

GENERIC WORK PLAN

FOR

OE OPERATIONS

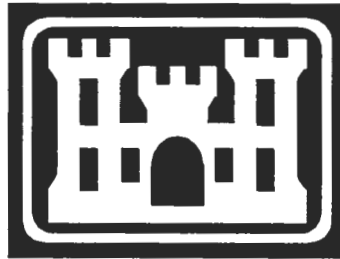
AT THE

SENECA ARMY DEPOT ACTIVITY ROMULUS, NEW YORK

Contract Number: DACA87-97-D-0005

Task Order: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenoir City, Tennessee 37932

March 1999

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LIST OF ACRONYMS AND ABBREVIATIONS

ABIH	American Board of Industrial Hygienists
AR	Army Regulation
BATF	Bureau of Alcohol, Tobacco and Firearms
BIP	blow-in-place
BRAC	Base Realignment and Closure
CA	Contract Administrator
CAP	Contractor Acquired Property
CEHNC	U.S. Army Engineering and Support Center, Huntsville
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CSHP	Corporate Safety and Health Program
DID	Data Item Description
DoD	Department of Defense
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
EM	Engineering Manual
EMM	earth moving machinery
EODT	EOD Technology, Inc.
EPP	environmental protection plan
ER	Engineering Regulation
EZ	Exclusion Zone
FAR	Federal Acquisition Regulation
GFE	government furnished equipment
HARC	historical, archeological, religious and cultural
IAW	in accordance with
KO	Contracting Officer
LS&M	location surveying and mapping
MDA	Munitions Destruction Area
mm	millimeter
NAD	North American Datum
NEW	net explosive weight
OB	open burn
OD	open detonation
OE	ordnance and explosives
ORS	ordnance related scrap
OSHA	Occupational Safety and Health Administration
OSHM	Occupational Safety and Health Manager

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

OSS	CEHNC On-site Safety Specialist
PM	Project Manager
PO	purchase order
PPE	personal protective equipment
PWD	public withdrawal distance
QA	quality assurance
QC	quality control
QCI	quality control inspection
QCM	Quality Control Manager
QCP	Quality Control Program
QCS	Quality Control Specialist
QP	Quality Program
SEDA	Seneca Army Depot Activity
SOP	standard operating procedure
SOW	Statement of Work
SR	State Road
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SUXOS	Senior UXO Supervisor
TO	Task Order
USA	U.S. Army
USACE	U.S. Army Corps of Engineers
USGS	United States Geophysical Society
UTM	Universal Transverse Mercator
UXO	unexploded ordnance
UXOSP	UXO Specialist
VHF	very high frequency
WDCMP	Work Data and Cost Management Plan
WP	work plan
WZ	Work Zone

CHAPTER 1: GENERAL

1.0 INTRODUCTION

This generic Work Plan (WP), together with its appendices and addendums, describes in standard terms the procedures, sequence, and resources EOD Technology, Inc. (EODT) will employ while conducting on-site ordnance and explosives (OE) operations at the Seneca Army Depot Activity (SEDA), located near Romulus, New York. Authorization for performance of this work is presented in Task Order (TO) 0003 to contract number DACA87-97-D-0005, issued to EODT by the U.S. Army Engineering and Support Center, Huntsville (CEHNC), on December 13, 1996.

1.1 PURPOSE

The purpose of this generic WP is to identify and delineate the management structure, technical approach, safety procedures and environmental protection procedures that EODT will utilize during the performance of work associated with TO 0003. This generic WP, along with each site-specific WP addendum will encompass all of the general OE operations to be conducted at various project sites to be located throughout the seda facility. All site activities will be conducted in accordance with (IAW) this generic WP and the relevant site-specific addendums, with any deviation from this plan requiring the prior approval of both the EODT Project Manager (PM) and the CEHNC.

1.2 SITE DESCRIPTIONS AND HISTORY

1.2.1 Site Description

SEDA is a government-owned installation under the jurisdiction of the U.S. Army Industrial Operations Command. SEDA consists of approximately 10,600 acres located west of the township of Romulus, Seneca County, New York. Of that total acreage, 8,400 acres are designated munitions storage areas. The remaining installation acreage is used for an airfield, housing, recreational, administrative, and community services facilities. Located between the Seneca and Cayuga Finger Lakes, SEDA is bounded on the west by State Route (SR) 96A and on the east by SR 96. The facility is located on an uplands area at an elevation of approximately 600 feet mean sea level, forming an elongated divide separating the two finger lakes. The entire installation is approximately eight miles long (north to south) and an average of four to four and a half miles wide (east to west).

The climate at SEDA is characterized as relatively moderate with four distinct seasons. The winter months of December to March are typically cold, with the low temperatures reaching single digits, with average highs in the upper 30's to low 40's. The summer months are warm, with high temperatures reaching the low 90's and lows that can reach into the 40's and 50's.

There are more than 500 ordnance related facilities on SEDA including igloos, magazines, ammunition rework shops, popping plants, and warehouses. Located within the SEDA, there are

demolition areas, open burning (OB) grounds, open detonation (OD) ranges, small arms ranges, suspected burial areas, function test ranges, and burn pads.

1.2.2 Site History

Since its inception in 1941, SEDA's primary mission has been the receipt, storage, maintenance, and supply of military munitions, both conventional and nuclear, and propellants. Another of SEDA's missions was to conduct surety tests of stockpiled munitions through their Quality Assurance (QA) Specialist Ammunition Surveillance program. Surplus and off-specification military munitions and explosives were disposed of by OB and OD, with the former occurring at various places outside the munitions storage area, and the latter conducted at the munitions destruction area located in the northwestern corner of the SEDA.

The 1995 Base Realignment and Closure (BRAC) commission recommended to Congress that SEDA be closed. This recommendation was approved in October 1995, and the depot is scheduled for closure by July 2001.

1.3 WORK PLAN ORGANIZATION

According to the CEHNC, EODT will be performing OE operations at multiple sites within the SEDA facility. To more efficiently address each site-specific SOW, EODT has generated this generic WP to address the general, facility-wide requirements that EODT will apply to all sites, to include the generic OE location, investigation and disposal procedures that should be applicable to all sites within the SEDA.

When EODT is tasked with conducting operations at a specific SEDA project site, the CEHNC will issue a modification to TO 0003, to include a distinct SOW that addresses the site-specific operations. Upon receipt of the site-specific SOW, EODT will produce, and submit for approval, a site-specific WP Addendum that will identify the technical approach and site-specific OE operations to be conducted by EODT to meet the site-specific SOW. Each site-specific WP Addendum will be submitted under separate cover and will, to the greatest extent possible, reference this generic WP.

1.4 CHANGES TO THE WORK PLAN

This generic WP and each of the attached site-specific WP Addendums have been prepared after evaluations of data from archival researches and prior investigations, and discussions with the CEHNC. This WP and each WP addendum have been based on the information available at the time of preparation, and may be subject to change. Should any modifications to an approved plan be necessary, the procedures listed below will be followed to ensure the smooth integration of the WP changes.

1. The EODT PM, SUXOS, Occupational Safety and Health Manager, Site Safety and Health Officer (SSHO), or Quality Control Specialist (QCS), as appropriate, will develop the necessary changes in conjunction with the CEHNC.
2. If the WP changes have an adverse impact upon site safety, quality, or operations, the effected operations may have to be halted pending CEHNC approval of the changes. However, prior to formal approval of the changes, interim approval of the changes may be provided to facilitate implementation of the changes and minimize production impact. This interim approval may be provided by the CEHNC Contracting Officer (KO) through the on-site OSS. Any interim approval of WP changes will be documented by the EODT SUXOS in the on-site Operational Log.
3. Prior to the implementation of any changes, effected site personnel will be given a briefing related to the changes to ensure full understanding and implementation.
4. Once approved, the written change(s) will be incorporated into this generic WP.

While SOW changes are typically initiated by either CEHNC or EODT project management personnel, any EODT employee can recommend a change by identifying it to the SUXOS, who will in turn discuss the recommendation with the EODT PM and the OSS, and then, if warranted, forward it and its justification to the CEHNC KO.

CHAPTER 2: UXO OPERATIONAL PLAN

2.0 INTRODUCTION

This generic WP with its site-specific addendum(s) detail the organizational structure, personnel responsibilities, approach, and operational procedures (both OE related and technical) to be employed by EODT to meet the objectives of the TO 0003 SOW. This generic WP and its addendums further describes the individual activities to be conducted by EODT during each task, and outlines the methodologies to be employed to accomplish these activities.

2.1 PROJECT ORGANIZATION

The general SEDA project team consists of the CEHNC PM (Fred Wissel), the CEHNC Project Engineer (Kevin Healy), the OSS (to be determined), the EODT PM (Douglas Murray), and the SUXOS (Salvatore Molle). Figure 2-1 depicts the generic project organization, and shows the key personnel generally responsible for accomplishing project tasks.

2.2 EODT PERSONNEL RESPONSIBILITIES

All EODT personnel assigned to this project meet the CEHNC training and experience requirements for the position to which they are assigned. In addition to the project management responsibilities presented below, additional responsibilities have been given to specific key personnel and are defined further in this WP and the generic SSHP.

2.2.1 Program Manager

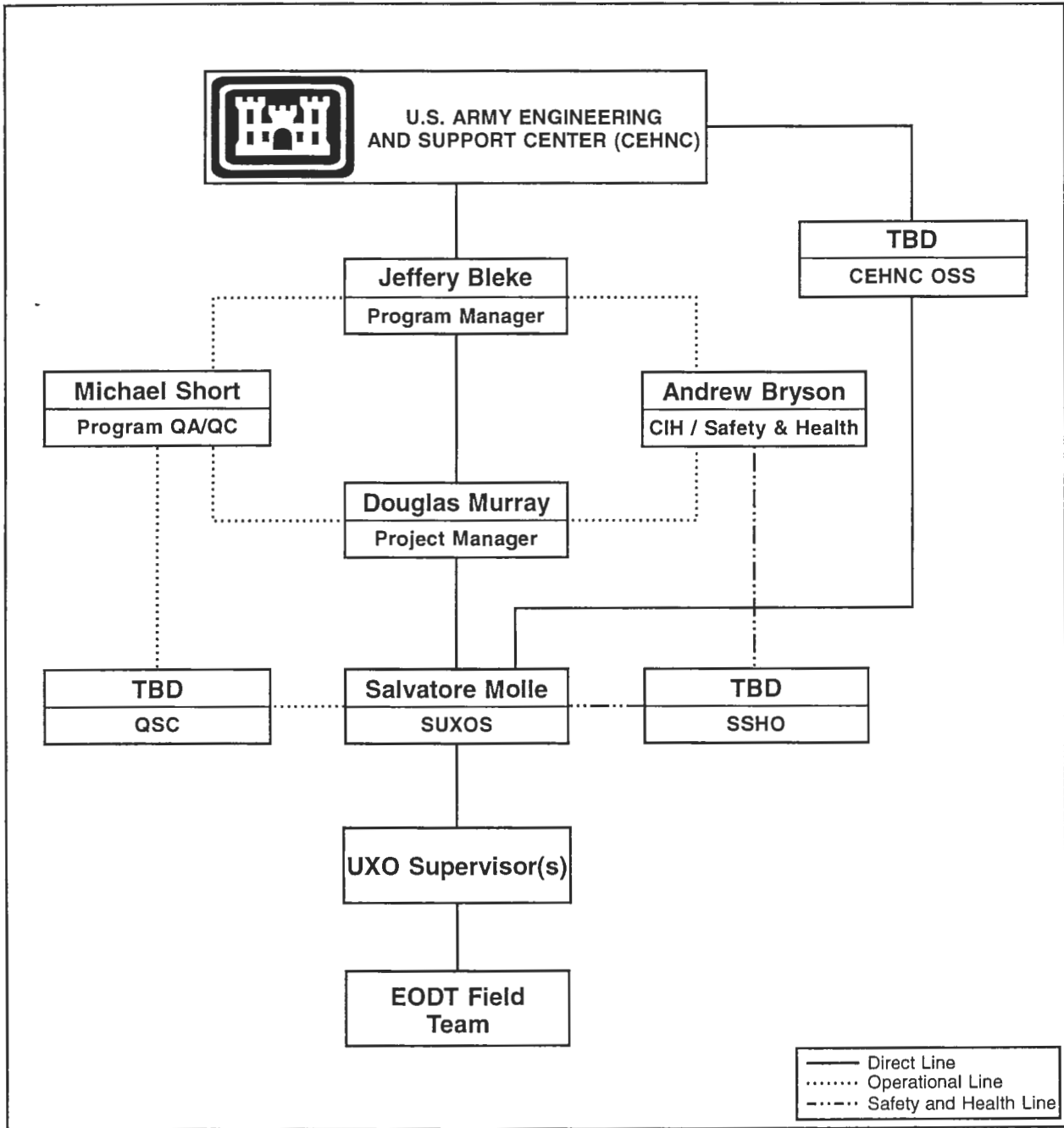
Mr. Jeffrey Bleke is the EODT Program Manager for this project and is responsible for the overall implementation of this project. Mr. Bleke is a registered Professional Engineer with extensive experience in the management of multiple project OE programs. Mr Bleke's qualifications and experience are presented in Appendix F of the WP. In this role, Mr. Bleke will be responsible for the management of the EODT resources needed for the implementation of site operations.

2.2.2 Project Manager

Mr. Douglas Murray is the EODT project manager (PM). He has more than 13 years of combined military and civilian Explosive Ordnance Disposal (EOD)/OE experience. Mr. Murray is a Master EOD officer and a graduate of the U.S. Navy EOD School, Indian Head, Maryland, and is a qualified Unexploded Ordnance (UXO) Supervisor. As the PM, Mr. Murray will:

- Report directly to the EODT Director of Operations for all project and operational matters;
- Manage the funding, manpower and equipment necessary to conduct site operations;
- Act as the point of contact for and communicate with the CEHNC PM;
- Oversee the overall performance of EODT individuals assigned to each project site;
- Review each SEDA SOW to ensure necessary elements are addressed in project plans; and
- Coordinate all contract and subcontract work and control contractual costs and schedules.

FIGURE 2-1. PROJECT ORGANIZATION



2.2.3 Senior UXO Supervisor

During execution of each modification to TO 0003, on-site operations will be managed on a day-to-day basis by an EODT SUXOS. Depending upon the size and number of projects being conducted by EODT on SEDA at any one time, more than one SUXOS may be assigned to SEDA. Each SUXOS employed by EODT at SEDA will be a master EOD technician and a graduate of the Basic and Advanced Naval EOD Schools, Indian Head, Maryland. Each SUXOS will also have over 15 years of combined military and civilian EOD experience, with extensive experience as a SUXOS. To ensure effective on-site management of site operations, each SUXOS will:

- Manage the EODT on-site manpower and equipment necessary to execute the SOW;
- Identify problem areas, and coordinate with the EODT PM to institute corrective measures;
- Ensure that all site activities are conducted according to this generic WP, the attached site-specific addendum, and all relevant Federal, state and local regulations;
- Act as the lead technical consultant for all on-site OE related matters; and
- Interface directly with, and relay concerns to, the OSS.

2.2.4 Occupational Safety and Health Manager

Mr. Andrew Bryson, the EODT OSHM, is an American Board of Industrial Hygienist Certified Industrial Hygienist (CIH) with over nine years of industrial hygiene, safety, and hazardous waste experience, including over six years of experience with sites contaminated with OE. During the performance of this project, Mr. Bryson will provide occupational safety and health management and technical support to the SSHO and other EODT project personnel as specified in the generic SSHP presented in Appendix A to this generic WP.

2.2.5 Site Safety and Health Officer

As with the SUXOS, it will also be possible for multiple SSHOs to be operating at different sites within the SEDA facility. For each project site under TO 0003, the assigned SSHO will meet the CEHNC OE training and experience requirements and will have over 10 years combined active military duty EOD and civilian UXO experience. In addition, each SSHO will have specific training, knowledge and experience necessary to implement the SSHP and verify compliance with applicable safety and health requirements, as specified in DID OT-0025. The SSHO will work closely with the OSS for issues related to OE safety, and will coordinate with the EODT OSHM for issues related to on-site implementation of the SSHP. As the person responsible for on-site safety and health management, the SSHO will follow the responsibilities outlined in the SSHP and will also:

1. Authorize stop work orders for safety and health conditions;
2. Manage and coordinate the procurement and issue of the personal protective equipment (PPE) required by the SSHP;
3. Identify and evaluate any known or potential safety/health problems and implement necessary corrective actions; and
4. Coordinate with the SUXOS for the implementation of the SSHP.

2.2.6 Quality Control Manager

Mr. Michael Short is the Quality Control Manager (QCM) for this project. He is a senior EODT officer with over 10 years of experience in the planning, design and implementation of OE projects and quality control (QC). Mr. Short will have the responsibility of ensuring that all deliverables meet the requirements of the SOW and the QC Plan presented in Chapter 8.0 of this WP.

2.3 APPROACH AND OPERATIONAL SEQUENCE

2.3.1 General

EODT's generalized approach to OE projects is to perform the assigned on-site OE tasks in the safest, most efficient and cost conscious manner feasible. Performing assigned tasks in this manner requires EODT to assess each SOW and determine the optimum personnel and equipment requirements that will be needed to ensure minimal exposure to OE hazards for a minimal number of personnel while still maintaining a high degree of quality. EODT's general project approach and operational sequence is presented below and in paragraphs 2.4 through 2.8. However, site-specific and task-specific requirements will be presented in each WP addendum, a significantly different technical approach and operational sequence may be needed for any given SOW. Therefore, while the technical approach detailed in this Chapter will apply to a majority of OE projects, paragraphs 2.4 through 2.8 will be modified as needed and detailed within each TO 0003 WP addendum.

2.3.2 Project Operational Sequence

EODT will perform site operations at SEDA in a systematic manner using proven operating techniques and methods. Based on EODT's experience with OE operations, and information obtained during the site visit, project tasks will typically be executed in six phases. These phases and associated work are outlined below and are discussed in detail in paragraph 2.4 to 2.8.

PHASE 1 - PERFORM SITE VISIT AND RECORDS REVIEW

- Visit the sites specified in the SOW, to determine required equipment, personnel, site accessibility, evidence of surface OE, project duration, and any requirement for vegetation removal; and
- Obtain a copy of the ASR "Findings" and "Conclusions and Recommendations."

PHASE 2 - PRE-MOBILIZATION

- Procure, package, and ship equipment to the site;
- Coordinate with subcontractors to ensure availability of subcontractor personnel and equipment, and schedule mobilization of same; and
- Coordinate with installation and local agencies via telephone.

PHASE 3 - MOBILIZATION

- Mobilize personnel and remaining EODT equipment to the site;
- Conduct site-specific and public relations training; and
- Conduct final coordination with installation and local agencies.

PHASE 4 - PERFORM LOCATION SURVEYING AND MAPPING (LS&M)

- Survey project site(s) to establish boundaries;
- Survey the corners of sampling grids within each site;
- Produce a tabulated list of control points (control points shall be located from existing monuments); and
- Develop maps of each site using the data collected from this phase.

PHASE 5 - OE REMOVAL ACTIONS

- Perform a visual survey of the site(s);
- Conduct any necessary vegetation removal;
- Survey the site(s) using appropriate anomaly location instruments;
- Investigate designated anomalies to determine the identity and hazards associated with the anomaly;
- Using approved OE demolition procedures located in Appendix G of this generic WP, explosively dispose of all hazardous OE through either blow-in-place (BIP) procedures or through consolidation of those OE items identified as being unfuzed or safe to move; and
- Collect and segregate OE and non-OE scrap according to the requirements of the SOW.

PHASE 6 - PROJECT CLOSE-OUT

- Turn in all inert OE and OE-related scrap greater than 1 inch in any dimension to the nearest Defense Reutilization Marketing Office or local scrap dealer;
- Break down site and close accounts;
- Remove/return equipment as needed and demobilize workforce; and
- Generate the Final Removal Report.

2.3.3 Project Assumptions

The planned sequence of events and its timely completion will typically be predicated on a list of assumptions. Site-specific assumptions will be discussed in each site-specific WP addendum.

2.4 PRE-MOBILIZATION

EODT will commence pre-mobilization operations upon written notification of WP approval, to include the "Notice to Proceed" from the CEHNC KO. During this phase, EODT will systematically build and establish its operational capability for the SEDA.

During the development of each site-specific WP addendum, EODT will assess equipment, personnel and subcontractor requirements for the specified project and will arrange for the delivery of required items to the site in conjunction with the arrival of the site personnel. Project equipment will come from EODT sources, local leases/purchases, and government furnished equipment (GFE) from SEDA. All equipment, regardless of source, will be checked to ensure its completeness and operational readiness. Coordination of equipment acquisition will include communicating with CEHNC and SEDA personnel to determine the availability of GFE, and the requisitioning of equipment from commercial sources.

2.5 MOBILIZATION

2.5.1 Training

EODT will schedule the arrival of the work force in a manner that is most effective and designed to allow for immediate productivity. As part of the mobilization process, EODT will perform site-specific training for all personnel assigned to this project. The purpose of this training is to ensure that all site personnel fully understand the procedures and methods EODT will use to perform operations at the SEDA, their individual duties and responsibilities, and all safety and environmental concerns associated with operations. Any personnel arriving at the site after this initial training session will be trained as they arrive. Training topics and training responsibilities are listed below:

- All personnel will receive training related to equipment that they will operate while on site, to include safety and health precautions and field inspection and maintenance procedures.
- All site personnel, to include subcontractor personnel, will receive detailed training on the WP, SSHP and the site-specific environmental protection plan (EPP). This training will be presented by the SSHO and SUXOS.

Note: In addition to the mobilization training specified above, all EODT and subcontractor personnel will have current OSHA hazardous waste and emergency response operations training as specified in the SSHP and will meet the medical surveillance requirements outlined in the SSHP.

2.5.2 Public Affairs

IAW DID OT-045, all site personnel will be instructed in public relations procedures. During this training, all site personnel will be informed that they are to refer all inquiries from the public to the SUXOS, who will in turn forward the request to the CEHNC for action. Site personnel will not make any public statements to the media without prior coordination with and approval of the Public Affairs Office, USACE New York District, and the CEHNC. In the event the CEHNC requests assistance in public meetings, media days, and press/news releases, EODT personnel will assist as directed.

2.5.3 Set-up Support Facilities and Assemble Equipment

It is EODT's intention to use, to the maximum extent possible and allowable, any previous facilities whose location logistically supports site operations. During the site visit, EODT coordinated with CEHNC and SEDA for the use of office space and igloo type explosives storage magazines. EODT will establish its administrative field office either in the office located at the entrance to the Munitions Destruction Area (MDA) or, for smaller projects of short duration the SUXOS will administer the project from the site vehicle and support area. In both cases, the office in the MDA will serve as the storage facility for hand-held field equipment and supplies.

