which may occur from **ANY** cause during my access to the island of Kaho'olawe or incident thereto.

This release of liability is effective for the access period

commencing _____ and ending _____

_____
NAME (PRINT)

_____ _____
Signature Date

Mailing Address: _____

_____

PH NAVBASE 5090/3 (9-94) Base Camp

revised 13 May 1998

APPENDIX 4
Hazard Analyses

HAZARD ANALYSIS #1

Activity: MOBILIZATION/SITE PREPARATION Analysed By/Date: D. SEID 8/24/95 Reviewed By: D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
CLEARING AND SELECTIVE PRUNING	STRUCK BY/AGAINST HEAVY EQUIPMENT	° AVOID EQUIPMENT SWING AREAS ° MAKE EYE CONTACT WITH OPERATORS BEFORE APPROACHING EQUIPMENT ° UNDERSTAND AND REVIEW HAND SIGNALS • use spotter where necessary
	SLIPS, TRIPS, FALLS	° CLEAR WALKWAYS OF EQUIPMENT, TOOLS, VEGETATION, EXCAVATED MATERIAL, AND DEBRIS ° MARK, IDENTIFY, OR BARRICADE OTHER OBSTRUCTIONS ° OBSERVE PROPER LIFTING TECHNIQUES
	HANDLING HEAVY OBJECTS	° OBEY SENSIBLE LIFTING LIMITS ° USE MECHANICAL LIFTING EQUIPMENT (HAND CARTS, TRUCKS) TO MOVE LARGE, AWKWARD LOADS
	SHARP OBJECTS	° WEAR CUT RESISTANT WORK GLOVES WHEN THE POSSIBILITY OF LACERATIONS OR OTHER INJURY MAY BE CAUSED BY SHARP EDGES OR OBJECTS ° MAINTAIN ALL HAND AND POWER TOOLS IN A SAFE CONDITION ° KEEP GUARDS IN PLACE DURING USE
	INSECT BITES	° REVIEW INJURY POTENTIAL WITH WORKERS

Equipment to be Used	Inspection Requirements	Training Requirements
HAND & POWER TOOLS HEAVY EQUIPMENT LOCKOUT/TAGOUT EQUIPMENT	DAILY, BEFORE USE DAILY INSPECTION OF EQUIPMENT AS APPROPRIATE	TRAINED EQUIPMENT OPERATOR TRAINING SPECIFIC FOR THE HAZARD IN ACCORDANCE WITH EM 385-1-1.

HAZARD ANALYSIS #1

Activity MOBILIZATION/SITE PREPARATION Analysed By/Date D. SEID 8/24/95 Reviewed By D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
CLEARING AND SELECTIVE PRUNING (CONTINUED)		° AVOID INSECT NESTS AREAS ° EMPHASIZE THE BUDDY SYSTEM WHERE SUCH INJURY POTENTIAL EXISTS
	CONTACT DERMATITIS	° WEAR PPE TO AVOID SKIN CONTACT WITH CONTAMINATED SOIL, PLANTS, OR OTHER SKIN IRRITANTS ° IDENTIFY AND REVIEW PLANT AND TREE HAZARDS
UTILITY TIE-IN	ELECTROCUTION THROUGH ELECTRICAL	° ONLY QUALIFIED ELECTRICIAN WILL MAKE TIE-IN ° USE ONLY NONCONDUCTIVE AND INTRINSICALLY SAFE EQUIPMENT AND PPE ° CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT) PROCEDURE IN ACCORDANCE WITH EM 385-1-1 §29CFR1910
	ENCOUNTERING UXO	* REFER TO HAZARD ANALYSIS #5
	EXPOSURE TO HUMAN WASTE THROUGH SEWER LINE TIE-IN	° TRAIN PERSONNEL ON HAZARDS AND REQUIRED PPE. OFFER THE HEPATITIS VACCINE AS REQUIRED ° PERSONNEL TO RECEIVE INNOCULATION IN ACCORDANCE WITH STATE OF HAWAII, PUBLIC HEALTH DEPARTMENT GUIDELINES FOR SEWER WORKERS ° WORKERS TO USE PROPER HYGIENE

Equipment to be Used	Inspection Requirements	Training Requirements
HAND & POWER TOOLS HEAVY EQUIPMENT LOCKOUT/TAGOUT EQUIPMENT	DAILY, BEFORE USE DAILY INSPECTION OF EQUIPMENT AS APPROPRIATE	TRAINED EQUIPMENT OPERATOR TRAINED SPECIFIC FOR THE HAZARD IN ACCORDANCE WITH EM385-1-1.