2.5.4 Communications Equipment

EODT will install, inspect, and test all site communications equipment, to include:

- Hand-held five-watt portable radios, with a range of five-to-eight miles that will be used to maintain communications between SEDA, subcontractors, and the field team.
- EODT will use cellular telephones, acquired through a local cellular service (very high frequency band 150-174), as back up communications between the field office and SEDA.

2.5.5 Explosives Storage

EODT will utilize GFE double igloo-type earthen covered magazines for storage of demolition material. These magazines are located inside a fenced enclosure adjacent to the Open Burning Grounds. The magazines are double locked with the required lightning system installed.

2.5.6 Coordinate with Local Agencies

The PM, SUXOS, SSHO and QCS will coordinate with the following agencies:

- CEHNC, to reconfirm priorities/schedules, and to identify any changes in the SOW;
- Local vendors and suppliers; and
- The local/regional Air Traffic Controller and the SEDA fire, medical, and police agencies.

2.6 REMEDIATION

Due to the significant variations that can occur from one OE project to the next, EODT will not attempt to address all of the various technical approaches typically employed by EODT at an OE removal project site. Rather, this generic section is being used to present those standard operating procedures that are typically used for the majority of OE removal projects. The site-specific technical approach for this section will be completed in detail during the development of each site-specific WP addendum.

2.6.1 General Site Organization and Practices

Upon completion of mobilization activities, EODT will commence OE remediation operations IAW the SOW for the project. Typical team compositions for the SEDA are presented in Table 2-1. The permanent on-site team will consist of the personnel as shown in Table 2-2, and the subparagraphs

presented below describe the general work practices that EODT will follow during OE removal operations. The site and task-specific procedures and methods EODT will use to accomplish each SOW will be specified in the site-specific WP addendum.

TABLE 2-1: TEAM COMPOSITION

TEAM	LABOR CATEGORY	QUANTITY
Pre-Mobilization Team	PM	1
	SUXOS	1
Pre-mobilization Total		2
Location Survey & Mapping Team	UXO Specialist	1
	Surveyor	1
	Rodman	1
Location, Survey & Mapping Team Total		3
OE Remediation	SUXOS	1
	SSHO*	1
	QCS*	1
	UXO Supervisors	To be determined (TBD)
	UXO Specialist	TBD
Remediation Team Total		TBD
Close-out Team	PM	1
	SUXOS	1
	SSHO*	1
	QCS*	1
	UXO Supervisors	TBD
Close-out Team Total		TBD

* - These positions may be filled by the same person if fewer than three teams or few than 21 personnel are assigned to field operations.

TABLE 2-2: PERMANENT ON-SITE FIELD PERSONNEL

LABOR CATEGORY	QUANTITY
SUXOS	1
SSHO*	1
QCS*	1
UXO Specialist	TBD
Surveyor	1
Rodman	1
TOTAL	TBD

* - These positions may be filled by the same person if fewer than three teams or few than 21 personnel are assigned to field operations.

All operational activities at SEDA will be performed under the supervision and direction of qualified UXO personnel. Non-UXO qualified personnel will be prohibited from entering work areas, or performing any operation, unless they are accompanied, and supervised, by a UXO technician.

Throughout the entire operation, EODT will strictly adhere to the following general practices.

- 1) **Work Hours:** Operations will be conducted only during daylight hours, which is thirty minutes after sunrise until thirty minutes prior to sunset. EODT intends to work four 10-hour days, with five 8-hour days as an option. In no case will personnel work more than ten hours in any day, or more than forty hours in any week, and will have a minimum 48-hour rest prior to the start of the next work week.
- 2) **Site Access:** EODT will control access into work areas and will limit access to only those personnel necessary to accomplish the specific operations or to those personnel who have a specific purpose and authorization to be on the site. No hazardous operations will be conducted when unauthorized personnel are in the vicinity.
- 3) **Handling of OE:** OE items will be handled by qualified UXO personnel only. Non-UXO site personnel will be instructed and closely supervised to ensure they do not handle any OE. Ordnance related scrap (ORS) may be handled or touched by non-UXO qualified personnel once a UXO technician has determined the ORS to be free of explosive hazards.

2.6.2 Compliance with Plans and Procedures

All personnel will strictly adhere to approved plans and established procedures. If operational parameters change and there is a corresponding requirement to change procedures or routines, careful evaluation of such changes will be conducted by on-site supervisory personnel in close liaison with the CEHNC OSS. Any new course of action, or desired change in procedures, will be submitted in writing, with justification for approval. Approved written changes will be implemented in a manner that will ensure procedural uniformity and end-product quality on the part of EODT.

2.6.3 Safety and Operational Training and Briefings

EODT will conduct safety and operational briefings daily. Additionally, the SUXOS or the SSHO may hold a safety stand-down any time a deviation/degradation of safety warrants a review. The safety/operational training/briefings listed below shall be conducted and documented as specified.

- 1) **Daily Tailgate Safety Briefing:** A tailgate safety brief will be conducted by the SUXOS and the SSHO for all site personnel prior to the commencement of work each day. A written record of this training will be maintained on the EODT Safety Meeting Attendance Log found in Appendix E of this WP. The briefing will focus on specific daily hazards, potential hazards and risks that may be encountered, and the safety measures that should be used to eliminate or mitigate those hazards. Additionally, a detailed review of site-specific topics (i.e.; specific safety equipment, emergency medical procedures, accident forms, and notification procedures) will be included in this brief at least once a week. The task-specific

Certification of Task Hazard Assessment Forms, found in Attachment 2 of the SSHP, will be used during the daily briefings to provide personnel with information related to known or potential task-specific hazards.

- 2) **Visitor Safety Brief:** All visitors entering the site must sign in at the EODT site office. Site visitors must receive a safety briefing, as outlined in the SSHP, prior to entering any work area. Visitors must be escorted at all times by a UXO-qualified individual.
- 3) **Environmental Concerns:** The promotion of environmental sensitivity will be ongoing as a part of the daily safety and operational briefs.
- 4) **UXO Refresher:** All UXO personnel will be given a UXO refresher by the SSHO and SUXOS on the known ordnance to be encountered on site. The refresher includes identification features, hazards and disposal methods.
- 5) **Additional Training:** A detailed listing of site and task-specific training requirements is presented in Chapter 6 of the SSHP, found in Appendix A to this generic WP.

2.6.4 Preparation of Work Areas

Prior to initiating work in a new area, the SUXOS will review the area and determine what preparatory measures are needed. Preparatory measures may include, but are not limited to, the items listed below.

- 1) In some cases, dirt roads and tracks into a grid site may require repair or fill. If such repair does not deter from the SOW, and is within EODT's capability, it will be undertaken immediately. Approval from the CEHNC KO will be obtained prior to any major unforeseen work being attempted.
- 2) Access routes and work areas will be searched and cleared of all UXO prior to the commencement of grid activities to ensure safe ingress/egress routes for all personnel and equipment.
- 3) Prior to the initiation of OE operations EODT will establish a system of work and exclusion zones that will be used to minimize the number of personnel on site and prevent unauthorized entry into the site. For the purpose of this generic WP, a work zone (WZ) is defined as any location where EODT or subcontractor personnel are conducting any of the site tasks specified in the SOW or any sub-task that involves the potential for personnel exposure to safety or health hazards. Additionally, an exclusion zone (EZ) will be established to protect off-site personnel from the blast and fragmentation hazards that may occur due to the detonation of an UXO. The size of the EZ correlates to the size of the public withdrawal distance (PWD).

2.6.5 Location Surveying and Mapping

The LS&M team will typically consist of a surveyor, an assistant and a UXO specialist. The LS&M team will survey the boundaries and grid corners of each project site IAW the site-specific WP addendum and the requirements of Chapter 5 of this WP. The team will survey the sites and grids

in an order agreed upon by EODT and CEHNC and will proceed as requested by the OSS. The team reports directly to the SUXOS and will keep him apprized of their progress. The team will use instrumentation capable of accurate measurements as specified in the SOW. The site boundary will be marked at the corners using Schedule 40 PVC and the individual grids will be marked at the corners using highly visible wooden stakes with the grid number on the wooden stake. Any unusual terrain or other peculiar features in the grid, as well as any OE encountered, will be annotated on the grid map and reported to the SUXOS. A magnetometer check will be made at each location where a stake, or other marker, is to be set to ensure the location is free of anomalies.

2.6.6 Visual Survey

If directed by the SOW, EODT UXO teams will conduct a visual survey of each grid. This will be conducted by initially establishing a search line along one of the grid borders, with search personnel in a line spaced at a double arms length interval. Once the interval is established, personnel advance to the other end of the grid while searching the surface for visible signs of OE. Upon completing a sweep line, the team then turns around, moves over, and proceeds as above in the opposite direction until reaching the original base line. The process is repeated until the grid is completed. Any OE encountered will be marked with two crossed pin flags. The OE will either be blown-in-place (BIP) or, it may be consolidated with other OE for disposal if the item is unfuzed and identified as safe to move.

2.6.7 Vegetation Removal

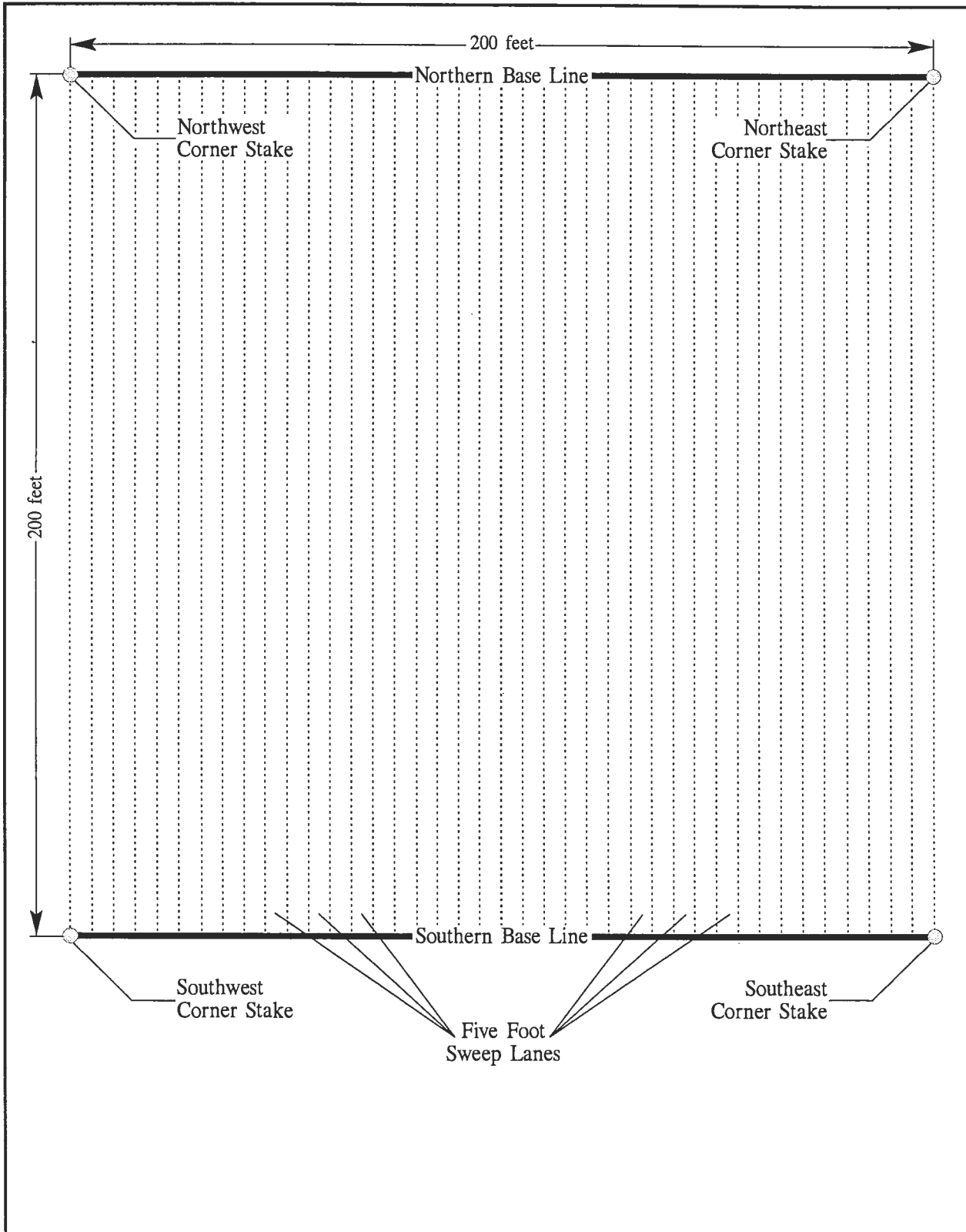
The vegetation removal personnel will commence vegetation removal operations in a systematic manner. The equipment used for vegetation clearing will consist of weed eaters with blades, a bush hog, a DR™ Mower and/or a hydro-ax. The equipment used in each grid will be dependent on the features and characteristics of the grid. All vegetation removal activities will be performed IAW the Environmental Protection Plan in Chapter 7 of this WP and the SSHP found in Appendix A. Grass and brush will be removed to within six inches of the surface and tree limbs will be removed to a height of six feet. No trees greater than three inches in diameter will be cut down without the prior approval of the OSS.

2.6.8 OE Magnetometer Survey

Depending upon the SOW for a given project site, the site may require magnetometer surveys to remove all OE hazards to the depth specified in the SOW. The grid sequence for the magnetometer surveys will be specified in the site-specific WP addendum but may be altered by the SUXOS in coordination with and the approval of the OSS. To conduct the magnetometer sweeps, EODT personnel will follow the procedures outlined below for each grid.

- 1) **Search Lanes:** Once the grid location has been surveyed and the vegetation removed, the magnetometer survey team can commence their search. Each grid will be subdivided into individual five-foot search lanes (see the grid layout in Figure 2-2) that will run parallel to

FIGURE 2-2. TYPICAL GRID SEARCH LANE LAYOUT



the east and west boundary lines of the grid, (i.e., 40 lanes per grid). To lay out the search lanes, the EODT personnel will lay out pre-marked base lines along the north and south boundary lines, then lay out lines or cones between the marks on both base lines to delineate the lanes.

- 2) **Grid Search:** To conduct the grid search, a sweep line will be established that is comprised of UXO magnetometer operators. After the individual search lanes have been assigned, the team leader will direct personnel to begin searching their respective lane with the magnetometer. Search personnel will start at one end of each lane and will move forward toward the opposing base line. During the forward movement, the searcher will move the magnetometer from one side of the lane to the other. Both the forward movement and the swing of the magnetometer will be performed at a pace that will ensure the entire lane is searched and that the instrument is able to appropriately respond to subsurface anomalies. Whenever a surface or subsurface anomaly is encountered, either visually or with the magnetometer, the trailing UXO Technician will mark the object or anomaly with a pin flag at that location. Once personnel reach the opposing base line, the sweep line will shift to the next lanes and will proceed back to the original base line. This process will be repeated until all lanes have been searched.
- 3) **Equipment:** The equipment to be utilized for this activity includes:
 - Schonstedt 52 CX;
 - Wooden stakes or traffic cones will be used to subdivide the grid into individual search lanes;
 - Colored pin flags will be used to mark anomaly locations;
 - Miscellaneous common hand tools; and
 - Forms and logbooks to record activities.

2.6.9 Geophysical Investigation/Site Characterization

The procedures and operational methods to be exercised for this type of OE task will be developed and included in future site-specific WP addendums, as applicable.

2.6.10 Anomaly Investigation for Subsurface Clearances

Once a grid has been searched, excavation of anomalies will be performed IAW CEHNC Safety Concepts and Basic Considerations for Unexploded Ordnance (UXO) Operations. Investigations of anomalies will also be conducted IAW the procedures outlined in this WP and the applicable EODT Standard Operating Procedures (SOPs) presented in Appendix G of this generic WP.

2.6.10.1 Subsurface Clearance

The subsurface clearance will be conducted in the grids to a depth specified in the SOW. Anomaly investigation will be conducted using a shovel and smaller hand tools. Periodically during digging, the UXO technician will use a magnetometer to verify the location, and approximate depth of the

anomaly, based on the signal strength. Once verified, the UXO technician will continue digging with either the shovel or hand tools. In the event an anomaly is determined to be at a depth greater than that specified in the SOW, SUXOS, in conjunction with the CEHNC OSS, will determine the appropriate action: a) continue the excavation; or b) record the location of the anomaly for pursuing at a later time.

2.6.10.2 Location Recording

The SUXOS will direct and supervise the following operations for UXO/OE encountered.

- Complete a Grid Survey Summary Log Form and an OE Operations Grid Map, examples of these can be found in Appendix E of the generic WP.
- Measure the approximate distance to within one foot from the southwest grid corner to the OE item of concern, and also record the depth at which the item was found.
- If the item is determined to be fuzed, or is otherwise unsafe to move, its location will be marked with crossed pin flags, so that the item may be relocated for BIP demolition.

2.6.10.3 Records

The SUXOS will maintain in a hard bound notebook, a detailed accounting of activities performed at each grid, which will include information pertaining to the following:

- The date and time operations began;
- Team composition and personnel names and positions;
- The date and time operations were completed;
- Any event which impacted on the day's operations; and
- The number of OE located, with the identification, condition, depth, disposition and location recorded on the Grid Survey Summary Log and OE Operations Grid Map.

2.6.10.4 Removal and Disposal of Scrap Metal

A temporary collection point for ORS will be established by the SUXOS or team leader within or adjacent to, each operating grid. During operations, the UXO technician who uncovers an item will inspect it for the presence of explosive hazards. OE items that are free of explosive contamination and do not require venting will be placed in the grid ORS collection point. Upon completion of operations in that grid, the material in the collection point will be collected and loaded into containers, weighed and the weight entered in the team log book. Inspection of ORS will be conducted IAW the QC requirements outlined in Chapter 8 of this WP.

2.6.11 Disposal Operations

All OE-related material containing explosives will be disposed of by detonation utilizing standard demolition procedures as outlined in TM 60A-1-1-31 and the EODT Disposal/Demolition Operations SOP found in Appendix G of this WP. The following paragraphs describe in general the procedures EODT will use to detonate OE related items at the SEDA.

2.6.11.1 General Procedures

EODT will dispose of explosively contaminated OE materials on a daily basis, unless an alternate schedule is proposed and approved by the CEHNC OSS. During demolition-related operations, the number of personnel remaining on site will be limited to only those personnel needed to safely and efficiently prepare the item(s) for destruction.

Demolition operations, will be performed under the direction and supervision of the SUXOS, and will be observed by the SSHO who will be present at the disposal site. The SUXOS is charged with the responsibility of ensuring that the demolition procedures contained and referenced in this WP are followed at all times. Both the SUXOS and the SSHO will monitor compliance with the safety measures and in the event of a noncompliance, both are vested with the authority to immediately halt operations. Disposal activities are inherently hazardous and require strict adherence to approved safety and operational procedures. Violations of safety requirements during demolition operations will be grounds for immediate removal from the site and termination of employment.

2.6.11.2 Equipment

Standard demolition equipment will be selected and utilized IAW the procedures and guidelines dictated by TM 60A-1-1-31, Chapter 4 and Appendix G of this WP. Prior to use, demolition equipment will be inspected and tested IAW the QC procedures outlined in Chapter 8 of this WP.

2.6.11.3 Demolition Materials

EODT will utilize the best option of appropriate demolition materials to control the shot and reduce the net explosive weight (NEW). Due to the variety of hazardous OE that may be encountered at SEDA, approved combinations of the demolition materials listed in Table 2-3 may be needed and used to ensure proper and complete demolition of an OE item. EODT uses Department of Transportation (DOT) Class 1.3 and 1.4 explosives whenever possible to reduce risks and costs.

TABLE 2-3. POSSIBLE DEMOLITION MATERIALS

DESCRIPTION	WEIGHT	DOT CLASS	COMPATIBILITY GROUP
T-100 Green Stick	1.5 lbs	Oxidizer & Flammable	L
Perforators	19 grams	1.4S	D
Detonating Cord	80 grain	1.4D	C
Electric Detonators	No. 8	1.4B	B
Detonator, Non-electric	No. 8	1.4B	B
Time Fuze	M 700	1.4S	S
Igniter	M2/M60	1.4S	S

The explosive classes listed above are those provided to EODT by the supplier on the product data sheets, and they reflect commercial classifications that are usually lower than US Army classifications for the same items. Additionally, the compatibility codes listed above were obtained from TM9-1300-206.

2.6.11.4 Evacuation and Site Control

Prior to initiation of demolition operations, all non-essential personnel will be evacuated to a distance outside the PWD for the item(s) being detonated. Prior to priming of demolition charges, all avenues of ingress will be physically blocked by site personnel. The SUXOS will coordinate the blocking of the main road with SEDA personnel, if required. Radio communications will be maintained among all concerned parties. Avenues of ingress will not be opened without the express permission of the SUXOS. A constant state of vigilance must be maintained by all personnel to detect any intrusion into the PWD. EODT will use the appropriate number of personnel to ensure the area is properly secured.

2.6.11.5 Explosive Acquisition, Accountability, and Transportation

EODT will supply all explosives and maintain total control of the explosives while on site IAW the company SOP found in Appendix G of this WP. Explosives will be removed from the SEDA explosive storage as required, and only the amount of explosives required for the day's operation will be issued each day. EODT will comply with the requirements listed below:

- Strict accountability of explosives will be maintained at all times. EODT will maintain explosives accountability logs, found in Appendix E of this WP, and will reconcile amounts daily.
- Only UXO qualified personnel will be issued explosives and allowed to transport explosive materials.
- All vehicles transporting explosives will be properly inspected, equipped, and placarded prior to the loading of explosives onto the vehicle.

2.6.11.6 Disposal Shots

While preparing UXO for detonation, the SSHO will ensure that the number of personnel on site is kept to the minimum required to safely accomplish the task. Authority to initiate demolition operations will rest solely with the SUXOS, who is responsible for ensuring all personnel are accounted for and have evacuated the area. The SUXOS will also ensure the area is clear and secure prior to authorizing the detonation of explosive charges. The SSHO will ensure all pertinent parties have been notified of an impending demolition shot. Prior to priming, the SUXOS will: direct all personnel not involved in the priming process to withdraw outside the PWD for the ordnance involved; ensure roadblocks are posted; ensure a minimum of three feet of soil is placed on the demolition shot (if required); and ensure the warning is sounded as required by Paragraph 8-4 of

SOP 120D of Appendix G of this WP. The priming team will then withdraw to outside the PWD prior to initiating the detonation.