HAZARD ANALYSIS #1

Activity: MOBILIZATION/SITE PREPARATION Analysed By/Date D. SEID 8/24/95 Reviewed By D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
UTILITY TIE-IN (CONTINUED)		° CONTROL OF HAZARDOUS ENERGY (LOCK-OUT/TAGOUT) PROCEDURE IN ACCORDANCE WITH EM 385-1-1 & 29 CFR 1910
	OPEN EXCAVATIONS	COVER, BARRICADE &/OR SHORE AS NECESSARY
	POSSIBLE EXPOSURE TO CONFINED SPACE AND/OR TOXIC/FLAMMABLE ATMOSPHERES	° COMPLETE CONFINED SPACE PROCEDURES
	SLIPS, TRIPS, AND FALLS	° WARN EMPLOYEES AND GUARD/BARRICADE OPENINGS • FALL PROTECTION OVER 6'
GRADING	STRUCK BY/AGAINST HEAVY EQUIPMENT	° USE REFLECTIVE WARNING VESTS WORN WHEN EXPOSED TO VEHICULAR TRAFFIC ° AVOID EQUIPMENT SWING AREAS ° MAKE EYE CONTACT WITH OPERATORS BEFORE APPROACHING EQUIPMENT ° UNDERSTAND AND REVIEW HAND SIGNALS • USE SPOTTER WHEN NECESSARY
	SHARP OBJECTS	° WEAR CUT RESISTANT WORK GLOVES WHEN POSSIBILITY OF LACERATIONS OR OTHER INJURY MAY BE CAUSED BY SHARP EDGES OR OBJECTS ° MAINTAIN ALL HAND AND POWER TOOLS IN A SAFE CONDITION ° KEEP GUARDS IN PLACE DURING USE
	ENCOUNTERING UXO	• REFER TO HAZARD ANALYSIS #15

Equipment to be Used	Inspection Requirements	Training Requirements
HAND & POWER TOOLS HEAVY EQUIPMENT	DAILY, BEFORE USE DAILY INSPECTION OF EQUIPMENT	TRAINED EQUIPMENT OPERATOR

HAZARD ANALYSIS #1

Activity MOBILIZATION/SITE PREPARATION Analysed By/Date D. SEID 8/24/95 Reviewed By D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
GRADING (CONTINUED)	FIRE HAZARDS FROM FUEL STORAGE AND REFUELING EQUIPMENT	° ALL FUEL WILL BE STORED AT LEAST 50 FEET AWAY FROM THE WORK SITE ° FIRE EXTINGUISHERS WILL BE PLACED NEAR FUEL STORAGE AND REFUELING AREAS ° SMOKING AND HOT WORK WILL BE PROHIBITED
	UNSAFE MECHANICAL EQUIPMENT	° GROUND/BOND EQUIP. GROUND/BOND EQUIP ° ALL EQUIPMENT WILL BE INSPECTED, TESTED AND CERTIFIED TO BE IN SAFE OPERATING CONDITION BY A COMPETENT PERSON PRIOR TO USE
	INSECT BITES	° REVIEW INJURY POTENTIAL WITH WORKERS ° AVOID INSECT NEST AREAS OUTSIDE WORK AREAS ° EMPHASIZE THE BUDDY SYSTEM WHERE SUCH INJURY POTENTIAL EXISTS ° USE INSECT REPELLENT, WEAR PPE TO PROTECT AGAINST STING/BITE INJURIES
	CONTACT DERMATITIS	° WEAR PPE TO AVOID SKIN CONTACT WITH CONTAMINATED SOIL, PLANTS, OR OTHER SKIN IRRITANTS ° IDENTIFY AND REVIEW PLANTS AND TREES WITH WORKERS

Equipment to be Used	Inspection Requirements	Training Requirements
HAND & POWER TOOLS HEAVY EQUIPMENT	DAILY, BEFORE USE DAILY INSPECTION OF EQUIPMENT	TRAINED EQUIPMENT OPERATOR

HAZARD ANALYSIS #1

Activity MOBILIZATION/SITE PREPARATION Analysed By/Date D. SEID 8/24/95 Reviewed By D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
GRADING (CONTINUED)	HIGH NOISE LEVELS	° USE HEARING PROTECTION WHEN EXPOSED TO EXCESSIVE NOISE LEVELS (GREATER THAN 84 DBA OVER AN 8-HOUR WORK PERIOD)
	HIGH AMBIENT TEMPERATURE	° MONITOR FOR HEAT STRESS IN ACCORDANCE WITH OHM HEALTH AND SAFETY PROCEDURES MANUAL
BACKFILLING	SLIPS, TRIPS, FALLS	° CLEAR WALKWAYS, WORK AREAS OF EQUIPMENT, VEGETATION, EXCAVATED MATERIAL, TOOLS, AND DEBRIS ° MARK, IDENTIFY, OR BARRICADE OTHER OBSTRUCTIONS
	STRUCK BY/AGAINST HEAVY EQUIPMENT	° USE REFLECTIVE WARNING VESTS WORN WHEN EXPOSED TO VEHICULAR TRAFFIC ° AVOID EQUIPMENT SWING AREAS ° MAKE EYE CONTACT WITH OPERATORS BEFORE APPROACHING EQUIPMENT ° UNDERSTAND AND REVIEW HAND SIGNALS • USE SPOTTER AS NECESSARY
	SHARP OBJECTS	° WEAR CUT RESISTANT WORK GLOVES WHEN THE POSSIBILITY OF LACERATIONS OR OTHER INJURY MAY BE CAUSED BY SHARP EDGES OR OBJECTS

Equipment to be Used	Inspection Requirements	Training Requirements
HAND & POWER TOOLS HEAVY EQUIPMENT	DAILY, BEFORE USE DAILY INSPECTION OF EQUIPMENT	TRAINED EQUIPMENT OPERATOR

HAZARD ANALYSIS #1

Activity MOBILIZATION/SITE PREPARATION Analysed By/Date D. SEID 8/24/95 Reviewed By D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
BACKFILLING (CONTINUED)		° MAINTAIN ALL HAND AND POWER TOOLS IN A SAFE CONDITION ° KEEP GUARDS IN PLACE DURING USE • COVER/BARRACADE AS NECESSARY
	OPEN EXCAVATIONS FIRE HAZARDS FROM FUEL STORAGE AND REFUELING EQUIPMENT	° ALL FUEL WILL BE STORED AT LEAST 50 FEET AWAY FROM THE WORK SITE ° FIRE EXTINGUISHERS WILL BE PLACED NEAR FUEL STROAGE AND REFUELING AREAS ° SMOKING AND HOT WORK WILL BE PROHIBITED • GROUND/BOND EQUIP
	UNSAFE MECHNICAL EQUIPMENT	° ALL EQUIPMENT WILL BE INSPECTED, TESTED AND CERTIFIED TO BE IN A SAFE OPERATING CONDITION BY A COMPETENT PERSON PRIOR TO USE
EQUIPMENT FACILITY SET-UP	SLIPS, TRIPS, FALLS	° CLEAR WALKWAYS AND WORK AREAS OF EQUIPMENT, TOOLS, VEGETATION, EXCAVATED MATERIAL AND DEBRIS ° MARK, IDENTIFY, OR BARRICADE OTHER OBSTRUCTIONS
	HANDLING HEAVY OBJECTS	° OBSERVE PROPER LIFTING TECHNIQUES ° OBEY SENSIBLE LIFTING LIMITS ° USE MECHANICAL LIFTING EQUIPMENT (HAND CARTS, TRUCKS) TO MOVE LARGE,

Equipment to be Used	Inspection Requirements	Training Requirements
HAND & POWER TOOLS HEAVY EQUIPMENT	DAILY, BEFORE USE DAILY INSPECTION OF EQUIPMENT	TRAINED EQUIPMENT OPERATOR

HAZARD ANALYSIS #1

Activity MOBILIZATION/SITE PREPARATION Analysed By/Date D. SEID 8/24/95 Reviewed By D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
EQUIPMENT FACILITY SET-UP (CONTINUED)		AWKWARD LOADS
	SHARP OBJECTS	° WEAR CUT RESISTANT WORK GLOVES WHEN POSSIBILITY OF LACERATIONS OR OTHER INJURY MAY BE CAUSED BY SHARP EDGES OR OBJECTS ° MAINTAIN ALL HAND AND POWER TOOLS IN A SAFE CONDITION ° KEEP GUARDS IN PLACE DURING USE
	HIGH NOISE LEVELS	° USE HEARING PROTECTION WHEN EXPOSED TO EXCESSIVE NOISE LEVELS (GREATER THAN 84 DBA OVER AN 8-HOUR WORK PERIOD)
	HIGH AMBIENT TEMPERATURE	° MONITOR FOR HEAT STRESS IN ACCORDANCE WITH OHM HEALTH AND SAFETY PROCEDURES MANUAL

Equipment to be Used	Inspection Requirements	Training Requirements
HAND & POWER TOOLS HEAVY EQUIPMENT	DAILY, BEFORE USE DAILY INSPECTION OF EQUIPMENT	TRAINED EQUIPMENT OPERATOR

HAZARD ANALYSIS #2

Activity MOBILIZATION OF CONSTRUCTION EQUIPMENT Analysed By/Date D. SEID 8/24/95 Reviewed By D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
MOBILIZING HEAVY EQUIPMENT	STRUCK BY EQUIPMENT	° MAINTAIN EYE CONTACT WITH EQUIPMENT OPERATORS ° MAINTAIN EQUIPMENT IN GOOD WORKING CONDITION BY CONDUCTING INSPECTION OF EQUIPMENT ° CHOCK WHEELS WHEN EQUIPMENT IS PARKED A SLOPE ° MAINTAIN HAUL ROADS ° ENSURE ALL HEAVY EQUIPMENT HAS OPERATING BACK-UP ALARMS
HANDLING MATERIALS	TRIPPING HAZARDS OR BLOCKED ACCESS	° STORE MATERIALS NEATLY IN DESIGNATED AREA AND MAINTAIN CLEAR PASSAGEWAY
	POTENTIAL FOR BACK STRAIN	° LIFT LOADS WITH EQUIPMENT WHERE POSSIBLE ° IF MANUAL LIFTING IS REQUIRED, USE BUDDY SYSTEM, PRACTICE GOOD LIFTING TECHNIQUES, AND LIFT WITH LEGS INSTEAD OF BACK