Should multiple OE items be encountered that preclude individual detonation (e.g., the items are so close together and items cannot be moved), the disposal team will explosively link these shots using detonating cord. Additionally, if multiple UXO are consolidated into a single demolition shot, the UXO and demolition charges will be configured IAW the CEHNC guidance document entitled "Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites" dated August 1998. If multiple shots are conducted, the SUXOS, in conjunction with the CEHNC OSS, will recalculate the PWD according to the procedures listed above.

Upon completion of the demolition shot, the SUXOS and one UXO Technician will visually inspect each demolition site. While one of these individuals performs a visual inspection of the area, the second one will stand by at a safe distance and be prepared to render assistance in the event of an emergency. Upon completion of this inspection and providing there are no residual hazards, the SUXOS will authorize the resumption of site operations.

2.6.11.7 Transporting OE and Demolition Materials

EODT's SOP for the safe transport of explosives is included in Appendix G of the WP. Since the explosive storage magazines will be located within the SEDA, all transport will be on dirt/gravel roads, thereby eliminating the necessity to transport over public highways. The transport vehicle shall meet all the requirements of 49 CFR 100-199, CEHNC Safety Concepts and EODT's SOP's.

2.6.11.8 Explosive Storage

EODT will utilize an earthen covered double igloo type magazine for the storage of demolition materials. The igloos are constructed to Army and DDESB standards, including lightning protection and lighting. According to SEDA personnel, the design NEW of each magazine is 450 pounds, however, EODT does not anticipate storing more than 100 pounds NEW in either magazine. Additionally, as stated above, EODT will utilize Class 1.3 and 1.4 explosives, further reducing the explosive hazard. The perforators (Class 1.3, compatibility group D) and detonating cord (Class 1.3, compatibility group C) will be stored in one magazine, and the electric detonators (Class 1.4B, compatibility group B) will be stored in the second magazine.

2.6.12 Soil Excavation and Processing

Due to the clearance depths typically specified in an OE removal action SOW, soil excavation with earth moving machinery (EMM) may be required. If EMM is used, EODT personnel will visually inspect the excavation site prior to each one foot lift to ensure that no OE are visible from the surface or within one foot of the surface. If an anomaly is located prior to excavating, or at any time during the excavation, the item will be identified and either removed or disposed of through BIP prior to

the continued soil removal. Once the area has been cleared for excavation, a one foot lift will be removed and the excavated area will be inspected to determine if any OE have been uncovered. The bucket contents will then be visually inspected prior to dumping, and again after the bucket is dumped. When the EMM has excavated to a depth of approximately one foot over the item, one UXO Specialist (UXOSP) will utilize hand tools and a shovel to investigate the item. During excavation operations, the SSHO will be responsible for periodically inspecting the excavation and ensuring that appropriate safety procedures are used. Any excavation greater than four feet in depth will require guidance and approval of a registered engineer, as stated in the EODT Excavation and Trenching SOP presented in Appendix G to this WP.

2.6.13 Quality Control Inspections

EODT will utilize the QC procedures presented in Chapter 8 of this WP for controlling and measuring the quality of all work performed at SEDA. All QC activities will be performed and documented IAW applicable professional and technical standards, USACE requirements, and project goals and objectives. All site activities and project deliverables will be assessed, documented and reviewed for precision, accuracy and completeness.

2.7 PROJECT CLOSE-OUT

During this phase of each project, EODT will remove its operational capability from the area and will reallocate its personnel and equipment to either other SEDA projects or projects outside the SEDA. In order to clearly estimate the completion of each project, the project SUXOS and PM will closely monitor operational performance throughout the execution of each SOW. The SUXOS will initiate actions to demobilize personnel and equipment once a clear projection can be made of the actual completion date and approval has been granted by the CEHNC PM. Demobilization and close-out activities will be performed by EODT's SUXOS, SSHO, and UXOSP.

2.7.1 Scrap Turn In

Upon completion of the project, all stockpiled, inert ordnance and ORS will be turned in to a local scrap dealer. The procedures outlined in DoD 4160.21.M will be followed and the shipment certified as being free of explosive hazards. A DD Form 1348-1 will be utilized as the Turn-In Documentation, and will include the statement "I certify that the property listed hereon has been inspected by me, and to the best of my knowledge and belief, contains no item of a dangerous nature." The DD Form 1348-1 will be signed by the SUXOS and all turn-in documentation included in the Removal Report.

2.7.2 Break Down Site

This paragraph, the requirements of the SOW and the specifications in Chapter 7 of this WP, will be followed in the break down of the site. All temporary facilities will be removed and the site

returned, as nearly as feasible, to its original condition. All holes and excavations will be filled in, graded and re-vegetation will be conducted IAW the SOW.

2.7.3 Removal of the Workforce

EODT will demobilize site personnel as activities are completed and a workforce reduction is warranted. The decision to reduce personnel will be based on operational requirements and will be submitted to CEHNC for review and approval.

2.7.4 Close Out Accounts

Following the completion of operations, the SUXOS will take action to close all accounts with local vendors and suppliers. Final billing for these accounts will be forwarded to the main EODT office for payment. EODT will also close all utility accounts and terminate its hardwired and cellular telephone service. Should CEHNC desire that these services be transferred to an incoming contractor, or another SEDA project site, EODT will coordinate with the CEHNC and service provider to ensure that uninterrupted service is maintained. EODT will also assist the CEHNC in identifying qualified, competent vendors/suppliers for future projects/contractors.

2.7.5 Removal of Facilities and Equipment

All temporary facilities provided by local vendors and the Government will be removed from the project site if applicable. The procedures for documenting equipment transfers, as outlined in Chapter 5 of this WP, will be followed and executed by the SUXOS. Equipment will be removed as specified below.

- **EODT Equipment:** During close-out, EODT will remove all of its operating equipment from the specific SEDA project site. The equipment, which will be in a clean and operable condition, will either be returned to the EODT corporate office, re-allocated to another SEDA project or shipped off site to another project.
- **Government Furnished Equipment:** GFE utilized will be turned-in according to guidance provided by the CEHNC. All GFE will be returned in clean and operable condition.

2.8 PROJECT SUBMITTALS

IAW each SOW, EODT will submit a draft copy of the project report within 30 working days of the field work completion. A final copy of the project report shall then be submitted within 30 days after receipt of comments from the CEHNC. Depending on the requirements of the SOW and the nature of the OE tasks performed, the content of each project report may vary. However, for OE removal action projects, the project report will contain the items identified below.

- All original survey and mapping data IAW the SOW.
- A detailed accounting of all OE and related materials located and disposed of on site.
- A financial breakdown by task of all costs and labor hours used to perform the SOW.
- Daily journals of all activities associated with the job site.

- A recapitulation of exposure data, to include total number of man-hours worked on site, total motor vehicle mileage, total number of flying hours, and total number of flights.
- Scrap material turn-in documentation.
- Documentation of QC activities.
- Twenty, four-by-six inch color photographs depicting major action items and OE discoveries.
- A description of major problems or issues encountered with supporting documentation.
- A 60 minute VHS tape with voice narration showing major activities and OE discoveries.
- Written record of all endangered/threatened flora and fauna destroyed during site activities.

CHAPTER 3: SITE-SPECIFIC SAFETY AND HEALTH PLAN

To ensure the continued health and safety of site personnel, the general public, and the environment, EODT's Corporate Safety and Health Program (CSHP) mandates that EODT develop a SSHP whenever site operations fall under the requirements of the Occupational Safety and Health Administration (OSHA) Hazardous Waste and Emergency Operations standard found in Title 29 of the Code of Federal Regulations (CFR), Part 1910, section 120. To ensure EODT's continued compliance with this standard, EODT has developed a comprehensive generic SSHP (see Appendix A of the generic WP) which addresses the typical site tasks that have the potential for personnel exposure to chemical, physical or biological hazards. Upon assignment of a site-specific TO, EODT will generate a site-specific addendum to the WP that will contain site-specific information related to both the WP and the SSHP. Along with being developed IAW 29 CFR 1910.120, EODT has incorporated the requirements of the following documents in the generic SSHP and addendums:

- Engineering Manual (EM) 385-1-1, *US Army Corps of Engineers Safety and Health Requirements Manual*, 1996;
- Engineering Regulation (ER) 385-1-92, *Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste and Ordnance and Explosives Waste Activities*; and
- The EODT CSHP.

This generic SSHP has been prepared using EODT's professional knowledge of the tasks to be performed and available site-specific data. However, the SSHP is to be considered a living document, intended to grow and change in response to any changes that occur in either the anticipated site conditions or the SOW. In the event that changes must be made to the SSHP, EODT safety, health and UXO-qualified personnel will address the changes and submit them to the CEHNC KO for approval prior to implementation.

To assist in its implementation, the generic SSHP will be maintained on site during all site operations. All EODT and subcontractor personnel working on site will be required to read, understand and comply with the provisions of the SSHP and will sign the EODT SSHP Review Form (see Appendix E of this WP) prior to initiating site operations involving personnel exposure to safety and health hazards. Relevant sections of the generic SSHP will be used by the SSHO for conducting initial training and daily tailgate safety briefings. To ensure the proper implementation and effectiveness of the SSHP, daily site inspections and weekly audits will be conducted by the SSHO. Any on-site deficiencies detected will immediately be reported to the SUXOS, and corrected as requested by the SSHO.

CHAPTER 4: GEOPHYSICAL EQUIPMENT PLAN

4.0 GENERAL

In the event that geophysical surveying and mapping is required during a SEDA project, EODT shall select and deploy the type of geophysical surveying instrumentation best suited for the site, the ordnance anticipated and the depth of detection. Due to the significant variations in equipment and operational procedures, this chapter will be completed on an as needed basis for those site-specific WP addendums where geophysical surveying is required by the SOW. The typical geophysical equipment plan will contain the following topics:

1. Sensors;
2. Sensor mobility; and
3. Data storage.

CHAPTER 5: EQUIPMENT PLAN

5.0 GENERAL

EODT is directly responsible and accountable for all GFE and will establish and implement a system to control, protect, preserve, and maintain all GFE utilized in support of this project. This Equipment Plan prescribes the procedures EODT will use to maintain accountability of its equipment and any GFE. For purposes of this plan, the term equipment will apply to both EODT owned equipment and the equipment provided by the Government.

5.1 PROPERTY MANAGEMENT OBJECTIVES

The objective of this plan is to ensure that equipment is acquired, tracked, utilized, maintained, secured, and, if applicable, disposed of properly. This plan shall be applied to all field and office equipment.

5.2 RESPONSIBILITIES

EODT is responsible for ensuring that its work force at the SEDA is furnished with the requisite equipment needed to accomplish the SOW associated with this TO. It is imperative that project equipment is provided in a timely manner, and that it arrives at the work site in functional condition. In addition to this corporate responsibility, the management, supervisors, and workers on site have specific responsibilities regarding the use, maintenance, and storage of equipment.

5.2.1 SUXOS

The SUXOS has overall responsibility for ensuring that equipment requirements are projected in sufficient time to allow EODT and/or the Government to acquire, process and ship the necessary materials to the site. The SUXOS is also responsible for maintaining accountability of issued equipment and ensuring that this equipment is properly maintained. Whenever possible, equipment that will be used solely by one field team will be issued to the team supervisor.

5.2.2 Team Supervisor/Leader

Personnel assigned as a Team Supervisor/Leader will be responsible for the proper use, storage, and accountability of equipment issued to, and used by, their team. This responsibility includes: performing daily checks to ensure that equipment is available, clean, and operational; and ensuring that equipment used during operations is returned, cleaned, properly secured and maintained.

5.2.3 Individual

All EODT employees are responsible for operating and maintaining equipment in a reasonable and prudent manner. This includes using the appropriate equipment for the assigned task, using equipment for its intended purpose and in its intended manner, daily cleaning of the equipment,

properly storing and securing the equipment at the end of the day, and promptly reporting any equipment failures or breakages.

5.2.4 Contract Administrator

The EODT Contract Administrator (CA) is responsible for acquiring the specified equipment IAW the applicable Federal Acquisition Regulations (FAR) and EODT's purchasing policies. The CA will coordinate the acquisition of required equipment with the EODT PM and SUXOS.

5.3 CATEGORIES OF EQUIPMENT

EODT categorizes equipment based on its source of supply and its physical characteristics. All equipment regardless of category, will be maintained and utilized in an appropriate manner.

5.3.1 Non-expendable Equipment

Non-expendable equipment consists of those items that are not consumed or do not lose their identity during use. Examples of this type of equipment are vehicles, computers, magnetometers, etc.

5.3.2 Expendable Equipment

Expendable equipment is defined as those items that are consumed during normal use or are discarded after use. This type of equipment includes paper products, fuels, string, explosives, and other consumable items.

5.3.3 Government Equipment

Government equipment, as defined in FAR 45.101 is, "all property owned or leased to the Government, or acquired by the Government under the terms of the contract. It includes both Government furnished property and contractor-acquired property." Contractor-acquired property (CAP) is equipment acquired or otherwise provided by the contractor for performing a contract and to which the Government has title.

5.4 ACCOUNTABILITY

The EODT SUXOS is responsible for all equipment used on site and for maintaining accountability documents and records for the equipment. The SUXOS may assign the administrative support tasks associated with this activity to a specific site person (e.g., an equipment manager) but must maintain sufficient involvement in the accounting and inventory process to ensure that the equipment is accounted for and maintained.

5.5 ACQUISITION

The SUXOS will be responsible for preparing quantity and specification requirements for each piece of equipment to be used on the project. These requirements will be forwarded to the CA, who is responsible for equipment acquisition. The CA will obtain three quotes and perform a lease purchase

analysis for each item not available from government sources. All acquisitions will be done in compliance with the applicable FARs and EODT's purchasing policies.

5.6 RECEIVING AND RECORDS

All equipment will be accounted for using an EODT Property Control and Tracking Card (a sample copy of this log is contained in Appendix E, Sample Forms). Upon receipt of equipment, the information from the shipping documents and/or purchase orders will be transcribed to the Tracking Card. The quantities and type appearing on the shipping or purchase documents will be compared with the actual items received, and any discrepancies will be noted and resolved. The Tracking Card will reflect the actual quantity received.

Tracking Cards will be prepared in duplicate, with one copy maintained on file at the work site and the other copy forwarded to the EODT home office. In the event that the property recorded on the Tracking Card is GFE, a copy of the Tracking Card will also be forwarded to the CEHNC Property Section. All shipping documents will be maintained on file as proof that equipment and supplies were received and/or purchased. These documents will include the purchase order (PO) request, the PO, shipping document and invoice. A copy of these documents will be maintained on site, with a duplicate copy maintained in the project file in the EODT home office.

5.7 IDENTIFICATION

All non-expendable government equipment will be clearly marked with an identifying number (e.g., CEHNC-FS-000). Property received directly from CEHNC should already be marked but the SUXOS will ensure that equipment received is in fact marked. When directed to procure CAP, EODT will contact the CEHNC Property Section and obtain an identifying number for the new piece of equipment. Upon receipt of the equipment, EODT will promptly mark the equipment with the number provided by the CEHNC Property Section.

5.8 MOVEMENT

The movement of all GFE or CAP will be tracked throughout the course of the project. Both on and off-site movement is tracked with the EODT Property Control and Tracking Card since this form has data fields for recording to whom the equipment is issued to on site and for recording the date, place, and manner of off-site transfer.

5.9 STORAGE

EODT will maintain a designated equipment storage area at the project site. Small items, such as hand tools, will be kept in a lockable storage area out of the weather. Larger items, such as vehicles, will be kept in a secured area with the keys secured in a controlled manner.

5.10 PHYSICAL INVENTORY

On a weekly basis, the SUXOS will ensure that all equipment and property is physically inventoried and visually inspected. On a monthly basis, a copy of the physical inventory of GFE and CAP will be reported to the CEHNC Property Office.

5.11 REPORTS

On a monthly basis, a GFE status report will be submitted as a part of the report to CEHNC. The status report will be sent with the physical inventory.

5.12 UTILIZATION

In the event that facilities or special test equipment is furnished by the government to EODT, effected items will be inventoried, tracked and maintained IAW FAR 45.5 and identified as such.

5.13 MAINTENANCE

EODT will maintain all equipment in its possession in functional condition. This includes performance of routine maintenance and service. In the event an equipment item requires maintenance beyond the capability of on-site personnel, EODT will coordinate with CEHNC personnel to determine if the equipment should be sent to a maintenance facility, discarded, or returned to the CEHNC property section. Equipment turned into external agencies for repair or service will be accounted for using shipping invoices and/or repair tags. All equipment will be maintained IAW the quality control procedures outlined in Chapter 8 of this WP.

5.14 SUBCONTRACTOR CONTROL

In the event that subcontractors are used on this project, they will be issued detailed subcontracts, which itemize the services to be provided. The PM and SUXOS will monitor performance of the subcontractor to ensure that the services are provided IAW the subcontract. The SUXOS will supervise all subcontractors, assign work and review all subcontractor invoices to ensure correctness.

5.15 DISPOSITION

Upon completion of operations, or when equipment is no longer needed, GFE will be returned to the CEHNC. Prior to returning property, a list of the property will be forwarded to the CEHNC Property Section. This list will be provided in sufficient time (normally 30 days in advance) for the Property Section to make a determination of whether the equipment is to be returned to Huntsville or shipped to another work site. Property will be cleaned and properly packaged for return shipment. If an item being returned is unserviceable, it will be tagged indicating the shortcoming. At the time of shipment, the SUXOS will complete the Property Control and Tracking Card for the equipment to indicate the date, place and manner of final disposition.

5.16 PROJECT REQUIRED EQUIPMENT AND SUPPLIES

Due to the substantial variations that can occur with on-site equipment needs, this paragraph with its accompanying equipment tables will be presented in detail in each of the site-specific WP addendums. The equipment tables that will be included in each site-specific WP addendum will include, as applicable:

- Office Equipment;
- Field Equipment;
- Field and Office Consumables; and
- Explosive Consumables.

CHAPTER 6: LOCATION SURVEYING AND MAPPING PLAN

6.0 GENERAL

This Plan outlines the methodology to be used to locate and record the spatial coordinates for the boundaries of the work area; establish and record the spatial coordinates for each search grid within the work area; and stake the grid corners using four foot sections of ¾" schedule 40 PVC pipe. All control points recovered and/or established at the site shall be plotted on planimetric drawings at the appropriate coordinate point and shall be identified by name or number. In addition, the final adjusted coordinates will be shown. A "description card" for each control point established, or used, shall be submitted along with a tabulated master list of all points. The location, identification, coordinates, and evaluations of all control points recovered and/or established at the site, and the corners of all areas cleared of UXO shall be plotted on site maps which will be plotted at a horizontal English unit scale of 1:2000 on reproducible (Mylar) planimetric or topological maps. All drawings will show locations with respect to the surface and planimetric features within the project area.

6.1 SAFETY

All surveying mapping crews will be escorted by an EODT UXO-qualified technician. A magnetometer survey will be conducted at the location of any new monuments, control points, or grid stakes. No intrusive activity of any kind will be started until the area has been verified as safe by the UXO technician. All personnel entering the work site will adhere to the CEHNC Safety Concepts and Basic Considerations for UXO Operations, revised February 16, 1996.

6.2 CONTROL POINTS

Plastic or wooden hubs will be used for all basic control points. Horizontal and vertical control of class 1, third order or better shall be established for the site boundary. Horizontal control will be based on the English system and referenced to the North American Datum of 1983 (NAD83) Universal Transverse Mercator (UTM) grid and the New York State Plane Grid System. The original of all field books, layout sheets, computation sheets, abstracts and computer printouts will be maintained for turn-in and inclusion in the final report.

6.2.1 Description Cards

A description card for each control point used shall be submitted along with a tabulated master list of all points. The description card will include the following: a north arrow; a sketch of each monument; its location relative to reference marks, buildings, roads, railroads, towers, trees, etc. A detailed, typed description telling how to locate the monument from an easily identifiable point, the monument's name or number, a sketch showing how to locate the monument, and the final adjusted coordinates and elevations in meters and feet to the closest 0.001m and 0.01 foot will be completed. The description cards will be five inches by eight inches, and one monument will be described per card, or an 8.5 inch by 11 inch sheet of bond paper may be used to describe two monuments.

6.3 MAPPING

The typical SEDA SOW will contain two types of mapping requirements. First, EODT will lay out a systematic grid pattern at the site, using established monuments, to locate each corner of each grid square to the closest one foot, and second to have EODT record the spatial and description data for OE items encountered to the closest plus or minus one foot from a grid corner.

The purpose of these requirements are to generate permanent records of the boundaries of the areas which have been cleared and/or remediated, and to record historical data concerning the location, types, densities, and dispersal patterns of OE contamination within these areas. EODT will perform the surface survey and data collection activities associated with these requirements using a qualified surveyor and the following procedures:

- 1) To identify and record the location of work area boundaries and corner locations for individual search grids, EODT will use a surveyor to determine the spatial coordinates for the corner locations of the site and each search grid.
- 2) UXO located during clearance operations will be recorded by tape measuring the distance from the southwest corner stake of each grid. The location of ordnance scrap, ordnance fragments, shrapnel, small arms ammunition, and metallic debris will not be recorded. These measurements and the known location of the grid stake will provide coordinates to locate the OE, within the grid, to the nearest plus or minus one foot. During operations, data collected on each work area and operating grid will be electronically entered into the project database and will be subsequently used to monitor performance, operational trends, and to produce deliverables for the Final Removal Report.
- 3) As part of the Final Removal Report, EODT will prepare individual planimetric and/or topographic maps (at a scale 1:2000). The maps will be standard metric A-1 size drawings which are 841mm by 594mm (33.1 inches by 23.4 inches). These maps will:
 - a) depict the boundary coordinates for each work area and for individual survey grids (which will be located to an accuracy to the closest one foot and will be plotted on a reproducible (Mylar) map);
 - b) depict the location of each control point used to perform the survey and all control points shall be identified on the map by their name or number and their final adjusted coordinates;
 - c) include the following: a standard border, revision block, title block, bar scale, grid north, true north, and a magnetic north arrow with the differences between them shown in minutes and seconds. Grid lines and tic marks at systematic intervals with their grid values shown on the edges of the map;
 - d) contain a legend showing the standard USGS map symbols used. A map index showing the site in relationship to any other sites within the limits of the project area shall be shown; and

- e) show the location of each UXO item found during clearance operations to an accuracy of plus or minus one foot. Each location will be shown as an individual "X" on the grid map.