Equipment to be Used	Inspection Requirements	Training Requirements
TRAFFIC BARRICADES OR FENCING	STRUCTURAL INTEGRITY	NONE

HAZARD ANALYSIS #3

Activity MOBILIZATION/CONSTRUCTION OF FENCING Analysed By/Date D. SEID 8/24/95 Reviewed By D. SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
INSTALL FENCEPOSTS AND FENCING	SHARP OBJECTS	WEAR CUT RESISTANT WORK GLOVES. MAINTAIN HAND AND POWER TOOLS IN A SAFE CONDITION.
	BACK STRAINS	OBSERVE LIFTING PROCEDURES, AND USE EQUIPMENT TO CONDUCT LIFTING WHENEVER POSSIBLE.
	RECOIL OF FENCING MATERIAL	WEAR EYE/FACE PROTECTION. OPERATE ONLY IF DESIGNATED CLEAR AREAS ESCORTED BY AN UXO SPECIALIST.
	ENCOUNTERING UXO	REFER TO HAZARD ANALYSIS #5.

Equipment to be Used	Inspection Requirements	Training Requirements
BACKHOE	DAILY	TRAINED EQUIPMENT OPERATOR
READY-MIX CONCRETE		
HAND TOOLS	DAILY	

HAZARD ANALYSIS #4

Activity EXHAUST HOOD INSTALLATION Analysed By/Date DAN SCRIBNER 8/24/95 Reviewed By DEBBIE SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
LIFT EXHAUST HOOD	BACK STRAINS	1-PROPER LIFTING TECHNIQUES, USE MECHANICAL EQUIPMENT TO LIFT IF POSSIBLE.
	SLIPS, TRIPS, AND/OR FALL FROM LADDER	1-OBSERVE LADDER SAFETY. 2-PLACE LADDER ON EVEN SURFACE. 3-WEAR SHOES WITH A NOTCHED HEEL TO PREVENT SLIPS. 4- FALL PROTECTION IF ABOVE 6'
SET AND INSTALL EXHAUST HOOD	PINCH POINTS	1-COORDINATE SETTING OF EXHAUSE HOOD. 2-ELSE TWO PEOPLE TO SET THE HOOD IF NECESSARY.
USE OF HAND TOOLS TO INSTALL EXHAUST HOOD	ELECTRICAL SHOCK ON SPARKING FROM HAND TOOLS	1-USE GFCI'S FOR ALL PORTABLE ELECTRICAL EQUIPMENT. 2-INSPECT EQUIPMENT AND TOOLS PRIOR TO USE.
	OVERHEAD HAZARDS TO PERSONNEL BELOW	1-KEEP UNAUTHORIZED PERSONNEL OUT OF THE AREA.

Equipment to be Used	Inspection Requirements	Training Requirements
HAND TOOLS	DAILY BEFORE USE	TRAINING ON ELECTRICAL HAND TOOLS

HAZARD ANALYSIS #5

Activity COMPOSTING TOILET INSTALLATION Analysed By/Date DAN SCRIBNER 8/24/95 Reviewed By DEBBIE SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
STAGING OF TOILETS	BACK STRAINS	1-USE EQUIPMENT TO MOVE TOILETS 2-OBSERVE PERSONAL LIFTING LIMIT OF 60 LBS.
TRENCHING AND EXCAVATION FOR BACK FIELD INSTALLATION	CAVE-IN	1-ISSUE EXCAVATION PERMIT. 2-SHORING IF NECESSARY
	ENCOUNTERING UXO	1-WORK IN THE CLEARED AREA. 2-HAVE ANY UN-CLEARED AREA EXAMINED BY UXO SPECIALIST PRIOR TO EX-CAVATING. 3-IF UXO IS ENCOUNTERED, STOP WORK, AND CLEAR THE PERSONNEL FROM THE IMMEDIATE AREA UNTIL UXO SPECIALIST CLEARS THE AREA AND PERSONNEL ARE ALLOWED BACK INTO THE WORK AREA.
PIPE INSTALLATION	PINCH POINTS	1-WEAR PROTECTIVE GLOVES. 2-COORDINATE ACTIVITIES, AND GET HELP IN JOINING THE PIECES OF PIPE.
	BEING STRUCK BY HEAVY EQUIPMENT	1-MAINTAIN EYE CONTACT WITH EQUIP. OPERATOR. 2-KEEP UNAUTHORIZED PERSONNEL OUT OF THE AREA.