6.4 RECORDING AND TURN-IN OF DOCUMENTATION

All items will be bound, and clearly marked and identified as specified below. Data recorded in the field will be in accordance with standard survey practice. The original copies of all field books, layout sheets, computation sheets, abstracts and computer printouts will be suitably bound and clearly marked and identified. EODT will provide copies of design files consisting of planimetric maps on 3 ½ inch HD disks or approved CD Rom format. The disks will be labeled showing the project name, project number, date, company name, address, telephone number and the number of files.

6.5 SITE LAYOUT

All grids will be comprised of a parcel of land approximately 200' x 200'. The corners of each operating grid will be marked with wooden stakes painted with a high visibility orange paint.

6.6 MAP REQUEST

Planimetric and digital orthophotography maps have been requested from CEHNC.

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CHAPTER 7: ENVIRONMENTAL PROTECTION PLAN

7.0 INTRODUCTION

This generic EPP has been prepared to ensure site activities are conducted such that potential environmental impacts are minimized consistent with US Army Regulations (AR) 200-1 and 2. This plan has been prepared based on information obtained during initial site visits to the SEDA facility, discussions with CEHNC personnel, and a review of previously generated reports. All site activities shall be conducted IAW this EPP and shall be performed in such a manner as to: minimize the pollution of air, water or land; control and maintain noise and dust emissions below limits established by applicable Federal, state, or local regulations; and minimize the environmental impact of site activities. There is a potential that threatened or endangered species of flora or fauna may be encountered during OE operations that may be conducted at the SEDA. Additionally, it is not anticipated that any areas of archaeological significance and no on- or off-site wetlands that will be negatively affected by site activities. However, even though no negative environmental impacts are expected during future OE operations at SEDA, the potential for encountering threatened/endangered plants or animals or impacting archeological or wetland areas will be directly influenced by the location of the particular project site specified in the site-specific SOW. Therefore, The environmental protection procedures addressed in this generic EPP are presented to ensure that appropriate procedures will have been considered and may be implemented in the event that environmentally sensitive issues are encountered during site-specific OE operations.

7.1 FIELD ACTIVITIES IMPACTING ENVIRONMENTAL RESOURCES

During OE projects at the SEDA facility, OE will be located, identified, removed, and disposed of IAW the requirements of each site-specific SOW and the procedures outlined in both this WP and the site-specific WP addendum(s). To perform the anticipated OE operations at SEDA, EODT will potentially be involved with the following on-site operations, with the actual operations being determined by the site-specific SOW and presented in the site-specific WP addendum.

- Set up on-site support facilities;
- Remove vegetation to facilitate OE location and removal;
- Perform location surveying and mapping;
- Conduct magnetometer surveys;
- Excavate, identify and dispose of anomalies;
- Explosively demilitarize UXO and hazardous OE by BIP and other OE disposal procedures;
- Sift and segregate soils to remove OE and other debris; and
- Separate and segregate oversize material.

7.2 ENVIRONMENTAL DOCUMENTATION

For the development of this generic WP, and prior to the development of each site-specific WP addendum, EODT will review relevant site-specific documentation generated by previous site

investigations. The CEHNC KO will determine and make available to EODT the documentation relevant to each project.

7.3 PRE-REMOVAL ACTION ACTIVITIES

7.3.1 Environmental Survey

In preparation for each project, EODT will perform an initial site visit to assess the actual site conditions and to allow for the detailed design and preparation of the site-specific WP addendum. During this site visit, EODT will make an environmental survey to review the per-project condition of trees, shrubs, grassed areas and other environs that are located in and around the area that may be affected by site activities. During these initial site-specific surveys, EODT site visit personnel will enquire with the accompanying CEHNC representative and the SEDA environmental coordinator to determine if any threatened/endangered species or special habitats exist in the specific project site. Prior to the initiation of site activities, EODT, in conjunction with the CEHNC OSS, will prepare an Environmental Report indicating the condition of trees, shrubs, grassy areas and other environs immediately adjacent to any staging areas, access routes, support and work zones planned for the project.

7.3.2 Worker Education

Prior to the start of field activities, EODT shall develop and present worker environmental training. This training will be presented during the initial site orientation and safety training and will be used to inform field personnel of the relevant environmental issues and protocols to be used in the field for protection of any threatened/endangered on- or off-site resources. If possible, the SEDA will be requested to provide input during the development and delivery of this training.

7.3.3 Required Mitigation Procedures

Site OE remediation procedures will be developed and implemented so as to avoid impacts to potentially sensitive on- or off-site resources. For this reason, it is not anticipated that extensive mitigation procedures will be required. However, to further negate the potential for harmful impact of environmental resources, the general mitigation procedures presented below will be followed during all field activities:

- Sensitive habitats identified during the initial site-specific environmental survey will be demarcated and site personnel will be instructed to avoid these areas until guidance is obtained from the CEHNC.
- If sensitive resources are identified within an excavation/demolition site, extra care will be taken to minimize the time spent in the area, the amount of clearing activity and the overall impact to the greatest extent feasible.
- Unless directed to do otherwise, areas that receive brush clearing treatment will be allowed to grow back naturally after field survey activities are complete.

- Anomaly excavation areas will be backfilled, graded and re-seeded IAW the SOW, and proper drainage patterns will be reestablished.

7.4 ENDANGERED OR PROTECTED SPECIES AND NATURAL RESOURCES

Information provided to EODT by the SEDA BRAC Environmental Coordinator, indicates that a total of five rare wildlife species (three plant and two birds) are known to occur at the SEDA facility. The three rare plant species of concern are the large-leaf aster, northern reedgrass, and rough avens, while the two rare bird species are the osprey and the northern harrier. During each site-specific environmental survey, and throughout each project, EODT personnel will remain alert to the presence of any habitats for these rare species. Should any endangered or protected species or resources be identified at any time, EODT will follow the general mitigation procedures presented in paragraph 7.3.3 and the procedures outlined in the following paragraphs, to eliminate or minimize the potential for harming the identified species or resources.

7.4.1 Vegetation Removal

It is anticipated that OE remedial actions planned for a project sites at SEDA will require the clearing of vegetation, including removal of perennial species three inches in diameter or smaller. According to the each SOW, environmental restrictions to vegetation clearing will be specified in each site-specific SOW, however, if any trees larger than three inches in diameter are determined to impede remedial actions, and thereby require removal, authorization will be obtained from the CEHNC prior to removal.

7.4.2 Protection of Endangered/Protected Plant Species (Flora)

If endangered or protected plant species are identified during site activities, EODT shall locate and flag-off the areas containing endangered or protected plant species and immediately notify the CEHNC OSS prior to any further activities in the flagged area. Under no circumstances, will any intrusive activities be conducted without the prior approval of the CEHNC. All site personnel will be informed of the procedures to be used in these areas, and all operations shall be planned and performed in such a manner as to avoid, or minimize, adverse effects to identified endangered or protected plant species.

7.4.3 Protection of Endangered/Protected Wildlife Species (Fauna)

If endangered or protected wildlife species are identified on-site during site activities, EODT shall initially observe the animal to determine if it is passing through the site or may have a habitat on the site. If the site is being used as a habitat, the area will be located and flagged-off and the CEHNC OSS will be notified prior to any further activities occurring in the flagged area. If the endangered or protected animal is observed to be moving through the site, EODT personnel will be instructed not to disturb the animal, and no site activities will be conducted in the area where the animal is located until it has left the area. Whenever endangered or protected animal species are observed in

the OBG, all site personnel will be informed of the procedures to be used, and all operations shall be planned and performed in such a manner as to avoid, or minimize, adverse effects to the identified endangered or protected wildlife species.

7.4.4 Historic, Archeological, Religious or Cultural Resources (HARC)

According to the CEHNC, there are no known HARC resources at the SEDA. However, any potential HARC resources found in the course of site activities will be reported to the CEHNC OSS for evaluation by CEHNC, SEDA and local officials. If HARC resources are identified, work may be diverted to other site areas until a determination can be made as to the significance of the item or items found. The CEHNC OSS will be consulted prior to resuming work at the location to ensure that these resources are adequately identified and preserved. In the event that HARC resources are identified during site activities, all future site operations shall be performed in such a manner as to avoid, or minimize, adverse effects to identified HARC resources. Storage areas and access routes will not be located in the identified HARC resource areas. Should the need to remove OE hazards preclude the avoidance of these areas, EODT will utilize methods for minimizing the disturbance to cultural and historic resources, including limiting the excavation area and depth, and completing in-situ detonation in a manner that minimizes disturbance.

7.4.5 Written Record

A written record of all endangered or threatened plants and animals destroyed during the OE removal activities will be generated, maintained and submitted as part of the removal report if applicable. Additionally, if any HARC resources are identified, a written record describing the HARC resources and the actions taken will be generated by the SUXOS and submitted with the final report.

7.5 WETLANDS

All site activities shall be performed in such a manner as to avoid or minimize adverse effects to any wetlands, pools or water reservoirs that may be present on site. To the extent feasible, activities that could potentially affect the above will be avoided and guidance will be obtained from the CEHNC OSS prior to EODT conducting operations in wetland areas. Should disturbance of these resources by removal or remedial activities be unavoidable, sufficient advance notice and coordination with the CEHNC OSS and the SEDA BRAC Coordinator will be provided to allow for the deployment of appropriate mitigation methods.

7.6 TREES AND SHRUBS

7.6.1 General Requirements

EODT shall take all precautions necessary to protect and prevent damage to all trees, shrubs and vegetation not identified for removal. No ropes, cables or guy wires shall be fastened to or attached to any protected trees for anchorages. Additionally, EODT shall take precautions if required to operate heavy machinery or EMM around any trees, shrubs or vegetation not identified for removal.

7.6.2 Tree Protective Structures

The KO may require protection of trees or shrubs where OE operations may result in their being defaced, bruised, injured, or otherwise damaged by site equipment. Protective measures may include the placement of boards, planks, poles, or fencing around the tree(s) or shrub(s) to be protected.

7.6.3 Restoration of Damaged Trees

Any tree not identified for removal that is scarred or damaged shall be reported to the CEHNC OSS. Upon written direction of the CEHNC KO, the damaged tree shall be restored as nearly as possible to its original condition. All scars made on trees not designated for removal will, as soon as possible, be coated with an approved tree wound dressing, if applicable.

7.6.4 Tree and Shrub Clearing Practices

Mechanical vegetation clearing will be conducted in areas where no sensitive tree or shrub species are known to exist. In areas of sensitive tree/shrub species, selective pruning operations may be allowed and will be coordinated through and approved by the CEHNC OSS. Non-sensitive shrubs and trees less than three inches in diameter may be trimmed to the ground as necessary to conduct mapping, surveying and geophysical investigation and removal of anomalies. Pruning or removal of trees greater than three inches in diameter will be coordinated with and approved by the CEHNC. During vegetation clearing, disposal of discarded plant material will be conducted IAW guidelines specified in the SOW or by the OSS.

7.7 WATER RESOURCES

7.7.1 General Requirements

EODT shall control the transfer, use and disposal of fuels, oils and other hazardous materials both on and off the site, and shall comply with applicable local laws and regulations concerning pollution of air, water and soils. Special measures shall be taken to prevent sediment, chemicals, fuels, oils or other harmful materials from entering the ground waters. Additionally, all on-site activities will be conducted in a manner so as to prevent the discharge of any known pollutants into adjacent wetlands and waterways. Toilet facilities will consist of both fixed indoor and portable chemical. The portable wastes will be collected on a weekly basis and disposed of off-site.

7.7.2 Run-on Controls

EODT shall take all reasonable precautions to prevent run-on from entering areas of the site where the water may be exposed to contaminated soils, water or waste. Such precautions may include grading, temporary dikes, sandbags or other actions. These control measures will be monitored and maintained as long as the need exists.

7.7.3 Run-off Controls

Appropriate controls shall be put in place to prevent or minimize rainfall from contact with hazardous or special wastes/materials stored on site. This would include activities such as covering piles of excavated material with plastic coverings, and securing the cover. Where practical, excavated areas shall be diked and covered to prevent rainfall and run-off from migrating off site. In those areas where run-off may contain significant levels of contamination, such run-off shall be contained and collected to prevent its migration from the site. This run-off shall be documented to be non-hazardous or it shall be treated and/or properly disposed of.

7.7.4 Sediment Controls

Sediment which may or may not contain significant levels of contamination shall also be contained to prevent its migrating off site. Disturbances to loose sediment will be limited during surveys and OE investigation and removal activities. Due to the nature of the site and the level of excavation anticipated, it is not anticipated that soil erosion, and therefore sediment control, will present any significant problems. If needed, fabric silt fences, diversion dikes and ditches will be installed to adequately control erosion problems and control sediment migration. All erosion and sediment control measures will be properly maintained throughout the duration of the project, as needed, and areas of bare soil exposed at any given time during excavation will be kept to a minimum to minimize erosion potential.

7.8 WASTE DISPOSAL

7.8.1 Uncontaminated Waste

Uncontaminated solid wastes, such as trash and general debris, shall be placed in designated trash receptacles and shall be removed from the site and disposed of at a facility authorized by applicable local laws and regulations to receive such waste. No wastes are to be burned, buried or otherwise left on site without the written approval of the CEHNC.

7.8.2 Contaminated Waste

Potentially contaminated hazardous waste consists of a wide variety of materials which may originate on site as a result of on-site activities. Examples may include excavated soil and solid and liquid wastes. Waste water management will be controlled through run-on/off measures. Water and other solutions used for decontamination will be disposed of by placing the water in approved DOT drums. Contaminated wastes will be packaged, handled and labeled IAW applicable Federal and local regulations. Manifesting, transportation and disposal of contaminated wastes will be conducted IAW 40 CFR 262 Subpart B and applicable regulations, as directed by the CEHNC.

7.9 OPEN BURNING AND DUST CONTROL

7.9.1 Open Burning

Except for OB/OD activities conducted as required for OE disposal, materials shall not be burned on site without the written authorization of the CEHNC. In the event that on-site burning is conducted, EODT shall obtain any permits required by applicable local regulations.

7.9.2 Dust Control

EODT shall maintain all excavations, embankments, stockpiles, access roads, staging sites, waste areas and all work areas free from excess dust to such a reasonable degree as to avoid causing a hazard or nuisance. As identified in SEDA investigation reports, there exists a potential for heavy metals to be present in some of the potential sites where soil will be excavated, and therefore, the potential exists for personnel to be exposed to hazardous levels of dust. As such, the EODT CIH will carefully examine site characterization data for each site and will determine the need to perform real-time, direct reading dust monitoring in the work zone and personnel breathing zones of workers involved. The instruments, methods, and procedures to be used will be specified in the effected site-specific SSHP. Additionally, EODT will, as necessary, utilize dust control techniques, such as sprinkling dusty soils with water, use of suppressants, or similar methods to control on-site personnel exposure to hazardous dust levels. It is anticipated that the dust suppression techniques and monitoring used to protect site personnel will also prevent the excessive migration of dusts from the site. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. The dust generating activities anticipated at the OBG are vehicular traffic, soil excavation, sifting and stockpiling, and demolition operations.

7.10 SPILL AND EMERGENCY CONTROL PLAN

7.10.1 Spill Potential

Due to the nature of site activities, the potential for a spill of hazardous materials is minimal and will be limited to the potential for spillage of small quantities of fuels and oils. EODT shall take all necessary precautions to prevent spills and provide contingency measures for the cleanup of potential spills during performance of this SOW. See Section 14 of the SSHP found in Appendix A of this WP for a more detailed discussion of spill control and clean-up procedures. To minimize the potential for spillage and to minimize the impact of spilled materials, EODT shall:

- Submit spill response procedures, as part of the SSHP for this project, to the CEHNC for review and approval;
- Use and store on site minimal quantities of fuels and oils;
- Utilize work practice controls to prevent spills during refueling and maintenance operations involving power tools, site vehicles and equipment;
- Provide all spill response supplies and equipment necessary to contain spilled materials and to remove and contain materials that become contaminated due to spillage; and

- Develop and implement decontamination procedures which may be necessary for the removal and clean-up of spilled materials.

7.10.2 Decontamination and Disposal

EODT personnel or equipment may require chemical decontamination during the daily conduct of site operations. This will only be needed on those sites where significant hazardous or toxic waste (HTW) has been detected in the ground soils or waters. Decontamination solutions used for personal decontamination will be containerized at the end of each work day. If decontamination is required, decontamination of site equipment and vehicles will occur prior to the equipment and/or vehicles leaving the exclusion zone established, and involve the use of plain water to remove visible soils and dirt. Decontamination water from this operation will be collected and containerized.

In the event of a spill that causes contamination of site equipment, EODT shall decontaminate all equipment that has been exposed to contaminated material. This decontamination-derived waste shall be contained, and labeled IAW applicable regulations. This waste will be disposed of according to the direction of the KO.

7.10.3 Emergency Procedures

As part of the Spill Response procedures in the SSHP for this project, EODT will develop emergency response procedures to be implemented in the event of the spillage of hazardous materials. At a minimum, the following emergency procedures shall be performed if a spill occurs:

- Notify the CEHNC OSS and the KO at the earliest time;
- Halt site operations in the area and take immediate measures, utilizing properly protected personnel, to control and contain the spill;
- Isolate the hazardous area through the use of flagging, remove or extinguish ignition sources, and evacuate all unnecessary personnel from the area;
- If mandated by the nature of the spill, evacuate personnel upwind to the pre-designated assembly area, and post personnel at access routes to prevent unauthorized personnel from entering the area; and
- Utilize control measures, if needed, to reduce vapors, gases and/or dust emissions.

7.11 ISOLATION AND SECURITY OF THE AREA

7.11.1 General Security

The security of the site is a critical element in the protection of site personnel and equipment. During non-working hours, the site and equipment will be secured in such a manner as to preclude curious or malicious theft/damage.

7.11.2 Site Security

During operations, access to OE operational areas will be controlled by use of signs, blockades, and a periodic visual survey of the surrounding area to ensure no personnel have wandered onto the site. This will be especially critical during disposal operations. Entry onto sites will be limited to only those personnel required to safely conduct the task at hand, and visitors will be controlled and escorted at all times. During non-working periods, the equipment, to include hand tools, will be secured. The government furnished explosives storage magazine will remain locked at all times when explosives are not being issued. Vehicles will be used to transport personnel on a daily basis to and from the job site. During non-working hours, these vehicles will be locked.

7.12 CONSIDERATION OF WIND DIRECTION

Prior to the initiation of site-specific activities, EODT shall ascertain the prevalent wind direction and will plan each site layout so as to locate, to the best extent possible, support zones, access lanes and assembly points in a location upwind from the site. Consideration of prevalent wind direction shall also be taken when planning the location of assembly points to be used in the event of emergencies. In the event that wind direction changes significantly, the EODT SSHO will inform all site personnel of the adjusted locations of the assembly points. Prior to on-site demolition operations, the wind direction will be ascertained and demolition personnel will stage the operations from an upwind, protected position. In addition, the SSHO will contact the National Weather Service on a daily basis to determine prevailing winds and temperatures. These factors will be considered in planning the day's operations and personnel will be informed accordingly.

7.13 REDUCTION OF VAPORS, GASSES OR DUST EMISSIONS

EODT designs and plans its work methodically to minimize vapors and gaseous emissions. No significant vapor, gas or dust emissions are anticipated during any EODT site-specific tasks. Site vehicles and EMM will be operated so as to minimize discharges of exhaust, and vapors created from fuel transfer will be negligible.

7.14 POST-REMEDATION CLEANUP

7.14.1 General Requirements

Except for any work or storage areas and access routes specifically assigned to EODT under this SOW, the land areas outside the limits of the work site will be preserved in their existing condition. EODT shall confine their site activities to areas defined by the CEHNC or specifically assigned for their use. Storage and related areas and access routes required temporarily in performance of a given SOW will be approved by the CEHNC OSS and no other areas shall be used by EODT without consent. Upon conclusion of on-site remediation activities, and subject to instructions by the CEHNC OSS, EODT shall remove all work-related equipment and materials, and shall, unless directed otherwise, remove all evidence of removal or remediation activities. EODT's goal is to leave the area in a better condition than it was originally found.

7.14.2 Temporary Facilities

EODT shall, unless otherwise directed in writing by the OSS, remove all signs of temporary facilities such as haul roads, work areas, temporary structures, foundations for temporary structures, stockpiles of excess or waste materials and other vestiges of site operations prior to final acceptance of the work by the CEHNC. Again, EODT's goal is to leave the area in better condition than it was found.

7.14.3 Disturbed Areas

All OE excavation and detonation holes shall, to the greatest extent feasible, be returned to their original state. Replanting/reseeding may also be conducted to control erosion and soil/sediment runoff, as directed by the SOW.

7.14.4 Post-excavation Cleanup

To the extent feasible, EODT shall attempt to remove all evidence of EODT's remediation effort.

CHAPTER 8: QUALITY CONTROL PLAN

8.0 GENERAL

This quality control plan (QCP), as a component of the EODT Quality Program (QP), provides the procedures for controlling and measuring quality of all work performed during site activities at the SEDA. All QC activities will be performed and documented IAW applicable professional and technical standards and the CEHNC requirements presented in the SOW and the basic contract. This generic QCP is designed to provide procedures for:

- Testing, response checking or calibrating equipment used to perform work tasks;
- Determining the effectiveness of work performed;
- Inspecting the maintenance and accuracy of site records; and
- Determining compliance with this plan, and the site safety, environmental, and operational plans.

8.1 DEFINITIONS

8.1.1 Accuracy

Accuracy is the degree of agreement of a measurement or the average of several measurements with an accepted reference or "true" value; it is a measure of bias in the system.

8.1.2 Precision

Precision is the degree of mutual agreement among individual measurements of a given parameter under the same conditions.

8.1.3 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under normal conditions.

8.1.4 Representativeness

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. Careful choice and use of appropriate methods in the field helps to ensure that samples are representative. This is relatively easy with water or air samples, given that the components of these media are homogeneously dispersed. In contrast, soil and sediment contaminants are unlikely to be evenly distributed. It is important for the sampler and analyst to exercise good judgment when collecting and analyzing a sample.

8.1.5 Comparability

Comparability expresses the confidence with which one data set can be compared to another.

8.2 QUALITY PROGRAM MANAGEMENT STRUCTURE

The following section describes the structure of the quality management team for EODT's operations at the SEDA. Personnel were selected based on previous experience and their familiarity with the EODT quality assurance (QA)/QC system.

8.2.1 QC Manager

Mr. M. E. Short is the QC Manager (QCM) and has the ultimate responsibility for the EODT QP. Mr. Short reports directly to Mr. Burger, the President of EODT. As the QCM, Mr. Short will:

- Prepare EODT corporate and site-specific QC policies and procedures;
- Establish guidelines to assist in the development of program, project, site and task specific QC policies and procedures;
- Report regularly to the President on the adequacy, status and effectiveness of the QP;
- Conduct periodic field audits of the programs, projects and sites and submit a report of findings to the President with courtesy copies to the EODT SUXOS and PM; and
- Train each site QCS in the performance of their site-specific QC duties.

8.2.2 Site QC Specialist

The EODT site QCS for each project will be determined and specified in each site-specific WP addendum. Each QCS selected for a project at the SEDA will meet or exceed the training and experience requirements of the CEHNC and shall possess the requisite training, experience and knowledge required by DID OT-0025. Each QCS will have the responsibility and authority to enforce the EODT and site-specific QC plans and procedures, and will:

- Coordinate with the CEHNC QA representative to ensure that QC objectives appropriate to the project are set and all personnel are aware of these objectives;
- Coordinate with the EODT QCM to ensure that QC procedures are being followed and are appropriate for achieving QC objectives;
- Conduct and document the results of daily QC audits of all site activities;
- Inspect all ORS placed in the roll-on/off to ensure there are no explosive components;
- Recommend and implement actions to be taken in the event of a QC deviation; and
- Report noncompliance with QC criteria to the EODT QCM and PM.

8.3 CRITICAL ISSUES/ACTIVITIES

EODT has identified the issues/activities listed below as being critical to the delivery of a quality product. The following paragraphs describe the QC criteria that EODT will apply to these critical issues/activities and the methods EODT will use to monitor quality. The critical issues are:

- Employee qualifications;
- Employee training;
- Compliance with plans (e.g., safety, UXO operations, environmental, cost management);
- Availability of publications;

- Testing and calibration of equipment;
- Maintenance and accuracy of reports and records; and
- Deliverable accuracy and timeliness.

8.3.1 Employee Qualifications

The QCM will physically review each employee's licenses, training records and certificates prior to their initial assignment, or upon a change in their duties, to ensure that the employees are qualified to perform the duties to which they are being assigned. The SUXOS will maintain personnel files on each employee, to include copies of licenses, training records and certificates of qualifications that support the employee's placement and position.

8.3.2 Training

Employee training is an integral part of producing high quality products. EODT conducts site-specific employee training prior to the start of operations and supplements this initial training, as necessary, throughout the remainder of the project. Training is conducted by the SSHO, SUXOS and QCS, and records of attendance are generated and maintained. At a minimum, EODT personnel receive the following types of training, as required by the specific tasks to which they are assigned:

- **OSHA:** Current certification IAW 29 CFR 1910-120(e)(f);
- **Safety:** Review of the SSHP with specific emphasis on the hazards known to exist on site, and those hazards that may be generated by site operations;
- **Equipment Operators Training:** Tailored to the experience level of the operator and objectives of the project;
- **Daily Safety Training:** Tailgate briefings outlining the day's activities, unique hazards and safety precautions, and other operational issues related to the project;
- **Weekly Safety Meetings:** On the first workday of each week, a topic will be selected and elaborated on at the tailgate briefings; and
- **Visitor Training:** All site visitors shall receive general and site specific training as a portion of their in-briefing.

8.3.3 Publications

A technical review of the site-specific SOW and other pertinent data will be performed by EODT, and a list of required publications will be compiled for the site. In addition to this list, EODT will make available, in a timely manner, any additional manuals the SUXOS may require. Prior to the start of operations and periodically throughout the project, the QCS will inspect and document the condition of the site publications to ensure they are present and in good repair. The currently identified publications include:

- Copy of TO 0003 and the site-specific SOW;
- EODT Corporate Safety and Health Program;
- OSHA, 29 CFR 1910, Occupational Safety and Health Standards;

- OSHA, 29 CFR 1926, Construction Standards;
- Applicable sections of DOT, 49 CFR parts 100 to 199, Transportation;
- CEHNC EM 385-1-1, Safety and Health Requirements Manual;
- CEHNC ER 385-1-92, Safety and Occupational Health Document Requirements for Hazardous Waste Remedial Actions;
- Bureau of Alcohol, Tobacco and Firearms (BATF) P 5400-7; and
- Material Safety Data Sheets for hazardous substance used on site.

Note: The OSS will obtain any 60-series publications required for completing this project.

8.3.4 Equipment Calibration and Tests

Measurement equipment utilized on site, (i.e., magnetometers, real-time monitors, etc.) will be checked for operational reliability and calibration in accordance with the manufacturers specifications. EODT has reviewed the equipment requirements of this delivery order and identified the equipment listed below as requiring daily tests and/or calibration. Calibration/testing of these instruments will be accomplished as follows:

- **Communications Equipment:** Prior to commencing operations each morning, radios and cellular phones will be checked. Radios will be function checked to ensure batteries are charged and the radio is operational. Cellular phones will be checked to ensure they are operational. If communications are lost, either between teams and the command post or off site to emergency services, work will cease until communications are restored.
- **Magnetometers:** All geophysical instruments will be inspected and field tested daily IAW the instrument-specific procedures and the requirements of the site-specific WP addendum.
- **Sound level meter:** The sound level meter will be calibrated, prior to use, IAW the manufacturer's recommendations and procedures.
- **Galvanometer:** Prior to demolition operations, the galvanometer will be checked by placing a metal object across the two terminal posts and observing the LED readout, which should indicate the number "1". Any other reading may indicate a defective instrument, at which time the manufacturer's suggested checks will be followed. If there is no reading, the battery must be replaced, after which the continuity check will be repeated.
- **Blasting machine:** Prior to demolition operations, the blasting machine is checked IAW the manufacturer's suggested sequence.
- **Sampling instruments and equipment:** As needed and required by the site-specific SSHP, real-time monitors and other sampling equipment will be zeroed and response checked according to the manufacturer's specified procedures on a daily basis.

All equipment assigned to a given site will be dedicated solely to the project until it is completed, or until the equipment is no longer needed. If equipment field checks indicate that any piece of equipment is not operating correctly, and field repair cannot be made, the equipment will be tagged

and removed from service. The EODT SUXOS will be notified and a request for replacement equipment will be placed immediately. Replacement equipment will meet the same specifications for accuracy and precision as the equipment removed from service.

8.3.5 Maintenance Program

8.3.5.1 Preventive Maintenance

The assigned operator of each piece of equipment will perform scheduled, and when necessary, unscheduled, preventative maintenance to maintain the equipment in satisfactory operating condition. Preventive maintenance consists of before, during and after use operational checks and documentation of these activities.

8.3.5.2 Routine Repair and Adjustment

Routine repair and adjustment is based on the manufacturer's schedule for adjustment, calibration or replacement. All equipment used on site will be maintained and submitted for routine repair and adjustment IAW the manufacturer's specifications.

8.3.5.3 Emergency Repair

Emergency repair includes any unscheduled repair. This type of repair will be conducted using manufacturer required replacement parts and procedures to ensure the continued integrity of the equipment.

8.3.5.4 Included Equipment

Equipment included in the maintenance program will be checked as follows:

- **Magnetometers:** Before-operation checks shall include battery insertion and calibration. During-operation checks shall include frequent checks to ensure the sensitivity level is on the designated setting. In addition, the operator will check the batteries at breaks. After-operation checks shall include battery removal and cleaning.
- **Radios/Cellular Phones:** Before-operation checks shall include verification of a complete battery charge and a communications check to ensure the unit is operating properly. During-operation checks shall include periodic checks to ensure battery charge remains adequate and a communications check once an hour for the radios and once a day for the cellular phones. After-operation maintenance shall include a communications check, cleaning, turning off and placing in battery charger.
- **Vehicles/EMM:** Before-operation checks shall include an operator general inspection of the entire unit to include fluid levels, safety equipment and tire condition. During-operation shall include frequent checks of the dials and gauges and a tire check at breaks. After-operation checks shall include topping off of any fluids which are low, a general cleaning and a recheck of all safety related equipment.

- **Monitoring and Sampling Equipment (if required):** Before-operation checks shall include calibration IAW manufacturers guidance, and, if applicable, a battery charge check. During-operation use will include frequent checks to ensure unit is operating properly and the battery charge is sufficient. After-operation checks shall include a general cleaning, turning off the unit and placing in a battery charger if applicable.
- **Demolition Equipment:** Before-operation checks shall include a check of all batteries in the blasting machines and galvanometers. Some blasting machines do not contain batteries, so a check will be made to ensure they operate properly. During-operation checks shall include an inspection of the terminals and condition of the units. After-operation checks shall include a general cleaning and battery removal if applicable.
- **Government Furnished Property /CAP:** Upon receipt, an examination will be conducted to ensure completeness and operational condition. Periodic inspections will be conducted to ensure adequate storage and to guard against damage or theft. Function testing to determine satisfactory operation will be conducted by the assigned operator/user. The property will be maintained IAW FAR Subpart 45.5.

8.3.6 Logs and Records

For all site work, bound log books with consecutively numbered pages will be used by field personnel. The field log books will be used to record the daily activities of the field team, provide sketch maps and locations of UXOS and other pertinent items, and to note any observations which might affect the quality of data. The field log books and site records will be utilized to record the data discussed below:

- **Daily Journal:** The SUXOS will maintain the daily journal. This journal will provide a summary of all operations conducted to include information on weather conditions, problem areas, work plan modifications, injuries, start/stop times, tailgate safety briefs, equipment discrepancies, UXO/OE located, training conducted, visitors, and any additional items deemed appropriate.
- **Field Log Books:** The UXO supervisors will maintain field log books. These log books will be maintained in a neat and legible manner and will provide an historic record of the team's site activities. These log books will include the respective team's daily activities, to include start/stop times.
- **OE Accountability Log:** The UXO supervisors will prepare individual records for each operating grid at the SEDA. The records will consist of a series of sheets that will be used to record data on OE items encountered. Each OE item will be given a unique identifying number to differentiate it from the others. For example, the third OE item encountered in grid A-1 would be A-1-3. These sheets will be consolidated in one log.
- **Safety Log Book:** The SSHO will maintain this log. The log will be used to record all safety related matters associated with the specific project such as: safety briefings/meetings, including items covered and attendees; safety audits; near-misses/accidents/incidents. It will

include cause and corrective action taken; weather conditions; and any other matters encompassing safety.

- **Training Records:** The SUXOS will maintain training records for all site personnel. These records will contain training certificates, licenses and other qualifying data for an individual's duty position.
- **Quality Control Log:** The QCS will maintain this log and will record the performance and results of QC checks and audits, as well as calibrations.
- **Visitor Log:** The SUXOS will maintain this log for all personnel that are not directly involved in the project site activities. This log will identify visitors by name, company, date, time in/out and a contact phone number.
- **Photographic Log:** The SUXOS will maintain a photographic log to record all video recording and photographs taken to document work and/or site conditions. Photographs and video tapes will be marked with a unique identifying number relating back to the photographic log, and will be maintained on file until the end of the project.
- **Site Maps:** The SUXOS will maintain in the field office working maps of the operating areas. These maps will be used to document OE findings, task progression and other pertinent activities and locations.
- **Document Control Log:** The QCS will maintain this log, which will include identifying numbers and the responsible party for all logs and any other documents of importance.

Log books and records will be inspected by the QCS on a weekly basis. These inspections will focus on the completeness, accuracy, and legibility of the entries and records. Results of these inspections will be forwarded to the SUXOS. The log keeper's immediate supervisor will review and initial in the log book concurrence with the log book's entries on a daily basis.

Note: The log books are utilized to formulate the final report and serve as an "Official Document" in the event of any problem area addressed after the completion of the project. All log books will be maintained on file for a period of seven years after project completion.

8.4 ORDNANCE VERIFICATION, ACCOUNTABILITY AND CONTROL

All OE items located will be positively identified by a qualified UXO specialist and the SUXOS. The specialist and SUXOS will also identify the condition of the item (i.e., misfire, unfired, dud) and associated hazards [high explosives, fragmentation, ejection, chemical, etc.]. The identification, condition, and associated hazards of all items will be verified by the SSHO, and the SUXOS will be responsible for maintaining the Ordnance Accountability Log, and the traceability of all ordnance items located. If the item cannot be moved, the SUXOS and the OSS will determine an appropriate course of action IAW the WP and SSHP, which will then be recorded by the SSHO or SUXOS.

8.5 GRID SIZES

All sites to be surveyed, investigated or cleared of OE will be marked off in grids and/or lanes. The size of the grids has been established as 200' x 200' and the lanes will be five feet wide. Determining factors for modifying grid/lane size will be terrain, vegetation density and suspected density of OE contamination.

8.6 QA/QC AUDITS AND SURVEILLANCE

As part of the EODT QP for work performed at specific sites, EODT will conduct both internal and external audits and surveillance at the SEDA. This is to ensure that all procedures and protocols are being followed and that the resulting data is accurate and defensible. Field audits will concentrate on both surface and subsurface sweep procedures, removal/clearance operations, proper documentation, and checks of resulting data for completeness and accuracy within established QC limits.

8.7 QC INSPECTIONS

To ensure that quality work is conducted, QC inspections (QCIs) will be conducted according to the criteria specified in the following paragraphs. All inspections will be conducted by the responsible personnel and documented accordingly.

8.7.1 Daily QC Inspections

The QCS will perform random, unscheduled audits of the various site activities to ensure that personnel accomplish all work and record keeping as specified in this WP. The QCS will then submit a report of findings to the SUXOS, QCM and PM. These QCI's shall include property accountability, UXO related tasks, equipment operator maintenance, PPE usage and WP compliance. The EODT Quality Control Inspection and Audit Log Form (see Appendix E of this WP) will be used for these QCI's and maintained on file at the site.

8.7.2 Grid Clearance QC Audits

The QCS will conduct a QC audit in the completed grids to ensure the effectiveness of the OE removal operations. EODT policy requires a minimum 10% of a grid be checked, regardless of the stated requirements in the SOW, unless the SOW requires more than 10%, in which case the SOW takes precedence. The QCS will start in one corner of the grid and will proceed on a zig-zag pattern covering at least 10% of the entire grid and will use the pass/fail criteria presented in paragraph 8.7.4 to determine if the OE removal actions have been adequate. Upon completion of the grid clearance audit, the QCS will submit a report of the findings to the SUXOS. If the QCS does not pass the site, it is scheduled by the SUXOS for re-work. In addition, the QCS will conduct an audit of all grid clearance logs and reports as to their completeness.

8.7.3 Scheduled Audits

Due to the planned nature and duration of the project, a QC audit will be conducted by the EODT QCM. This audit will include a surface and subsurface check of an area representing an additional 10% of the work completed. The EODT QCM, assisted by the QCS, will proceed on a pre-determined pattern starting on the opposite side from the QCS's check, which will provide a total combined QC audit of approximately 20%. As with the QCS's check, if the site fails, it is scheduled for re-work. In addition, an inspection of all logs and a check of contractor and subcontractor personnel will be conducted to ensure that they are complying with the WP.

8.7.4 Pass/Fail Criteria

The pass/fail criteria for the final clearance of a site is set by the CEHNC. This criteria specifies that a grid will be failed if one UXO item is found during a QC or QA audit conducted by either EODT or CEHNC personnel. If this occurs, the entire grid will be failed and must be re-surveyed and cleared. Upon completion of the grid re-work, an additional QC or QA audit will be conducted again by the responsible parties. Any failure will be reported to the CEHNC KO, and the EODT QCM, PM and SUXOS.

8.7.5 Ordnance Related Scrap Inspections

When ORS is located on site, it will be inspected by at least two UXO technicians prior to being removed from the grid or sifter area. Whenever ORS is to be placed in a scrap storage container, the QCS and SSHO will conduct a third and fourth inspection for the presence of explosive components or hazardous residues. In the event that any are discovered, the item will be removed and destroyed and the incident will be recorded and thoroughly discussed at the next daily tailgate safety meeting. The incident will be reviewed by the SUXOS and QCS and a recommended course of action will be presented to the PM, i.e., reprimand or dismissal of the two previous inspectors.

8.8 NON-CONFORMANCE/CORRECTIVE ACTION

Any non-conformance to contractual requirements will be documented and reported. Non-conformance includes:

- Delivery of items or services by EODT that do not meet the contractual requirements;
- Errors made in following work instructions or improper work instructions;
- Unforeseeable or unplanned circumstances that result in items or services that do not meet quality/contractual/technical requirements;
- Technical modifications to the project by individuals that do not have the responsibility and authority; and
- Errors in craftsmanship and trade skills.

Immediately upon receipt of a notice of non-conformance, the SUXOS will take the following corrective actions:

- Identify the impact the non-conformance may have on other project activities;
- Identify and implement the actions required to bring the project/activity back into compliance; and
- Identify and implement procedures to preclude recurrence of the non-conformance.

8.9 PROJECT CORRESPONDENCE

All written and verbal (i.e., person-to-person or via telephone) correspondence will be documented and routed to the EODT PM. All written communications from the CEHNC or designee must be addressed to the EODT PM. Incoming written communications will be annotated with the date received. Telephone communications to field personnel must be logged by site personnel into the daily activity logs. Telephone communications to office personnel must be recorded on a Telephone Conversation/Correspondence Record Form. Of critical importance is the documentation of activities that stop work or require a communication to, or from, the CEHNC.

8.9.1 Delivery Order Correspondence

Correspondence concerning these delivery orders should be sent to:

- | | |
|---------------------------------|------------------------------|
| • Mailing Address: | • Federal Express Address: |
| EOD Technology, Inc. | EOD Technology, Inc. |
| P. O. Box 24173 | 2229 Old Highway 95 |
| Knoxville, Tennessee 37933-2173 | Lenoir City, Tennessee 37771 |

8.9.2 Project Manager Address

This section can be found in the site-specific addendum.

8.10 PROJECT RECORDS

Project records will be maintained in separate project files for each TO. Each project file will be maintained with the following categories:

<u>Category</u>	<u>File Content</u>
A1	Internal correspondence
A2	Outgoing correspondence
A3	Incoming correspondence
A4	Outgoing to CEHNC
A5	Incoming from CEHNC
A6	Chronological communications log
B	Not used
C	Original typed copies of the Removal Report

- D Copies of the TO, cost estimates for any additional work to be performed under the TO, copy of subcontractor work agreement or contract, copies of cost quotations from suppliers and subcontractors
- E Original Field Activity Daily Logs and subcontractor daily field log bound books, Ordnance Accountability Log, Working Map(s), and equipment status log
- F - G Not used
- H Copies of Removal Report
- I Original photographic log and negatives (prints need not be maintained)
- J - K Not used
- L Copies of DD Form 1348-1, if required
- M - N Not used
- O Check prints of drawings submitted with the Removal Report
- P Not used
- Q QC Audits, Surveillance and Nonconformance Reports
- R Site Specific Safety and Health Records, including Tailgate Safety meeting documents
- S Field administration records including subcontractor and contractor work time hours, expense reports, travel mileage and time
- T - Z Not used

CHAPTER 9: WORK DATA COST MANAGEMENT PLAN

9.0 GENERAL

The purpose of this generic Work Data and Cost Management Plan (WDCMP) is to present the general structure of the management system EODT will use to ensure the effective management of allocated funds and manpower. All site-specific work will be accomplished in order of precedence as set forth by the CEHNC in each site-specific SOW. This plan describes: the organizational structure EODT will use to manage the project; the sequence in which operations will be performed; and the projected cost by operational milestone.

9.1 PROJECT ORGANIZATION

EODT management personnel will evaluate the work requirements for each SOW under TO 0003, and will develop a comprehensive approach for meeting the objectives of each SOW. The planned approach will provide for a phased work structure which will result in maximized effectiveness of manpower and equipment resources. The goals and objectives of each operational task within the SOW along with its specific manpower requirements will be identified in Chapter 2 of this WP.

9.1.1 Project Management

Effective management is an essential element in the delivery of a quality product and EODT is committed to providing a management structure that meets this goal and is tailored to the operational requirements of each project site. Figure 2-1 depicts the overall and on-site management structures that EODT will utilize during the execution of the various projects associated with this TO. This structure provides an appropriate level of management, safety, and quality oversight for the project, and ensures that work performed will be executed in an efficient, safe, and appropriate manner.

9.1.2 Subcontractors

For all work performed by an EODT subcontractor, EODT will conduct the following: issue a subcontract which specifies the services that will be provided; audit subcontractor performance to ensure that these services are provided IAW the site-specific WP addendum and the subcontract; and review all invoices to ensure that they accurately reflect the services rendered. In the event of a disagreement between EODT and the subcontractor, EODT will resolve these differences or discrepancies prior to submitting either the subcontractor's work or invoices, to CEHNC.

EODT will maintain overall supervisory responsibility for all on-site operations. Subcontractors will work under the direction of the EODT SUXOS and will be audited and monitored by the EODT SSHO and QCS. All operational activities will be scheduled by the SUXOS and a strict accounting will be made of actions performed and activities completed. Throughout their operations, subcontractors will coordinate their operational schedules with the SUXOS, and strictly adhere to all elements of this WP and its associated SSHP.

9.2 PROJECT WORK SCHEDULE AND DAILY SCHEDULE

EODT will prepared an initial project schedule for the work associated with each SOW under TO 0003. The schedule will be presented in Figure 9-1 of each site-specific WP addendum and will identify the individual SOW tasks associated with the project, its duration, the sequence in which the work will be performed and a proposed start and finish date for accomplishing the work. This schedule is based on a forty-hour work week, consisting of four 10 hour days. Work schedules may vary depending upon site requirements and the time of year in which the project is performed. A typical daily schedule is outlined below in Table 9-1:

TABLE 9-1. TYPICAL DAILY SCHEDULE

Time	Activity	Location
0700-0730	Tailgate Safety and Operations Briefing and Equipment Load Out	Field Office
0730-1030	Conduct Field Operations	Assigned Work Areas
1030-1045	Morning Break	Site Support Zone
1045-1200	Conduct Field Operations	Assigned Work Areas
1200-1230	Lunch	Field Office
1230-1530	Conduct Field Operations	Assigned Work Areas
1530-1545	Afternoon Break	Site Support Zone
1545-1700	Conduct Field Operations	Assigned Work Areas
1700-1715	Stop Operations/Return to Field Office	Assigned Work Areas
1715-1730	Clean and Store Equipment	Field Office

9.2.1 Performance Data

Details regarding the anticipated project duration and production rates will be presented in this paragraph of the site-specific WP addendum in Table 9-2. This table will break down the project tasks and will outline the anticipated number of acres and work days involved with each field task.

9.3 TASK ORDER COST DATA

In developing the site-specific cost estimates, EODT will use information obtained during the site visit and data from reviews of documentation on past operations. Due to the lead time between WP preparation and beginning work, price quotes are extremely perishable. Prior to mobilization, EODT will make available for CEHNC three price quotes for equipment and services. This is of particular importance, since EODT plans to supply materials for this program on a time and materials basis. The final price will be negotiated prior to mobilization.