Equipment to be Used	Inspection Requirements	Training Requirements
HEAVY EQUIPMENT HAND TOOLS	DAILY BEFORE USE DAILY BEFORE USE	QUALIFIED EQUIPMENT OPERATORS

HAZARD ANALYSIS #6

Activity OPERATING ROCK CRUSHER Analysed By/Date DAN SCRIBNER 8/24/95 Reviewed By DEBBIE SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
MOBILIZE AND SET UP ROCK CRUSHER	BEING STRUCK BY HEAVY EQUIPMENT	1-MAINTAIN EYE CONTACT WITH EQUIP. OPERATOR. 2-KEEP UNAUTHORIZED PERSONNEL OUT OF THE AREA.
OPERATE ROCK CRUSHER	BEING STRUCK BY ROCK AND/OR CRUSHING	1-KEEP UNAUTHORIZED PERSONNEL OUT OF THE AREA. 2-WEAR HARD HAT, SAFETY BOOTS.
	EXPOSURE TO HIGH NOISE	1-WEAR HEARING PROTECTION. 2-POST AREA AS HIGH NOISE AREA.
	ROTATING EQUIPMENT	1-MAINTAIN EQUIPMENT GUARDS. 2-NO LOOSE CLOTHING. 3-PERSONNEL ARE NOT ALLOWED TO REACH ITO ROTATING EQUIPMENT.
CLEARING JAMS IN ROCK CRUSHER OR PERFORMING MAINTENANCE	BEING CAUGHT IN ROTATING EQUIPMENT	1-STOP EQUIPMENT PRIOR TO MAINTAINING, AND LOCK OUT EQUIP.

Equipment to be Used	Inspection Requirements	Training Requirements
ROCK CRUSHER	DAILY BEFORE USE	QUALIFIED OPERATOR
HEAVY EQUIPMENT	DAILY BEFORE USE	QUALIFIED OPERATORS

HAZARD ANALYSIS #7

Activity: TRAILER INSTALLATION Analysed By/Date: DAN SCRIBNER 8/24/95 Reviewed By: DEBBIE SEID 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
STAGING TRAILER	SLIPS, TRIPS & FALLS	1-SELECT A SITE FOR THE TRAILER THAT IS FLAT AND FREE OF OBSTACLES. 2-CHECK THE PATH OF TRAVEL. 3-FALL PROTECTION IF ABOVE 6'
TIE-IN OF UTILITIES	ELECTROCUTION	1-HAVE ALL ELECTRICAL TIE-INS PERFORMED BY QUALIFIED ELECTRICIANS.
	TRAILERS BLOWN OVER IN HIGH WINDS	1-TIE DOWN THE TRAILER. 2-FALL PROTECTION IF ABOVE 6'

Equipment to be Used	Inspection Requirements	Training Requirements
HAND TOOLS	DAILY BEFORE USE	LICENSED ELECTRICIAN

HAZARD ANALYSIS #8

Activity HELICOPTER TRANSPORT Analysed By/Date BUDDY EANES 8/24/95 BPI/SAFETY Reviewed By MIKE MURRAY 8/24/95 OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
TRANSPORT OF PERSONNEL BETWEEN MAUI AND KAHO'OLAWE	HEARING LOSS CRASH (LAND) INJURY/DEATH AS RESULT OF CONTACT WITH MAIN OR TAIL ROTOR DROWN..... CRASH (WATER)	ATTEND MORNING HELICOPTER SAFETY BREIFINGS WEAR HEARING PROTECTION WEAR SEAT BELTS DO NOT APPROACH HELICOPTER UNTIL DIRECTED TO DO SO DO NOT UNLATCH SEAT BELT UNTIL DIRECTED TO DO SO DO NOT DISEMBARK HELICOPTER UNTIL DIRECTED TO DO SO WEAR PERSONAL FLOTATION DEVICES ALLOW BUBBLES TO CLEAR PRIOR TO RELEASING SEATBELTS. CLEAR A/C PRIOR TO INFLATING LIFE PRESERVER
TRANSPORT OF EQUIPMENT	HEARING LOSS SWINGING CARGO ENTANGLEMENT IN ROPE FLYING DEBRIS STRIKES EYES STRUCK BY FALLING OBJETS STATIC ELECTRICITY	WEAR HEARING PROTECTION REMAIN CLEAR OF LOAD BACK AWAY FROM HELICOPTER PRIOR TO LIFT-OFF OF CARGO WEAR EYE GOGGLES HELMET ALLOW LOAD OR A/C TO TOUCH GROUND PRIOR TO TOUCHING LOAD OR A/C. TAG LINES

Equipment to be Used	Inspection Requirements	Training Requirements
COMMERCIAL HELICOPTERS	FAA (DONE BY CONTRACTOR)	ATTEND MORNING HELICOPTER SAFETY BRIEFINGS

HAZARD ANALYSIS #9

Activity BRUSH CUTTING/SELECTIVE PRUNING Analysed By/Date BUDDY EANES 8/24/95 BPI/SAFETY Reviewed By MIKE MURRAY 8/24/95 OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
USE OF CUTTING EQUIPMENT	SLIP, TRIP, FALL CUTS/AMPUTATIONS FALLING OBJECTS PHYSICAL EXERTION HEAT STRESS BURNS EYE INJURIES HEARING LOSS GRINDING INJURIES	LEVEL "D" PPE (BOOTS;COVERALLS,WORK GLOVES; EYE AND EAR PROTECTION; AND HARD HAT, NO LOOSE CLOTHING MAINTAIN FIRM FOOTING KICKBACK DEVICE IN PLACE GUARDS IN PLACE PROPER IDLE SPEED SHARP CUTTING SURFACES WORK/REST REGIME ESTABLISHED ESTABLISH HEAT/MONITORING AS APPRO. NEVER CUT ABOVE SHOULDER HEIGHT WEAR LEG CHAPS WHEN OPERATING WEEDWACKER OR CHAINSAW REMAIN CLEAR OF EXHAUST SYSTEM CHOCK WHEELS
LIMB SHREDDING	CUTS/AMPUTATIONS EYE INJURIES HEARING LOSS GRINDING INJURIES PHYSICAL EXERTION HEAT STRESS BURNS	CHOCK WHEELS LOCK OUT/SHUTDOWN PROCEDURES EQUIP. INSP. EM 385-1-1 REMAIN CLEAR OF CHUTE LEVEL "D" PPE (AS ABOVE) WORK/REST REGIME ESTABLISHED ESTABLISH HEAT/MONITORING AS APPRO. SAFETY SHOES

Equipment to be Used	Inspection Requirements	Training Requirements
CHAINSAWS LIMB SAW SHREDDER	DAILY AS PER OPERATING MANUAL ENSURE GUARDS ARE OPERATING PROPERLY	TRAINED OPERATOR. SITE SPECIFIC TRAINING.

HAZARD ANALYSIS #10

Activity ALL TERRAIN VEHICLES

Analysed By/Date BUDDY EANES 8/24/95 BPI/SAFETY

Reviewed By MIKE MURRAY 8/24/95 OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
DRIVING ATV'S	OVERWEIGHT (EXCEEDING 450 LBS OF CARGO	THE MANUFACTURER'S RECOMMENDED PAY-LOAD SHALL NOT BE EXCEEDED AT ANY TIME.
	ACCIDENT INJURY	GLOVES AND AN APPROVED MOTORCYCLE HELMET WITH FULL FACE SHIELD OR GOGGLES SHALL BE WORN AT ALL TIMES WHILE OPERATING AN ATV. ATV'S SHALL BE DRIVEN DURING DAYLIGHT HOURS ONLY. PASSENGERS ARE PROHIBITED ON ATV'S UNLESS THEY ARE DESIGNED FOR TWO PEOPLE.
	OTHER PERSONNEL INJURY	ALL ATV'S SHALL BE EQUIPPED WITH A WARNING SIGNAL DEVICE (HORN). DO NOT EXCEED 20 M.P.H. TRANSPORTATION FROM ONE WORK AREA TO ANOTHER SHOULD BE VIA THE MAIN ROAD SYSTEM.
	ROLL OVER	INSURE ROLL OVER PROTECTION IN PLACE

Equipment to be Used	Inspection Requirements	Training Requirements
DRIVER QUALIFICATIONS ONLY ATV'S WITH FOUR OR MORE WHEEL AUTHORIZED	VALID STATE DRIVERS LICENSE DAILY AS PER MANUFACTURER'S OPERATING MANUAL	SHALL HAVE COMPLETED AN ATV TRAINING COURSE CONDUCTED BY THE CORPORATION. TRAINED OPERATOR.

HAZARD ANALYSIS #11

Activity SURFACE SWEEP (MAGNETOMETER) Analysed By/Date BUDDY EANES 8/24/95 BPI SAFETY Reviewed By MIKE MURRAY 8/24/95 OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
CALIBRATE MAGNETOMETER	ELECTRICAL HAZARD	SET UP MAGNETOMETER IAW MANUFACTURERS INSTRUCTION CALIBRATE MAGNETOMETER ON TEST GRID.
LAYOUT SWEEP LANES	ACCIDENTAL DETONATION SLIP, TRIP, FALL. HEAT STRESS	MAG AREA PRIOR TO PLACING STAKES IN GROUND
SURFACE SWEEP OF LANES	ACCIDENTAL DETONATION SLIP, TRIP, FALL. HEAT STRESS	ALL SWEEP PERSONNEL MUST BE SUPERVISED BY A QUALIFIED UXO SPECIALIST. RATIO NOT TO EXCEED ONE UXO. SPECIALIST TO FIVE SWEEP PERSONNEL. LEVEL D PPE CONDUCT SWEEP IN ACCORDANCE WITH PROCEDURES IN THE UXO CLEANUP PLAN. PROPER WORK/REST CYCLES.

Equipment to be Used	Inspection Requirements	Training Requirements
MK26 SCHONSTEDT HAMMER, KNIFE	DAILY AS PER OPERATING INSTRUCTIONS	UXO SPECIALIST: NAVSCOLED GRADUATE 40 HR EOD REFRESHER AS APPLICABLE 40 HR HAZWODER SWEEP PERSONNEL: 40 HR HAZWOPER EXPLOSIVE ORDNANCE RECONNAISSANCE DAILY OR BRIEF, SITE SPECIFIC TRAINED OPERATOR.