9.3.1 Manpower Requirements

EODT will structure its manpower requirements for each project to meet the operational requirement of the SOW. Each project manpower will be designed to minimize associated costs (i.e., travel and per-diem), and provide an effective blend of technical talents and skills for executing the work associated with each site-specific SOW. Further, EODT will choose the division within the labor categories to ensure team flexibility and enhance production rates.

Details regarding the manpower requirements for a given project will be presented in this paragraph of the site-specific WP addendum in Table 9-3. This table will break down the projected labor costs by labor category, and will include the number of hours and personnel assigned to each category. This table will also provide the hourly rate applied to each labor category and the cost by category.

9.4 TASK AND PROJECT COSTS

Details regarding the site-specific task and project costs for a given project will be presented in this paragraph of the site-specific WP addendum in Table 9-4. This table will break down the projected labor, material and travel costs needed to meet the site-specific SOW. This table also presents the the number of hours and personnel assigned to each labor category.

9.4.1 Government Furnished Equipment

Any GFE provided will lower the material costs.

9.4.2 Consumable Supplies

Consumable supplies consist of twine, wooden stakes, etc. A list of those items included in EODT's overhead and not directly chargeable to the project, to include exceptions and unallowable charges, are presented in Table 9-5.

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TABLE 9-5. CONSUMABLES AND UNALLOWABLE CHARGES

Employee Consumables and/or Personal Equipment	
The following items are considered examples of employee consumables and/or personal equipment, and as such are not allowable direct costs, with the exception noted below:	
Goggles	Clocks
Safety Equipment	Boots
Shoes	Cups
Gloves	Work Uniforms
Bug/Insect Repellant	Office Supplies
Wet Wipes or pre-moistened towelettes	Uniform Maintenance
Paper Towels	Laundry Items
Toilet Paper	Flashlights
Bottled Water	Batteries
Rain Suits	Shovels/Rakes
Whistles/Air Horns	Water Coolers
Sun screen	Keys
Poison Ivy/Oak Protection & Cleanser	Paint
Exception: Under EODT's approved DCAA accounting system, certain items similar to those listed above may be charged as direct costs. For example, equipment and supplies which are required by the unusual or unique characteristics of a particular task, site, or locale (or which must be purchased in unusual quantities because of the above factors) may be charged as direct costs.	
Unallowable Charges (direct and indirect):	
Coffee	Ice
Tea	Shaving Equipment/Supplies
Gatorade or Sports Beverage	Soft Drinks and Milk
Sugar	Coffee Creamer

APPENDIX A
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK
SITE SAFETY AND HEALTH PLAN

Contract Number: DACA87-97-D-0005
Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenior City, Tennessee 37932

March 1999



PREFACE

This generic Site Safety and Health Plan (SSHP) has been prepared for the United States Army Engineering and Support Center, Huntsville (CEHNC) in support of ordnance and explosives (OE) operations conducted by EOD Technology, Inc. (EODT) at the Seneca Army Depot Activity (SEDA) located near Romulus, New York. This generic SSHP has been designed to identify and address general hazards that may be associated with miscellaneous OE operations that will be performed at sites within SEDA. This generic SSHP also specifies the work practices and procedures that will be used to protect site personnel from the hazards that may be encountered during OE operations conducted at various sites within SEDA. The data within this generic SSHP will be applicable to multiple sites around SEDA and will, as applicable, be referenced by each site-specific SSHP Addendum that will be submitted for each SEDA Task Order, as discussed below.

To address site-specific OE operations and the hazards that may be encountered on a particular SEDA site, EODT will develop and submit for CEHNC approval a site-specific SSHP addendum that will be included as part of the site-specific addendum to the generic (WP). Once approved, each site-specific WP/SSHP Addendum will reference, and be used in conjunction with, the generic WP and this generic SSHP. All activities conducted by EODT personnel at SEDA will be performed in accordance with (IAW) this generic SSHP, the generic WP, the site-specific WP/SSHP addendum, and applicable U.S. Army Corps of Engineers (USACE), Federal, state, and local regulations.

CEHNC Data Item Description (DID) OT-005 for contract DACA87-97-D-0005, and the USACE Engineering Regulation (ER) 385-1-92, entitled Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste and Ordnance and Explosive Waste Activities specify both the content and format for a SSHP. In the development of this generic SSHP, EODT has made every attempt to meet the requirements of these guidance documents. However, due to the design nature of this generic SSHP, many of the site-specific requirements in these documents are not addressed in this generic SSHP. To meet the site-specific data requirements of the above referenced guidance documents, EODT will include the necessary information in the site-specific SSHP addendums to augment the data in this generic SSHP.

In the development of this generic SSHP, EODT has attempted to identify the various site and task hazards that may be encountered at SEDA. The site-specific hazards that EODT personnel may encounter during execution of the Scope of Work (SOW) for a given Task Order will be included in the SSHP Addendum. The hazard control methods detailed in this SSHP were evaluated and selected to minimize the potential for personal exposure to site or task hazards, and to safeguard the environment and general public. This generic SSHP, along with the site-specific SSHP Addendums, are living documents and will be subject to change based upon site/task-specific, and any addendums to this SSHP will be approved by the personnel on the following signature page and the CEHNC Contracting Officer (KO).



SITE SAFETY AND HEALTH PLAN APPROVAL

Project: Ordnance and Explosives Operations

Site: Seneca Army Depot Activity

Site Location: Romulus, New York

Contract Number: DACA87-97-D-0005

Task Order: 0003

The personnel below have reviewed the attached generic SSHP for SEDA and recognize that upon completion of this form, the attached generic SSHP will be approved by EODT for application to the above referenced project. Changes and Addendums to this SSHP will be presented in writing, approved by the EODT personnel listed below, and submitted for approval to the CEHNC KO prior to inclusion of the changes into this generic SSHP.

Reviewed by: _____

Date: _____

Salvatore Molle
EODT Senior UXO Supervisor

Reviewed by: _____

Date: _____

Doug Murray
EODT Project Manager

Reviewed by: _____

Date: _____

Michael Short
EODT Director of Operations

Prepared and
Approved by: _____

Date: _____

Andrew Bryson, CIH, MPH
EODT Occupational Safety and Health Manager



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ATTACHMENTS

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LIST OF ACRONYMS AND ABBREVIATIONS

ABIH	American Board of Industrial Hygienist
ACGIH	American Conference of Governmental Industrial Hygienist
ALARA	As Low As Reasonably Achievable
ALS	Advanced Life Support
BBP	bloodborne pathogens
BIP	blow(n)-in-place
bpm	beats per minute
BRAC	Base Realignment and Closure
BZ	breathing zone
CEHNC	U.S. Army Engineering and Support Center, Huntsville
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
COC	chain-of-command
CPR	cardiopulmonary resuscitation
CRZ	contamination reduction zone
CSHP	Corporate Safety and Health Program
CTHA	Certification of Task Hazard Assessment
CWM	Chemical Warfare Materiel
°C	degrees Celsius
DID	Data Item Description
DoD	U.S. Department of Defense
EC	Emergency Coordinator
EM	Engineering Manual
EMM	earth moving machinery
EMT	Emergency Medical Technician
EOD	explosive ordnance disposal
EODT	EOD Technology, Inc.
EPA	Environmental Protection Agency
EPDS	emergency personal decontamination station
ER	Engineering Regulation
EZ	exclusion zone
°F	degrees Fahrenheit
ft	feet
GFCI	ground fault circuit interrupter
HAZCOM	Hazard Communication
HAZWOPER	Hazardous Waste Operations and Emergency Response

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

HR	heart rate
HTW	hazardous and toxic waste
HZ	hot zone
IAW	in accordance with
KO	Contracting Officer
LO/TO	Lockout/Tagout
LS&M	location surveying and mapping
mm	millimeter
MSDS	material safety data sheet
NIOSH	National Institute of Occupational Safety and Health
OB	open burn
OD	open detonation
OE	ordnance and explosive
OSHA	Occupational Safety and Health Administration
OSHM	Occupational Safety and Health Manager
OSIC	On-scene Incident Commander
OSS	On-site Safety Specialist
OT	oral temperature
PDS	personal decontamination station
PM	Project Manager
PPE	personal protective equipment
ppm	parts per million
QC	quality control
SEDA	Seneca Army Depot Activity
SMSP	Site-specific Medical Surveillance Plan
SR	State Road
SSHP	Site Safety and Health Plan
SOP	standard operating procedure
SOW	Scope of Work
SSHO	Site Safety and Health Officer
SUXOS	Senior UXO Supervisor
SWP	Safe Work Practices
SZ	support zone
TWA	time-weighted average
TO	Task Order
USACE	U.S. Army Corps of Engineers



LIST OF ACRONYMS AND ABBREVIATIONS (continued)

UXO	unexploded ordnance
UV	ultraviolet
WP	Work Plan
WZ	Work Zone

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1.0 GENERAL

1.1 SCOPE AND APPLICATION

IAW the CEHNC SOW for Task Order (TO) 0003 of contract DACA87-97-D-0005, EODT has generated this generic SSHP to address the general safety and health hazards that EODT personnel may encounter during OE operations at sites within the SEDA facility. As modifications to TO 0003 are issued and EODT is tasked with conducting OE operations within a given site, a site-specific Addendum will be produced by EODT and submitted for CEHNC approval. The site-specific Addendum will identify the safety and health hazards endemic to the site and the tasks to be performed and will, as applicable, reference the hazard information and control procedures contained in this generic SSHP. Any site-specific hazards identified within a given site that are not addressed in this generic SSHP will be addressed in detail within the site-specific Addendum.

EODT is mandated by its corporate policy to provide site personnel with the requisite training, information and resources needed to ensure that all on-site operations are conducted in a manner that safeguards site personnel from exposure to recognized, uncontrolled safety and health hazards. OE poses a serious safety and health hazard that endangers both human life and environmental quality. Due to the potentially dangerous nature of the SEDA OE operations, this generic SSHP, with its associated Addendums, will apply to all EODT, subcontractor and USACE personnel who participate in any tasks that involve the potential for exposure to on-site safety or health hazards.

1.2 OBJECTIVE

To help ensure continued compliance with the referenced EODT safety and health policy statement referenced above, the primary objective of this generic SSHP is to provide EODT management personnel with a structured vehicle through which site and task specific hazard information may be presented to all site personnel. In keeping with this objective, this generic SSHP has been developed to present information related to the generic task and site hazards that will apply to the general site conditions and situations associated with the SEDA facility in general, and the SSHP Addendums generated for each TO modification will be used to provide the information needed to safeguard personnel from the site/task-specific hazards. Use of this document as an effective communication tool will significantly reduce the risk of personnel exposure to uncontrolled site hazards and the potential for an on-site emergency. To address the on-site emergencies which could reasonably be expected during site activities, contingency plans and emergency response procedures are also presented in this SSHP.

1.3 SUBMISSION OF SITE-SPECIFIC ADDENDUMS

Prior to the performance of a site-specific task, the CEHNC will issue a Modification to the basic SEDA TO for a specific site within the SEDA where site-specific OE operations will be conducted



by EODT. In response to these site-specific TO modifications, EODT will develop and submit to the CEHNC for approval, a task-specific SSHP Addendum to this generic SSHP. This SSHP Addendum will include the requisite task/site-specific information needed to inform site personnel of the task/site hazards and the control measures to be used for protecting site personnel. As needed and allowed, each SSHP Addendum will reference the portions of this generic SSHP that apply to the site-specific conditions and issues anticipated for the site.

The levels of personal protective equipment (PPE) and the safe work practices (SWPs) discussed in this generic SSHP are based on the best information available from archival research documents, previous site studies, anticipated site conditions, and professional experience. The PPE and SWP requirements in this document represent the minimum health and safety requirements to be observed by project personnel and may change based upon site-specific data and actual on-site implementation of project tasks.

1.4 SSHP APPROVAL

Prior to on-site participation in OE operations, all site and project personnel shall read this document carefully, understand its contents, and complete the Generic SSHP Review and Approval Form presented in Appendix E of the WP. By signing this form, site personnel will indicate their understanding of this SSHP, and will also verify their willingness to comply with the requirements outlined in this document. Site personnel will also read the site-specific Addendum related to the site to which they are assigned and will sign the site-specific SSHP Addendum Approval Form also presented in Appendix E of the generic WP.

All site personnel will exercise reasonable caution at all times and shall immediately report to the Site Safety and Health Officer (SSHO) any site conditions which may pose safety or health hazards to site personnel. If any site personnel have questions related to the information presented in this SSHP, the question(s) shall be addressed and resolved by the EODT SSSH. All on-site project activities to be performed within the SEDA facility shall be managed and implemented so as to comply with the provisions of this SSHP and the regulations and guidelines listed in Section 1.6.

1.5 SSHP MODIFICATIONS

No site operations/tasks will be performed in a manner that conflicts with the safety, health, or environmental precautions expressed in this SSHP. While requirements listed in this SSHP may change as site work progresses, no changes will be made without the approval of the CEHNC KO, EODT's Project Manager (PM) and EODT's Occupational Safety and Health Manager (OSHM). If modification must be made to this SSHP or a site-specific Addendum, the proposed changes will be developed by the EODT PM and OSHM in conjunction with the on-site Senior Unexploded Ordnance (UXO) Supervisor (SUXOS) and submitted to the CEHNC KO for approval. Upon receipt

of written approval, EODT will make the necessary document modifications. If the modification involves changes to the field operations, actual field implementation of the changes may be implemented on-site if the CEHNC On-site Safety Specialist (OSS) provides documented approval of the procedural modification.

1.6 REGULATIONS AND GUIDELINES

The safety and health of on-site personnel and the local community will be ensured by following all applicable requirements and regulations listed in the following publications:

1. Occupational Safety and Health Administration (OSHA) General Industry Standards, 29 Code of Federal Regulations (CFR) 1910;
2. OSHA Construction Standards, 29 CFR 1926;
3. U.S. Army Corps of Engineers (USACE) Engineering Manual (EM) 385-1-1, Safety and Health Requirements Manual;
4. EODT Corporate Safety and Health Program (CSHP);
5. Army Regulation 385-40 (w/ USACE Supplement 1), Accident Reporting and Records;
6. Environmental Protection Agency (EPA) Hazardous Waste Management, 40 CFR 260-276, latest edition;
7. Engineering Regulation (ER) 385-1-92, Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste and Ordnance and Explosive Waste Activities, 18 March 1994; and
8. Department of Defense (DoD) 6055.9, Ammunition and Explosives Safety Standards.

1.7 REFERENCES

In addition to the publications and regulations previously listed, the following documents were used as reference material in the preparation of this document:

1. DoD 4145.26-M, Contractors' Safety Manual for Ammunition and Explosives;
2. Occupational Safety and Health Guidance for Hazardous Waste Site Activities, U.S. Department of Health and Human Services, National Institute of Occupational Safety and Health (NIOSH), October 1985; and
3. Threshold Limit Values and Biological Exposure Indices for 1996-97, American Conference of Governmental Industrial Hygienists (ACGIH), 1993.

2.0 STAFF ORGANIZATION AND RESPONSIBILITIES

2.1 ROLES AND RESPONSIBILITIES OF EODT PERSONNEL

EODT recognizes that the effective, safe and healthful performance of site operations is primarily a function of the ability, skill and knowledge of the on-site personnel assigned to the implementation of the tasks specified in the SOW. However, the other key element to establishing and maintaining a safe and healthful work environment is the effective management of the personnel, equipment and financial resources needed to implement the safety, health and operational policies and procedures specified in this SSHP and the WP. Figure 2-1 depicts the general safety and health organizational chain-of-command (COC) that will be used to manage and control the safety and health issues related to SEDA site operations. Any changes to Figure 2-1 and the site-specific COC for a given site will be presented in the site-specific SSHP Addendum.

EODT's mission mandates that EODT provide highly trained and skilled site personnel to investigate, identify, handle, and remediate OE and other hazardous wastes. These personnel will have extensive experience in recognizing, evaluating, and handling OE, and will be familiar with the operational controls needed to protect personnel from the hazards associated with on-site operations. The personnel assigned to the positions listed in this section will be responsible for ensuring the safety and health of all on-site personnel, the environment and the general public.

2.1.1 Program Manager

Mr. Jeffrey Bleke is the EODT Program Manager for this project and is responsible for the overall implementation of this project. Mr. Bleke is a registered Professional Engineer with extensive experience in the management of multiple project OE programs. Mr. Bleke's qualifications and experience are presented in Appendix F of the WP. In this role, Mr. Bleke will be responsible for the management of the EODT resources needed for the implementation of the safety and health requirements of this SSHP.

2.1.2 Project Manager

Mr. Doug Murray is the EODT PM. He has more than 13 years of combined military and civilian Explosive Ordnance Disposal (EOD)/OE experience. Mr. Murray is a graduate of the U.S. Navy EOD School, Indian Head, Maryland, and is a qualified UXO Supervisor. As the PM, Mr. Murray will have the following management responsibilities:

1. Reporting directly to the Director of Operations for all project and operational matters;
2. Managing the funding, manpower and equipment necessary to conduct site operations;
3. Acting as the point of contact for CEHNC project personnel, and communicates with the CEHNC through the CEHNC PM;
4. Overseeing the overall performance of all EODT individuals assigned to the project;

5. Reviewing the SOW to ensure all necessary elements are addressed in project plans; and
6. Coordinating all contract and subcontract work and controls contractual costs and schedules;

2.1.3 Occupational Safety and Health Manager

Mr. Andrew Bryson, the EODT OSHM, is an American Board of Industrial Hygienist (ABIH) Certified Industrial Hygienist (CIH) with over seven years of industrial hygiene, safety, and hazardous waste experience, including over four years of experience with sites contaminated with OE. Mr. Bryson has also completed the OSHA 40-hour hazardous waste site worker and the 8-hour supervisor training requirements IAW 29 CFR 1910.120. During the performance of this project, Mr. Bryson will provide occupational safety and health technical support to the SSHO and other project personnel, and will have the following responsibilities:

1. Reporting directly to the EODT President regarding safety and health issues;
2. Developing, approving, sealing and updating this SSHP, to include development of the site-specific SSHP Addendums;
3. Coordinating with the EODT SSHO for field implementation of the SSHP;
4. Maintaining frequent communication with, and providing safety and health consultation to, the PM, SUXOS and SSHO;
5. Evaluating and authorizing any changes to the SSHP in conjunction with the PM, SUXOS, and CEHNC KO;
6. Conducting, or assisting in, the presentation of site, task and hazard specific training;
7. Directly interfacing with, and relaying safety and health concerns related to the conduct of site operations to, the CEHNC PM;
8. Conducting periodic site safety and health audits; and
9. Ensuring site and personnel compliance with the EODT CSHP.

2.1.4 Senior UXO Supervisor

For each project site, EODT will assign a SUXOS to act as the site manager. Due to the size and complexity of a given site, the SUXOS assigned to the site may also be assigned as the SUXOS for another site at SEDA. The SUXOS will be a master EOD technician and a graduate of the Basic and Advanced Naval EOD School, Indian Head, Maryland. Each SUXOS will have over 15 years combined military and civilian EOD experience, with extensive experience as a SUXOS. The SUXOS will have also completed the OSHA 40-hour General Worker and the 8-hour Supervisor training requirements IAW 29 CFR 1910.120, and will be responsible for the on-site management and oversight of all EODT site-specific operations. The SUXOS will have the following responsibilities:

1. Conducting on-site management of the EODT manpower and equipment necessary to safely conduct site operations;

2. Reviewing and becoming familiar with the generic and site-specific WP and SSHP and any other documents pertinent to the conduct of site operations;
3. Providing copies of the WP and SSHP to EODT and subcontractor personnel for their review;
4. Reviewing the SOW and ensuring that the required safety and health elements are addressed in either the generic SSHP or the site-specific SSHP Addendum;
5. Acting as the lead technical consultant for all on-site OE related matters;
6. Scheduling and presenting the operational portion of the daily tailgate safety briefing;
7. Enforcing compliance with all aspects and addendums to the SSHP and WP; and
8. Directly interfacing with, and relaying safety and health concerns to, the CEHNC OSS.

2.1.5 Site Safety and Health Officer

For each project site, EODT will assign a SSHO to ensure strict compliance with this SSHP and the site-specific SSHP Addendum. Due to the size and complexity of a given site, the SSHO may also be assigned as the SSHO for another site at SEDA. The SSHO will be a master EOD technician and a graduate of the Basic and Advanced Naval EOD School, Indian Head, Maryland. Each SSHO will have over 10 years combined military and civilian EOD experience, and will possess the requisite experience and training needed to implement the requirements of this generic SSHP and its addendums. The SSHO will have also completed the OSHA 40-hour General Worker and the 8-hour Supervisor training requirements IAW 29 CFR 1910.120, and will be responsible for the on-site management and oversight of all safety issues related to EODT site operations. The SSHO will be responsible for the following:

1. Authorizing STOP WORK for safety and health reasons;
2. Implementing and enforcing the requirements and procedures outlined in either this generic SSHP or the site-specific SSHP Addendum;
3. Conducting daily tailgate safety briefings;
4. Conducting, or assisting in, the training of site personnel in site-specific hazards and ensuring completion of the EODT documentation of training form;
5. Specifying proper levels of PPE IAW the requirements of this SSHP;
6. Consulting with the EODT OSHM prior to downgrading levels of PPE;
7. Developing and submitting for approval additional safety and health procedures, as required;
8. Implementing and enforcing the EODT Alcohol/Drug Abuse Policy;
9. Investigating injuries, illnesses, accidents, incidents and near misses;
10. Conducting visitor orientation;
11. Conducting, and documenting, daily safety inspections and weekly safety audits;
12. Coordinating with the EODT OSHM on monitoring and PPE requirements;
13. Conducting monitoring IAW this SSHP; and
14. Ensuring field implementation of the EODT CSHP.



2.2 RESPONSIBILITIES OF ALL SITE PERSONNEL

Even though specific EODT personnel have been identified as having distinct responsibilities for site/project safety, ensuring the safe and healthful conduct of site operations is the responsibility of all personnel assigned to the site. Therefore, all EODT, CEHNC and subcontractor personnel involved in site activities will be responsible for the following:

1. Complying with all applicable requirements of the generic SSHP and its addendums;
2. Taking all necessary precautions to prevent injury to themselves and fellow site personnel;
3. Remaining alert to any potentially harmful situation and immediately informing the SSHO of any such identified conditions;
4. Performing only those tasks for which they have received proper training and which they can perform safely;
5. Notifying the SSHO of any special medical conditions (i.e., allergies, contact lenses, diabetes) which could affect their ability to safely perform site operations;
6. Notifying the SSHO of any prescription and/or over-the-counter medication which they are taking that might cause drowsiness, anxiety or other unfavorable side effects;
7. Preventing the spillage and splashing of environmentally hazardous materials;
8. Practicing good housekeeping by keeping the work area neat, clean and orderly;
9. Immediately reporting all injuries, no matter how minor, to the SSHO;
10. Maintaining equipment in working order, and reporting defective items to the SSHO; and
11. Properly inspecting and using the PPE required for the conduct of a specific task.