HAZARD ANALYSIS #12

Activity: SUBSURFACE SWEEP/EXCAVATION Analysed By/Date: BUDDY EANES 8/24/95 BPI/SAFETY Reviewed By: MIKE MURRAY 8/24/95 OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
CONDUCT MAGNETOMETER SWEEPS OF UXO AREA EXCAVATE FERROUS METAL CONTACT	ACCIDENTAL DETONATION HAZARDOUS PLANTS AND ANIMALS SLIP, TRIP, FALL REPETITIVE MOTION INJURY	WEAR LEVEL "D" PPE (BOOTS, SHIRT, LONG PANTS, WORK GLOVES, EYE PROTECTION, ~~HARD HAT.~~ MAINTAIN PROPER FOOTING/REMOVE TRIPPING HAZARDS IF POSSIBLE PROVIDE ID CHARTS OF HAZARDOUS PLANTS AND ANIMALS, AVOID THESE ITEMS KNOW HEAT STRESS WARNING SIGNS AND TAKE PROPER ACTION DO NOT MOVE FUZED ORDNANCE WITHOUT APPROVAL OF THE ON-SITE SAFETY OFFICER. HAVE WATER, FIRST AID, FIRE EXT., AND EYE WASH ON LOCATION USE WRIST SUPPORTS WHILE USING THE MAGNETOMETER IF NECESSARY. HAND EXCAVATE THE LAST 12" TO THE UXO. USE A COLOR CODED FLAGGING SYSTEM TO MARK UXO. USE EYE PROTECTION WHILE DIGGING USE DUST MASK IF CONDITIONS DICTATE DO NOT USE STEEL TOE SHOES WHEN OPERATING MAGNETOMETER. CONDUCT SWEEP PER PROCEDURES IN THE UXO CLEAN-UP PLAN. REMOVE HARD HAT DURING UXO EXCAVATION

Equipment to be Used	Inspection Requirements	Training Requirements
EM-61 SHOVELS	DAILY AS PER OPERATING INSTRUCTIONS DAILY	(WITH APPLICABLE REFRESHER) SITE SPECIFIC TRAINING 40 HR HAZWOPER NAVSCOLEOD GRADUATE (40 HR REFRESHER) ~~TRAINED OPERATOR~~

HAZARD ANALYSIS #13

Activity ORDNANCE IDENTIFICATION Analysed By/Date BUDDY EANES 8/24/95 Reviewed By MIKE MURRAY 8/24/95

BPI/SAFETY OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
APPROACH ANOMALLY REMOVE OVERBURDEN IDENTIFY ORDNANCE	ACCIDENTAL DETONATION	LIMIT PERSONNEL EXPOSURE LEVEL"D" PPE (BOOTS, SHIRTS, LONG PANTS, WORK GLOVES, EYE PROTECTION, HARD HAT WILL NOT BE WORN DURING UXO INVESTIGATION. GROUND SELF PRIOR TO TOUCHING ITEM. ALL UXO MUST BE POSITIVELY IDENTIFIED BY TWO UXO SPECIALISTS PRIOR TO MOVEMENT IF ITEM IS UNKNOWN THE ITEM WILL REMAIN IN PLACE UNTIL POSITIVELY IDENTIFIED.

Equipment to be Used	Inspection Requirements	Training Requirements
SHOVEL TROWEL	DAILY	NAVSCOLEOD GRADUATE (40 HR REFRESHER) 40 HR HAZWORER SITE SPECIFIC TRAINING

HAZARD ANALYSIS #14

Activity: MECHANICAL UXO EXCAVATION

Analysed By/Date: BUDDY EANES 8/24/95 BPI/SAFETY

Reviewed By: MIKE MURRAY 8/24/95 OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
EXCAVATION	ACCIDENTAL DETONATION. MIS-IDENTIFICATION. CONFINED SPACE HAZARDS STRUCK BY/AGAINST EQUIPMENT	DO NOT USE EARTH MOVING MACHINERY (EMM) WITHIN 12 INCHES OF A SUB-SURFACE UXO. HAND EXCAVATION WILL BE USED WITHIN 12 INCHES OF A SUB-SURFACE UXO. HAND EXCAVATION WILL BE ACCOMPLISHED ONLY BY UXO PERSONNEL. USE MAGNETOMETERS MINIMIZE PERSONNEL EXPOSURE. EXCAVATION AND TRENCHING WILL COMPLY WITH 29 CFR 1926. UXO MUST BE POSITIVELY IDENTIFIED. EARH MOVING EQUIPMENT MAY BE OPERATED BY NON-UXO PERSONNEL, UNDER THE DIRECT SUPERVISION OF UXO PERSONNEL. BACKHOES SHOULD BE SEPARATED BY A MINIMUM OF 100 METERS DURING EXCAVATION. CONDUCT EXCAVATION PER THE UXO CLEANUP PLAN.

Equipment to be Used	Inspection Requirements	Training Requirements
MK26/GA-52B/GS-72CV ORDNANCE LOCATORS BACKHOE	PRE POST MAINTENANCE DAILY PRE POST MAINTENANCE DAILY EM385-1-1	GRADUATE OF NAVSCOLEOD, 40 HR EOD REFRESHER 40 HR HAZWOPER SITE SPECIFIC TRAINING. TRAINED EQUIPMENT OPERATOR.