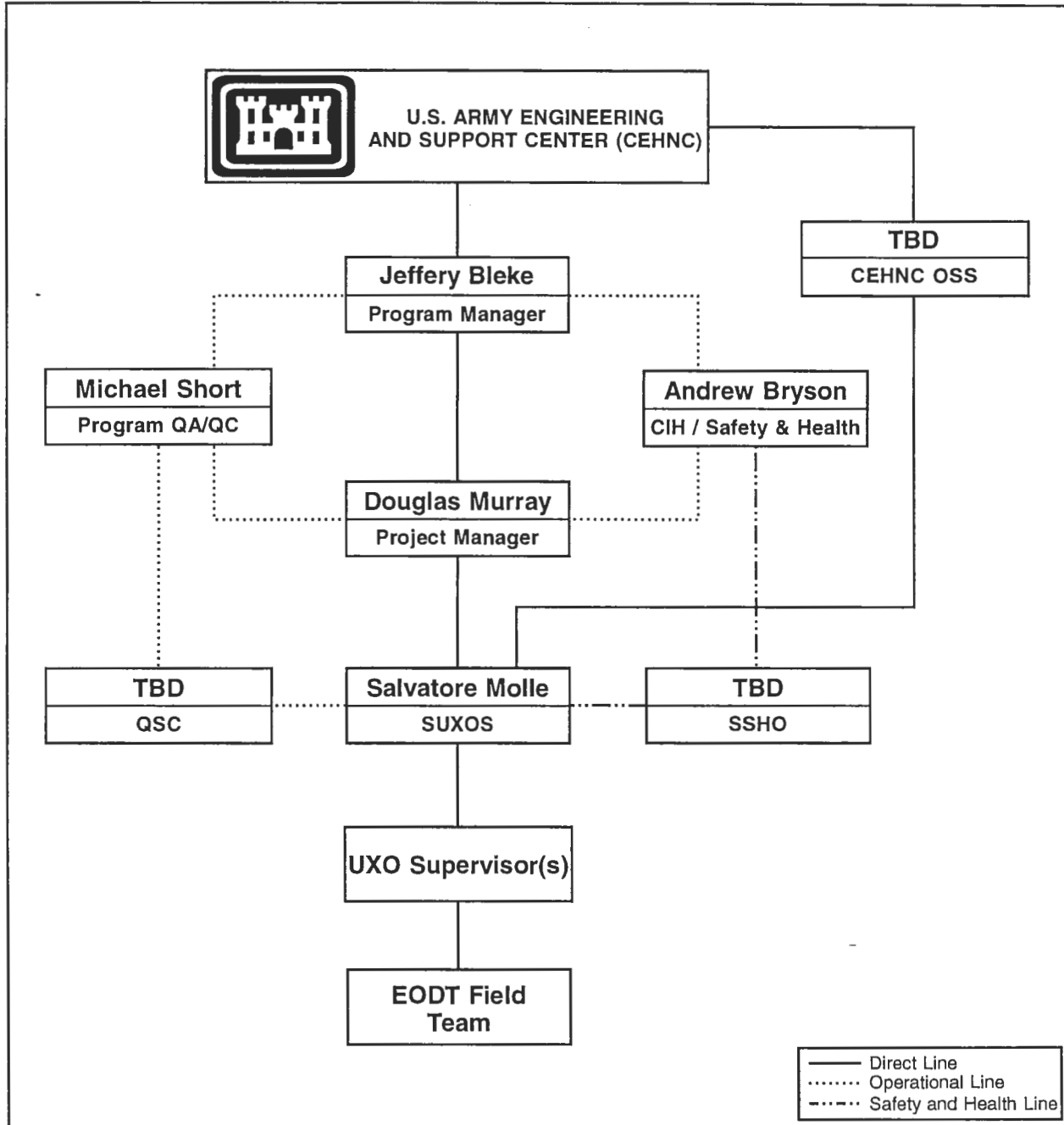
2.3 SUBCONTRACTOR RESPONSIBILITIES

EODT subcontractors shall be responsible for providing site personnel who have read, understand and will comply with this SSHP and the site-specific SSHP Addendum. The subcontractor must provide documentation that the personnel assigned to the project have the training and medical surveillance required by this SSHP. The subcontractor shall also be responsible for providing equipment that is in good repair, safe for operations, and free from any obvious hazards.

2.4 CEHNC PROJECT PERSONNEL

The CEHNC personnel assigned to the safety and health coordination and administration of each SEDA site will be presented in the site-specific SSHP Addendum developed for the site and presented as an addendum to this generic SSHP.

FIGURE 2-1. GENERAL SAFETY AND HEALTH ORGANIZATION



3.0 SITE DESCRIPTION AND CHARACTERIZATION

3.1 SEDA LOCATION AND DESCRIPTION

3.1.1 General Project Location and Description

SEDA is a government owned facility under the jurisdiction of the U.S. Army Materiel Command. The SEDA installation consists of approximately 10,600 acres located west of the Township of Romulus, New York in Seneca County. Located between the Seneca and Cayuga Finger Lakes, SEDA is bounded on the west by State Route (SR) 96A and on the east by SR 96. The facility is located on an uplands area, at an elevation of approximately 600 feet Mean Sea Level, that forms an elongated divide separating the two Finger Lakes. The entire installation is approximately eight miles long (north to south) and an average of four to four and a half miles wide (east to west). Out of the nearly 10,600 acres within SEDA, approximately 8,400 acres are designated storage areas for munitions, which include 519 storage igloos, eight above-ground magazines, two inert warehouses, and 2 small-arms warehouses. The remaining facility acreage is used for an airfield, housing, recreational, administrative and community services.

The annual climate at the SEDA is characterized as relatively moderate with distinct seasons. The winter months of December to March are typically cold, with the low temperatures reaching single digits, with the average highs in the upper 30's to low 40's. The summer months are warm, with high temperatures reaching the low 90's, but with lows that can drop into the 40's and 50's.

3.1.2 Site History

Since its inception in 1941, SEDA's primary mission has been the receipt, storage, maintenance and supply of military ordnance. As a part of this function, SEDA has conducted disposal operations for surplus and off-specification military munitions and explosives by burning and detonation at the munitions destruction area located in the northwestern corner of the SEDA. In early 1995, under the Base Realignment and Closure (BRAC) process, the DoD recommended the closure of SEDA. This recommendation was approved in October 1995, and the depot is scheduled for closure by July 2001.

3.2 DESCRIPTION OF THE OE REMOVAL ACTION SITE

During the development of each site-specific SSHP Addendum, EODT will include a description of the actual site where the OE operations will be conducted. This site-specific information will include data related to site vegetation, terrain, and other features, along with data regarding past and future land used. Maps of the site will also be referenced in this paragraph and a discussion of past site investigations will also be presented.

3.3 ON-SITE TASKS TO BE PERFORMED

3.3.1 Introduction

According to both DID OT-005 and ER 385-1-92, a discussion of the tasks to be performed and the hazards associated with each task are to be presented in this Section. However, these documents also require a detailed discussion of the tasks hazards in a separate section related to hazard assessment and risk analysis. To avoid duplication of effort, a general outline of the OE operations that may be performed under TO 0003 is presented in this section. To provide site personnel with detailed information, a full description of each site-specific task, and the task hazards, will be presented in Section 4.0 of each site-specific SSHP Addendum.

3.3.2 General On-site Tasks That May Be Performed

During the performance of TO 0003, EODT personnel will be involved in a variety of on-site tasks involving the potential for exposure to various OE, biological, physical and toxic chemical hazards. Brief generic descriptions of the site and task hazards that may be encountered at SEDA are presented in paragraph 3.5 of this section, while the actual on-site hazards will be discussed in each site-specific SSHP Addendum. A general listing of the operations that may be performed is presented below, while the actual tasks needed to meet the SOW for a given site will be presented in the site-specific SSHP Addendum.

- Location, surveying and mapping (LS&M) of site/grid coordinates;
- Vegetation removal using hand tools, powered hand tools and tractor mounted mowers;
- Geophysical surveying and mapping;
- Surface investigation and clearance of OE and scrap;
- Subsurface investigation and removal of OE using hand tools and earth moving machinery (EMM) to excavate subsurface anomalies;
- Operation of EMM and soil sifting equipment;
- Demolition of UXO and hazardous OE; and
- Removal of soils and materials contaminated with hazardous or toxic waste (HTW).

3.4 CONTAMINATION CHARACTERIZATION

3.4.1 Chemical Warfare Materials

Archival research of the SEDA has indicated that the area is not a suspect Chemical Warfare Materials (CWM) site. In the highly unlikely event that a CWM munition, or any source of CWM is encountered, site personnel will immediately evacuate the area in an upwind direction to a safe location, and the SUXOS and SSHO will be notified. The SUXOS will in turn notify the CEHNC OSS, who will determine the level and degree of military support required from either the U.S. Army Technical Escort Unit or other military EOD units. EODT will station two UXO Specialists 50 meters upwind of the suspected CWM to secure the area. Once the site is secure, the EODT OSHM and PM will be contacted, and EODT personnel will continue to secure the site until military support

arrives. Confirmation of the presence of CWM will require a halt in site operations until the potential for future exposure can be assessed and the SSHP is modified to address the CWM hazards.

3.4.2 OE Contamination

Historical records indicate that a large variety of OE was stored and at times burned or demilitarized within the SEDA facility. Site-specific information related to the OE hazards that may be present at a given site will be presented in the site-specific SSHP Addendum generated for the TO SOW.

3.4.3 Hazardous Substances and Materials

3.4.3.1 Environmental Contamination

As defined by the Federal EPA, hazardous substances are those products and materials that can threaten human health and/or environmental well-being if released into the environment. Past sampling and analysis conducted at SEDA indicate that there are locations within SEDA that are contaminated with hazardous substances resulting from past SEDA operations. Environmental hazards of concern are those that exceed the New York State Department of Environmental Conservation (NYSDEC) guidelines for contaminants in soil, sediment, surface water or ground water. Contaminants that exceed the NYSDEC limits may threaten flora, fauna or human receptors and cause adverse health effects through contaminant accumulation from long term environmental exposures. While the NYSDEC limits are designed to protect environmental receptors, these limits are not to be applied to the assessment of occupational workers experiencing short-term exposures due to soil disturbing activities. Information related to the hazards associated with short-term, occupational exposure to the on-site HTW hazards, along with an assessment of the exposure risks, will be presented in each site-specific SSHP Addendum.

3.4.3.2 Hazardous Substances Used On Site

As a function of site operations, the potential exists for some site personnel to use products containing hazardous materials. The hazardous materials that may be used to support site operations include: gasoline, diesel fuel, two stroke engine oil, and spray paints. It is anticipated that personnel exposure to the hazardous materials will be minimal due to the limited quantities that will be used at any one time. In addition, EODT will provide affected personnel with hazard communication training, as required by paras 6.3 and 6.10 of this SSHP, and will use the work practices outlined in Section 13.0 of this SSHP to further reduce or eliminate the potential for personnel exposure to high dust levels or hazardous materials. To minimize the potential for personnel receiving an excessive exposure to respirable and non-respirable dusts, EODT will employ dust suppression techniques.

4.0 HAZARD ASSESSMENT AND RISK ANALYSIS

4.1 INTRODUCTION

A preliminary evaluation of the overall tasks that may be conducted at the SEDA has been performed by EODT's safety, health and UXO-qualified personnel. This preliminary evaluation has been conducted using: available information from site characterization data; general task, site and hazard information; and the professional knowledge and experience of EODT's highly qualified staff. A general listing and discussion of the chemical, physical and biological hazards anticipated at SEDA are presented in this Section, and the general procedures and SWPs, that will be used to control these hazards are presented in Section 13.0 of this generic SSHP.

During the development of each site-specific SSHP Addendum to this generic SSHP, EODT will specifically identify which of the hazards discussed in this section may pose exposure hazards to on-site personnel. Additionally, any site-specific hazards that are not already discussed in this generic SSHP, along with the risks of personnel exposure to the identified hazards, will also be presented in the site-specific SSHP Addendum.

4.2 TASK HAZARD ASSESSMENT AND EXPOSURE RISK ANALYSIS

4.2.1 Introduction and General Requirements

All known, or potential, chemical, physical, biological and safety hazards that may pose a threat to the well-being of site personnel will, to the extent possible, be identified, and the risk of personnel exposure to each will be assessed during the development of each site-specific SSHP Addendum. Emphasis will be placed on identifying situations and tasks that have known, or may create, serious safety and health effects or immediately dangerous to life or health conditions.

Hazard assessments for SEDA have been made using the best available site data. However, site personnel must understand that hazard evaluation is an ongoing process in which they play a major role, and which will continue for the duration of the project. All site personnel shall be vigilant in identifying hazards in the work place and will bring them to the attention of the SSHO, or the SUXOS. If changes occur in the level or types of hazards present for a currently evaluated task, or if a new task is added to the WP, the SSHO will inform the OSHM of the change and modifications to this SSHP will be made IAW the guidelines in paragraph 1.5 of this generic SSHP.

4.2.2 Hazards and Risks Associated with Potential Exposures to Chemicals

In assessing the risks associated with potential exposures to known on-site chemical contaminants, EODT safety and health personnel will examine archival data, current land usages, the physical properties of potential site contaminants, the potential exposure routes, and the operational tasks to be performed to determine what chemical hazards may be encountered during site activities. As a

result of this examination, appropriate SWP, monitoring procedures and PPE will be identified to eliminate or minimize the potential for personnel to receive a documentable overexposure to the contaminants of environmental concern.

4.2.3 Hazards and Risks Associated with OE Hazards

The hazards associated with OE include the possibility of personnel injury or death caused by explosion, fire, fragmentation or over pressurization. These hazards may result if OE are not properly located, identified, handled, transported or disposed. While there is no "safe" procedure for dealing with OE, merely procedures which are considered less dangerous, maximum safety in any OE operation can be achieved through adherence to applicable safety precautions, a planned investigation and remediation approach, and intensive supervision. For all site operations with the potential for exposure to OE, only those personnel absolutely essential to the operation shall be allowed in the restricted area/exclusion zone. Site-specific OE hazards that may be encountered at a given site will be presented in the site-specific SSHP Addendum, and the generic safety and health procedures which will be used for reducing the potential for exposure to OE hazards are discussed in Section 13.0 of this SSHP.

4.2.4 Physical Hazards

Due to the nature of the anticipated site operations at SEDA, the potential and risk for exposure to physical hazards will be high for this project. The physical hazards which may be encountered during site operations include:

- Heat and cold stress, resulting from exposure to temperature extremes;
- Flammable/explosive materials used for fueling heavy equipment and power tools;
- Material lifting hazards such as pulled muscles, pinched/crushed fingers and toes;
- Cut/laceration of hands and legs resulting from contact with sharp surfaces/objects;
- Hand and power tool hazards, including cuts/lacerations, noise and flying objects;
- Slip, trip and fall hazards from exposed tree/brush stumps, terrain, and vegetation growth;
- Inclement weather such as heavy rain and thunder/lightning storms;
- Sharp objects including OE fragments, nails, broken glass and exposed tree/brush stumps;
- Pinch points associated with sifting and conveying operations; and
- Sifting equipment or EMM hazards including noise, pinch point and crush hazards.

Site personnel will be instructed to remain alert to the presence of potential physical hazards and to immediately report the observance of any uncontrolled or unanticipated physical hazards to the SUXOS and the SSHO. The EODT SSHO shall be responsible for thoroughly evaluating each day's field operations with respect to potential physical hazards. Any suspect or known physical hazards, and the specific procedures to be used to control them, shall be reviewed during the daily tailgate

safety briefing. General procedures for reducing or eliminating the physical hazards are discussed in Section 13.0 of this SSHP.

4.2.5 Biological Hazards

During portions of the year when the weather is warm, there is a significant probability that site personnel will encounter biological hazards if they are working in vegetated areas. The biological hazards anticipated for this project include: stinging insects like bees, wasps and hornets; poisonous plants, such as poison ivy, oak and sumac; ticks; mosquitoes; spiders; and poisonous snakes. While encountering hazardous insects and animals during the winter months will be remote, site personnel will remain alert to the presence of hazardous plants since toxic skin reactions are possible from contact with the barren plant stems and branches. Employee awareness and the SWP's outlined in Section 13.0 will be used to reduce, or eliminate, the risks associated with these hazards.

4.3 TASK DESCRIPTIONS AND HAZARDS

Due to the wide variety of project tasks that may be performed at the sites that may be associated with TO 0003, it is not possible to provide a complete listing and discussion of all site-specific tasks that may be performed by EODT personnel during this TO. Therefore, Paragraph 4.3 of each site-specific SSHP Addendum will include both a general listing and a detailed discussion of the tasks to be implemented to meet the requirements of the SOW. Additionally, within each task discussion, a detailed listing of the hazards associated with the identified task will also be presented.

4.4 COMMUNICATION OF TASK HAZARD INFORMATION

Prior to personnel participation in a given task, the SUXOS, OSHM and/or SSHA will communicate to all effected site personnel the information related to the hazards and the risks of exposure associated with the particular task. This hazard information will be communicated through initial site training, task specific training and tailgate safety briefings. Details related to the various training required is included in Section 6.0 of this SSHP.

4.5 EMPLOYEE RIGHT-TO-KNOW HAZARD COMMUNICATION

4.5.1 Communication of Hazardous Products to EODT Site Personnel

In order to comply with the OSHA Hazard Communication (HAZCOM) Standard 29 CFR 1910.1200, EODT implement the hazard communication requirements specified in this paragraph. These requirements are needed to ensure that site personnel are informed of the hazards associated with the products with which they work. Therefore, the following shall apply to all commercial products used on site that contain hazardous substances:

1. A written Hazard Communication Program will be made available to site personnel;
2. A material safety data sheet (MSDS) will be maintained on site for each product used that contains a hazardous substance;

3. All containers not supplied with adequate hazard labeling shall have a hazard label affixed that communicates the chemical and physical hazards associated with the material;
4. Employees working with hazardous substances shall be trained IAW the requirements of 29 CFR 1910.1200 outlined in paragraph 6.10;
5. An inventory of all hazardous substances used on site will be maintained on site; and
6. Personnel, including subcontractors, affected by hazardous substances use shall be informed of the hazards associated with the commercial products used on site.

4.5.2 Communication of Hazards to EODT Subcontractor Personnel

As part of the EODT Hazard Communication Program, the SUXOS and SSHO will ensure that all subcontractor personnel are informed of the hazards related to the site, site tasks to be performed and hazardous products used on site. EODT will make a copy of this SSHP available to subcontractor personnel and subcontractor personnel will be required to sign the EODT SSHP Team Review form certifying that they have read and understand the SSHP. Further, subcontractor personnel will be provided the same level of hazard information training provided to EODT site personnel.

4.5.3 Subcontractor Communication of Task/Product Hazards to EODT

EODT subcontractors will be required to provide the SSHO with information related to any task hazards which may be created by the subcontractors performance of assigned tasks. The subcontractor will also provide the SSHO with MSDSs for any commercial products they bring on site that contain hazardous materials, and will provide documentation of hazard communication training conducted by the subcontractor for those personnel using the identified products.

4.6 CERTIFICATION OF TASK HAZARD ASSESSMENT

During development of each site-specific SSHP Addendum, an assessment of each task will be performed for each task (or group of similar tasks) to identify all tasks where PPE and other control procedures will be needed to protect site personnel from the hazards associated with the task. These assessments will be conducted to comply with the OSHA PPE standard (29 CFR 1910.132), and to certify the performance of the assessment, a Certification of Task Hazard Assessment (CTHA) form will be completed for each task or group of similar tasks. The hazard assessments will be conducted using the best available site-specific information related to the site and the task(s). The CTHA forms will be used on a daily basis by the SSHO and SUXOS to inform site personnel of the hazards expected during the day's activities and the controls that will be needed to mitigate the hazard(s).

5.0 ACCIDENT PREVENTION

5.1 GENERAL

This purpose of this section is to address all content requirements of the Accident Prevention Plan, as specified in EM 385-1-1, that are not otherwise addressed in this SSHP. Included in this Section are: EODT's statement of safety and health policy; EODT's safety program and accident prevention goals; EODT's policies and procedures for safety violations and SSHP non-compliance; and EODT's plan for the prevention of alcohol and drug abuse.

5.2 STATEMENT OF SAFETY AND HEALTH POLICY

It is the policy of EODT to maintain personnel exposures to hazardous OE and chemical, physical or biological hazards at levels that are As Low As Reasonably Achievable (ALARA). This ALARA policy is considered from the project planning phase through to the project's completion, and will apply to all phases of site operation. For each project and task, ALARA procedures will be developed by the OSHM, PM and SUXOS, written into the site plans, approved by the client, and implemented during site operations. All site personnel will be required to adhere to the established ALARA procedures, and the ALARA procedures shall be re-evaluated and updated if the anticipated site conditions change during the course of the project. ALARA procedures include: the Standard Operating Procedures (SOPs), SWPs and engineering controls presented in Section 13.0; EODT's procedures used to ensure proper training of personnel; use of good personal hygiene practices; and, when required, use of PPE.

5.3 EODT'S CSHP AND ACCIDENT PREVENTION GOALS

The goal of EODT's CSHP is to provide the safety and health guidelines needed to ensure that EODT personnel are provided with a work environment that is free of uncontrolled, recognized safety and health hazards. It is also the goal of the EODT CSHP to comply with all Federal, state and local regulations, and client-specific safety and health requirements. During its ten years, and over 500,000 man-hours of operation, EODT has never experienced an OE-related accident, and has never been cited for a regulatory non-compliance. This enviable safety and health record has been achieved through: 1) EODT's meticulous attention to identifying project safety and health hazards; 2) EODT's careful design, and effective implementation, of appropriate hazard control measures and procedures; and 3) the thorough knowledge and extensive experience of EODT's field personnel. For this project, the OSHM, PM and SUXOS will be responsible for working closely with the CEHNC safety and health representatives, and for ensuring the project-wide implementation of EODT's CSHP requirements to assure the continuance of EODT's safety record and the achievement of the safety and health policies stated previously.