HAZARD ANALYSIS #15

Activity TRANSPORTATION OF UXO Analysed By/Date BUDDY EANES 8/24/95 BPI SAFETY Reviewed By MIKE MURRAY 8/24/95 OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
PRE PLAN ACTIVITIES INSPECT VEHICLE	NONE	RECEIVE AUTHORIZATION FROM AND COORDINATE ACTIVITIES WITH UXO RANGE CONTROL OFFICER
TRANSPORT OF UXO	ACCIDENTAL DETONATION VEHICLE ACCIDENT VEHICLE FIRE HEAVY LIFTING & IAW NAVSEA	VEHICLES USED FOR TRANSPORTATION OF UXO WILL BE INSPECTED IAW EM 385-1-1 29.B AND SIGN LOG VEHICLES TRANSPORTING UXO WILL BE PLACARDED. UXO AND EXPLOSIVES WILL NOT BE TRANSPORTED AT THE SAME TIME.
	VEHICLE WITH A WOODEN BED	PLACE UXO IN WOODEN CONTAINERS OR ■ SECURE WITH SAND. OBSERVE PROPER ORIENTATION FOR UXO BEING TRANSPORTED. INDIVIDUALLY SECURE EACH CONTAIER TO VEHICLE FLOOR WITH ROPE OR CARGO STRAPS. BRACING WILL BE IN A CROSS-OVER PATTERN, SIDE TO SIDE AND FORWARD TO REAR. SAND BAGS WILL BE USED TO ASSIST IN BLOCKING CONTAINERS IN THE BED. EVACUTE AREA IN EVENT OF FIRE

Equipment to be Used	Inspection Requirements	Training Requirements
PICK UP TWO UXO SPECIALIST	EM 385-1-1 29B NAVSEA	NAVSCOLEDD GRADUATE 40 HR EOD REFRESHER, 40 HR HAZWOPER TRAINED VEHICLE OPERATOR

HAZARD ANALYSIS #16

Activity: TRANSPORTATION OF DEMOLITION MATERIALS Analysed By/Date: BUDDY EANES 8/24/95 BPI SAFETY Reviewed By: MIKE MURRAY 8/24/95 OHM UXO SAFETY

Principal Steps	Potential Hazards	Recommended Controls
PREPLAN ACTIVITIES	NONE	RECEIVE AUTHORIZATION FROM AND COORDINATE ACTIVITIES WITH UXO RANGE CONTROL OFFICER.
INSPECT VEHICLE		INSPECT VEHICLE IAW EM 385-1-1 SECTION 29B AND SIGN LOG & NAVSEA
REMOVE EXPLOSIVES FROM MAGAZINE, LOAD AND TRANSPORT	HEAVY LIFTING ACCIDENTAL DETONATION VEHICLE ACCIDENT	LEVEL D PPE. USE PROPER LIFTING TECHNIQUES. DO NOT SUBJECT EXPLOSIVES TO SHOCK OR FRICTION. DO NO LOAD HIGH EXPLOSIVE AND DETONATORS AT THE SAME TIME. FOLLOW GUIDANCE IN EM 385-1-1 SECTION 29B. DRIVE CAREFULLY NOT TO EXCEED 20 MPH. FIRE EXTINGUISHER HAVING A RATING OF 10-B:C PLACED STRATEGICALLY. PLACARD VEHICLE.
QUALIFIED DRIVER		TWO UXO SPECIALISTS

Equipment to be Used	Inspection Requirements	Training Requirements
PICK-UP TRUCK TWO UXO SPECIALISTS	EM 385-1-1 29B & NAVSEA DAILY	GRADUATE NAVSCOLEOD 40 HR EOD REFRESHER 40 HR HAZWOPER

HAZARD ANALYSIS #17

Activity BLOW-IN-PLACE (BIP) Analysed By/Date BUDDY EANES 8/24/95 Reviewed By MIKE MURRAY 8/24/95

Principal Steps	Potential Hazards	Recommended Controls
DISPOSE OF UXO BY DETONATION	ACCIDENTAL DETONATION. SEISMIC DAMAGE. NOISE. CHEMICAL HAZARD.	OBTAIN APPROVAL AND COORDINATE WITH RANGE CONTROL. DETONATION SHALL BE ACCOMPLISHED BY ELECTRICAL MEANS, IF POSSIBLE. ONLY UXO PERSONNEL SHALL BE INVOLVED IN BIP PROCEDURES. REVIEW TECHNICAL PUBLICATIONS. MINIMIZE PERSONNEL EXPOSURE. UTILIZE PROCEDURES IDENTIFIED IN THE UXO CLEANUP PLAN. LEVEL "D" PPE. WITH HEARING PROTECTION OBSERVE DETONATION OUTSIDE OF FRAGMENTATION RANGE AND UPWIND. OBSERVE HCR PROTECTION.

Equipment to be Used	Inspection Requirements	Training Requirements
DEMOLITION MATERIALS	PRIOR TO USE	NAVSCOLEDD GRADUATE (40 HR REFRESHER) 40 HR HAZWOPER SITE SPECIFIC TRAINING