5.4 NON-COMPLIANCE POLICIES AND PROCEDURES

5.4.1 General Requirements

As outlined previously in Section 2.0 of this SSHP, designated corporate and on-site personnel have been tasked with the overall responsibility of ensuring the safe and healthful conduct of site operations. Additionally, EODT has expended significant energy and resources toward the development and design of written programs and procedures to be utilized to safeguard site personnel from the hazards associated with this project. It is imperative that all site personnel realize that their compliance with the established safety and health procedures is of paramount importance in the prevention of accidents and emergencies that could compromise not only their own safety and health, but also the well-being of other site personnel, the environment and the public. Since violations of the safety and health procedures and programs outlined in this SSHP can result in serious personal injury or illness, or environmental insult, EODT has developed the policies and procedures presented below to resolve and remedy any occurrences of non-compliance with the safety and health requirements presented in this SSHP.

5.4.2 Safety and Health Violations

It is the general policy of EODT that no personnel engage in any activity for which they are not properly trained, nor may personnel engage in any activity where the consequences of the activity are uncertain, or where the hazards associated with the activity have not been assessed. The additional prohibitions presented below are to be considered supplementary to the requirements outlined in this SSHP and are strictly forbidden at any time, during any phase of site operation. The SSHO may also impose, and will communicate to all site personnel, other prohibitions as deemed necessary to ensure the safe conduct of site operations.

- Horseplay or fighting;
- Use of alcohol on site or during the period from mobilization to the site each day, until demobilization from the site each work day;
- Illegal use drugs (as defined in paragraph 5.5 of this SSHP);
- Use of prescription or over-the-counter medications without prior approval of the SSHO;
- Eating, drinking or smoking in a Work Zone (WZ), as defined by this SSHP in Section 11.2, without prior approval of the SSHO;
- Unnecessary sitting or kneeling on potentially contaminated surfaces;
- Climbing on/over obstacles, unless such activity has been approved by the SSHP or SSHO;
- Starting or maintaining an open flame of any type unless authorized by the SSHO;
- Use of equipment that has not been inspected and deemed safe for operation;
- Entry into a work site, under any circumstances, by any employee or visitor without prior approval of the SUXOS; and
- Initiation of work without the presence of a buddy.

5.4.3 Disciplinary Actions

If a safety rule violation occurs, or a non-compliance with the SSHP is identified, appropriate positive disciplinary action will be taken. In all cases where a potential violation or non-compliance has been noted, the SSHO will conduct an investigation into the validity of the allegation, and to determine the known or potential severity of the violation/non-compliance. Both violations and non-compliance actions, may be divided into two categories: "Major" and "Minor". An example of a minor violation is reporting to, or conducting, work without the prescribed Level D PPE. A major violation is any violation of the SSHP that could have resulted, or did result, in an accident involving personal injury or property damage. Table 5-1 outlines the disciplinary actions and procedures to be followed in the event that a violation or non-compliance issue results from personnel actions:

TABLE 5-1: DISCIPLINARY ACTIONS FOR MINOR AND MAJOR VIOLATIONS

MINOR VIOLATIONS OR NON-COMPLIANCE ISSUES	
First Offense:	A verbal warning will be given to the individual; the offense to be noted in individual's file and supervisor's project file; a discussion with the individual's supervisor or Team Leader will be conducted.
Second Offense:	Written reprimand by the SUXOS will be entered in individual's file; discussion with individual and individual's supervisor.
Third Offense:	Termination of employment by the SUXOS and notification to the PM.
MAJOR VIOLATIONS OR NON-COMPLIANCE ISSUES	
Any Offense:	Minimum penalty for a Major violation will consist of a written reprimand to be entered in individual's file and a discussion between the individual and the SUXOS will be conducted. Depending upon the severity of the violation, the SUXOS may temporarily dismiss the individual from the job site pending further investigation of the offense. If this occurs, the incident will immediately be reported to the PM and OSHM by the SSHO or SUXOS. Upon completion of a full investigation, the individual's employment may be terminated, if deemed appropriate through a joint decision of the OSHM, PM and/or SUXOS.

5.4.4 Violation and Disciplinary Action Procedures

When a violation or a non-compliance occurs, the procedures listed below, and those listed in Figure 5-1, the Disciplinary Action Flow Chart, will be used to ensure impartial implementation of these actions.

1. An investigation of the incident will be carried out by the SSHO to determine if a violation has in fact occurred.
2. If the SSHO determines that a violation has occurred, the following actions will be accomplished:
 - A report of the violation will be submitted to the SUXOS and OSHM by the SSHO;
 - The SSHO, in conjunction with the OSHM and SUXOS will determine if the violation is "major" or "minor"; and

- The SUXOS, in conjunction with the OSHM and the PM, will determine and implement the appropriate disciplinary action.

5.5 SUBSTANCE USE AND ABUSE

5.5.1 Introduction

The Drug-Free Workplace Act of 1988 set as a goal the elimination of the effects of illegal drugs in the workplace. Due to the inherently hazardous nature of the work that EODT performs, the importance of creating and maintaining a safe, drug-free working environment for all employees cannot be overemphasized. The performance of every employee must, at all times, support the company's mission to conduct site operations with a high level of productivity, reliability, judgment and safety.

The management of EODT is thoroughly committed to providing a "Drug-Free Workplace" for all employees at each project site. Drug and/or alcohol use and abuse are incompatible with the maintenance of EODT's high standards of performance, safety, and quality. Since maintenance of these standards is expected of all employees at all times, and as a term and condition of employment, all employees will refrain from the illegal use, distribution, possession, manufacture, or dispensing of a controlled substance, and drug and/or alcohol abuse. Violation of this policy will result in administrative action, to include the possible termination of employment.

5.5.2 Substance Use and Abuse Policy

Employee drug or substance use or abuse testing/screening conducted by EODT in support of this policy will be conducted at no expense to the employee, and, except for drug/substance use testing conducted for pre-employment, employees will receive reasonable compensation for the time required for participation in any drug or substance testing/screening. The drug or substance use for which EODT may conduct testing include, but are not limited to: amphetamines, barbiturates; cocaine metabolites, methadone; opiates; phencyclidine (PCP); and ethyl alcohol. As a matter of policy, EODT will strictly implement and enforce the policies listed below.

1. No employee will report for work, or will work, impaired by any authorized or controlled substance, except with management's prior approval. Such approval will be limited to lawful medications and based strictly on an assessment of the employee's ability to perform their regular or other assigned duties safely and efficiently.
2. No employee will possess any controlled substance or alcohol which could result in impaired performance, except with knowledge and approval of the OSHM, SUXOS, and SSHO.
3. Applicants for employment are subject to substance abuse screening as part of their baseline or pre-assignment physical examinations. Refusal to submit to such screening will disqualify an applicant from employment.

4. All EODT employees are subject to substance abuse screening at any time as directed by the OSHM, or on a random, nondiscriminatory basis. Refusal to submit to such screening will result in removal from the project site and/or termination of employment. Substance use or abuse screening may be conducted in those circumstances listed below:
 - Whenever there is reasonable evidence to suspect any employee has reported to work in an impaired condition or is working impaired; and
 - When an employee is involved in either a job-related accident or job-related incident involving the apparent use or abuse of any substance listed in this Section.

5.5.3 Prescription Medications

EODT project personnel may possess and use prescription medications and “over-the-counter” medications provided that all of the following apply:

1. The prescription medication has been prescribed by an authorized medical practitioner for the current use (within the past 12 months) of the employee in possession of the medication, and the medication is in its original container with a valid pharmacy label which includes the employee’s name and the physician’s name.
2. The employee takes the prescribed, or over-the-counter, medication according to the physician’s instructions, or as noted on the container label.
3. Employees in possession of prescribed medications shall not allow any other person to consume any amount of their prescribed medication.
4. In the event that the prescribed medication could cause adverse side effects, or where the medication indicates warnings relevant to side effects affecting the operation of equipment or machinery, the employee shall inform the SUXOS and/or SSHO prior to engaging in project operations while under the influence of the medication (i.e., having taken the medication within the past 12 hours).

While the on-site use of prescription and over-the-counter medications is authorized, under the requirements listed above, EODT reserves the right to have a licensed physician determine if the employee’s use of the medication could adversely affect the individual or could increase the potential for injury or illness to the employee or other site personnel. If consumption of the medication could lead to adverse safety or health effects, the OSHM may, on the advice of the licensed physician, limit or suspend the employee’s work activities for as long as the licensed physician indicates that the medication may adversely affect the employee. Any employee who has been limited or suspended from work activities may seek from the prescribing physician a substitute medication which will not adversely effect the potential for injury or illness to the employee or other site personnel. If a suitable substitute can be prescribed, and is approved, the OSHM may lift the work activity suspension or limitation.



5.5.4 Suspicion Inspections and Testing

For the purposes of ensuring compliance with the prohibition against the unauthorized possession of controlled substances, employees will be subject to random and reasonable suspicion inspections and testing. An employee's company clothing, locker, closet, work area, desk files, company motor vehicle, and similar areas are subject to inspection. Similarly, an employee's privately owned vehicle, lunch box, and like containers, are subject to such inspections when brought to any work site. At no time will an employee be physically touched during an inspection, and only outer clothing will be required to be removed for inspection or search. No person or property search (except for searches of EODT owned, rented or leased properties), urine drug test or breathalyzer test will be conducted without the employee's consent. Refusal to submit to a legal inspection, or request for testing, will result in employee removal from participation in site activities until further inspection or testing can determine the potential for prohibited drug or substance use or abuse.

5.5.5 Drug Convictions

Any employee convicted of violating a criminal drug or alcohol statute will report the facts surrounding the conviction and sentence, in writing, to their immediate supervisor within five calendar days of the conviction. The supervisor will forward the written results immediately to the OSHM and PM, via the supervisory chain and a written report of the conviction will be made within ten calendar days to all government agencies with which the company has contracts. Upon notification of conviction, the OSHM, PM and SUXOS will review the report and will within thirty days after being informed, determine the disciplinary action to be taken. The disciplinary action taken may range from termination of employment to mandatory assignment to a rehabilitation program.

5.5.6 Treatment for Drug and Substance Use

EODT will encourage affected individuals to seek medical help voluntarily at an early stage and will assist supervisors in dealing with associated problems related to work performance. Additionally, supervisors and fellow employees will be discouraged from "covering up" for the affected individual and may face disciplinary action for doing so. Medical treatment, in the form of rehabilitation therapy, may be obtained by any employee, at their expense, who feels that they may have an alcohol or other drug problem, and voluntarily seeks the advice and help of a private physician or any agency in this field. An employee may be mandatorily referred by EODT to a regional health center, or other type of medical facility, for medical help because of deteriorating job performance or excessive absenteeism associated with abuse of alcohol or drugs. Failure to follow prescribed medical treatment or to improve performance to an acceptable level will be justification for termination of employment on the same basis as any other employee whose work performance is unsatisfactory.

6.0 TRAINING PLAN

6.1 GENERAL

All personnel assigned to a SEDA project site, shall receive on- and off-site training consistent with the duties to which they are assigned. The required training will be provided prior to personnel participation in assigned duties which pose a potential for exposure to safety or health hazards. Additionally, all personnel entering the site unescorted, or involved in OE investigation, handling, transportation, or disposal operations shall meet one of the pre-requisites listed below:

1. Graduate of the Naval EOD School, Indian Head, Maryland;
2. Graduate of the US Army Bomb Disposal School, Aberdeen Proving Grounds, Maryland;
3. Graduate of the EOD Assistant's Course, Redstone Arsenal, Alabama, with a minimum of five years of military EOD and/or commercial OE experience; or
4. Graduate of the EOD Assistant's Course, Eglin Air Force Base, Florida, with a minimum of five years of military EOD and/or commercial OE experience.

6.2 OSHA HAZARDOUS WASTE OPERATIONS TRAINING

6.2.1 Basic 40-Hour Training

All EODT and subcontractor personnel who have the potential for exposure to chemical, biological or physical hazards during the conduct of the tasks needed to meet the SOW requirements must meet the 40-hours of off-site Hazardous Waste Operations and Emergency Response (HAZWOPER) training requirements presented in 29 CFR 1910.120(e). This training requirement also applies to supervisory and management personnel responsible for site operations. This training must be documented before personnel are allowed to participate in site activities.

6.2.2 Three Day On-site Training

All EODT site and subcontractor personnel shall be given a minimum of three days of actual on-site training under the direct supervision of a trained, experienced supervisor. This training will be used to familiarize site personnel with the site-specific organization, PPE, decontamination, monitoring and emergency response procedures. The three day on-site training is site-specific and shall be documented using the Three Day On-site Training Form.

6.2.3 Management and Supervisor Training

Managers and supervisors responsible for the oversight of hazardous waste operations, or those who directly supervise on-site personnel (i.e., team leaders, and the SSHO), shall have eight additional hours of specialized supervisory training. This training shall include such topics as the EODT CSHP, training and medical surveillance requirements, the EODT PPE Program, spill containment, emergency response, and site monitoring procedures and techniques.

6.2.4 Eight-Hour Annual Refresher

All EODT and subcontractor personnel, to include management/supervisory personnel, shall receive a minimum of eight-hours of refresher training annually. This training will cover relevant topics from the 40-hour HAZWOPER and the eight-hour management/supervisor courses, as well as critiques of any incidents that have occurred in the past year and any other related topics.

6.2.5 Documentation of OSHA Training

All site personnel shall provide documentation or certification for the training required by paragraph 6.2.1 of this Section, and documentation or certification for the 8-hour Annual Refresher course, if applicable. Management or supervisory personnel will provide documentation of the training required by paragraph 6.2.3 prior to involvement in supervisory roles. Personnel who do not provide appropriate documentation shall be prohibited from engaging in site activities where a potential for exposure to safety or health hazards exist.

6.3 SITE-SPECIFIC AND HAZARD INFORMATION TRAINING

6.3.1 Site-specific Information Training

Site-specific information training shall be presented to all EODT, USACE and subcontractor personnel to provide them with information related to site operations. The time on-site personnel spend in this training shall apply to the Three-day On-site Training requirements outlined in paragraph 6.2.2 of this SSHP. The site-specific training topics to be covered shall include:

1. Site history and background;
2. Site organization and chain-of-command;
3. Use of PPE and decontamination procedures;
4. Training and medical surveillance requirements;
5. Emergency response procedures and assignments; and
6. Spill and emergency response procedures.

6.3.2 Hazard Information Training

Hazard information training shall be presented utilizing the EODT Hazard Information Program, IAW 29 CFR 1910.120(i). This training shall be presented to all on-site EODT and subcontractor personnel and will be used to inform on-site personnel of the nature, level and degree of exposure likely to occur as a result of participation in site activities. This training will include the following:

1. A description of anticipated chemical hazards, including the physical properties, symptoms of exposure, routes exposure, methods of monitoring and detection, and exposure limits;
2. The physical hazards associated with site operations, as presented in Section 4 of this SSHP, and the controls and SWPs that will be used to minimize exposure to these hazards;
3. The biological hazards present on site, as identified in Section 4 of this SSHP;

4. The engineering controls, SWPs, and other hazard control techniques and procedures that will be used to either minimize exposure, or reduce the effects of exposure.

6.4 OE RECOGNITION TRAINING

All non UXO-qualified personnel who will be involved in on-site operations will be given OE Recognition Training. This training will familiarize non-UXO personnel with the appearance and components associated with the OE which may be found on site. This training will include EODT's "No Touch" policy where non-UXO personnel will not touch any OE items, unless they have been inspected by UXO-qualified personnel and deemed to be ORS or inert ordnance.

6.5 OE REFRESHER TRAINING

All UXO-qualified site personnel shall receive site-specific OE training which covers the ordnance which is known or expected to be on site. The topics to be covered in the OE refresher training shall include: type of ordnance, fuzing, fillers, hazards, and handling and disposal procedures.

6.6 FIRST AID AND CPR TRAINING

At least two full time EODT site employees shall be trained and certified in first aid and CPR. Whenever possible, the SSHO will be one of the two site personnel. The training provided shall be equivalent to that provided by the American Red Cross. Once trained, these employees will then be tasked with the responsibility of providing initial first-aid response to injured employees whenever other medical support personnel are not immediately available on site.

6.7 BLOODBORNE PATHOGEN TRAINING

The EODT first aid trained personnel will primarily be responsible for rendering aid in the event of an injury or accident. As required by OSHA 29 CFR 1910.1030(g), all personnel with a potential for occupational exposure to blood or other potentially infectious body fluids shall receive Bloodborne Pathogens (BBP) training. This training shall consist of the following:

1. Review of the BBP standard and the requirements of the Exposure Control Plan;
2. Description of the risks of exposure and how BBP are transmitted;
3. Management and employee responsibilities;
4. Exposure prevention, decontamination, and post-exposure procedures; and
5. Labeling, color coding and disposal of infectious waste.

Due to the hazards inherent to OE contaminated sites, the potential exists for traumatic and extensive injuries to occur as a result of the unintentional detonation of OE. The initial treatment of these injuries by first aid personnel may require the assistance of additional site personnel. Therefore, when feasible, all on-site EODT personnel will receive the BBP training specified above.

6.8 PERSONAL PROTECTIVE EQUIPMENT TRAINING

As specified by 29 CFR 1910.132, all site personnel required to use PPE shall be trained in the use, care, and limitations of the PPE they are to use. Prior to using the designated PPE on site, all affected personnel shall demonstrate an understanding of the training, and their ability to properly use the assigned PPE. Upon completion of this training, EODT will verify the training through the issuance of a certificate that identifies the name of the personnel trained, the training date(s) and the subject of the certification. Affected personnel will be re-trained if site conditions change which effect the level or type of PPE being used. PPE training shall address the following topics:

1. PPE selection decisions;
2. When PPE is needed;
3. What PPE is needed;
4. How to properly don, doff, adjust and wear PPE;
5. The limitations of specific pieces/types of PPE; and
6. The proper care, maintenance, useful life and disposal of PPE.

6.9 HEARING CONSERVATION TRAINING

As specified by 29 CFR 1910.95, all site personnel exposed to noise levels exceeding an eight-hour time-weighted average (TWA) of 85 decibels on the A-weighted scale shall be provided with training which addresses the following topics:

1. Physical and psychological effects of high noise exposure;
2. Noise exposure limits;
3. The purpose and procedures for audiometric hearing tests;
4. Elements of the EODT Hearing Conservation Program; and
5. Selection, fitting, use and limitations of hearing protection devices.

6.10 HAZARD COMMUNICATION TRAINING

To comply with the requirements of the 29 CFR 1910.1200, HAZCOM training shall be provided for all site personnel who will use products which contain hazardous substances. This training shall be provided upon initial assignment to the site and prior to use of the product containing the hazardous substance. Supplemental HAZCOM training shall be scheduled and presented whenever personnel change job functions or use a new produce with hazardous substances.

6.10.1 Required Information

6.10.1.1 General Information Provided

To ensure site personnel are knowledgeable of the general requirements of the OSHA HAZCOM standard, the following shall be maintained on site and the site personnel shall be familiarized with the relevant information presented in the following:

1. The basic OSHA HAZCOM Standard, including employee rights under the regulation;
2. A listing of the operations/processes where hazardous chemicals are used and the potential for exposure exists; and
3. The location and basic elements of the EODT HAZCOM Program, an inventory of the hazardous substances used on site, and the location and availability of the MSDSs.

6.10.1.2 Product Specific Information Provided

To ensure that site personnel are knowledgeable of the chemical and physical hazards associated with hazardous substances used on site, all personnel shall be trained to recall, in simple language, the following basic information about each hazardous substance to which they are exposed:

1. Chemical hazards, including the toxic effects a chemical has on the body (long and short term) and the routes of exposure;
2. Physical hazards (i.e., flammability, reactivity);
3. How chemicals may be detected/monitored (instrumentation, color, odor, state);
4. How workers can protect themselves from overexposure or emergency situations;
5. Steps that have been taken to lessen or prevent exposure to hazardous substances;
6. Spill response procedures for chemical emergencies;
7. First aid procedures if employees are over exposed to any hazardous chemicals; and
8. How to generate and read hazard warning labels and review MSDS's.

6.10.2 Documentation of HAZCOM Training

HAZCOM training shall be documented by the SSHO using the EODT Hazard Communication Training Form. This documentation shall be maintained on site for the duration of the project, and later incorporated into the employees personal training file.

6.11 FIRE EXTINGUISHER TRAINING

All EODT site personnel will be trained in the general principles of fire extinguisher selection, use and the hazards associated with incipient stage fire fighting (i.e. fighting a fire that has just begun). This training will be provided initially and annually thereafter.

6.12 EXCAVATION AND TRENCHING TRAINING

All site personnel involved in excavation and trenching operations shall receive on-site training in the proper excavation and trenching procedures IAW 29 CFR 1926.650 and the EODT CSHP. This training shall cover the safety and health hazards and control procedures related to excavation and trenching.



6.13 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

All site personnel involved in the use of lockout/tagout (LO/TO) devices for the control of hazardous energy, as specified in paragraph 13.15, will receive on-site training in the proper implementation of the EODT LO/TO Program. All training shall comply with 29 CFR 1910.147 and EM 385-1-1, Section 12.

6.13.1 Training of Affected Personnel

Each person working in an area where lockout/tagout (LO/TO) procedures must be implemented shall be instructed in the purpose and use of the LO/TO procedure, and about the prohibitions related to attempts to re-start or re-energize equipment or machinery which are locked or tagged out.

6.13.2 Lockout Training for Authorized LO/TO Personnel

Each person who will be authorized to conduct LO/TO procedures shall receive training in the following areas prior to using this procedure:

1. The function and purpose of this SOP;
2. Recognition of hazardous energy sources;
3. Types and magnitude of the hazardous energy which may be encountered on site;
4. The means necessary for energy isolation and control;
5. Hands-on practice training with locks and tags prior to implementing LO/TO activities; and
6. Where tags may be used, training will include procedures for affixing tags and a discussion of the limitations of tagout.

6.13.3 Tagout Training for Authorized Employees

In the event that only tagout procedures and techniques are used on site, authorized personnel shall be trained in the following limitations of tags:

1. Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint on those devices that is provided by a lock;
2. When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated;
3. Tags must be legible and understandable by all authorized and affected personnel whose work operations are, or may be, in the area;
4. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use; and
5. The importance of the fact that tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered on site.

6.13.4 Employee Re-training

Re-training of authorized and affected personnel shall be conducted at least annually to reestablish employee proficiency and to introduce new or revised control methods and procedures. Retraining will also be conducted whenever periodic inspections reveal inadequacies in the authorized person's knowledge or use of the LO/TO SOP. Also, retraining may be necessary due to changes in job assignments, equipment, machinery, or processes that introduce a new hazard.

6.14 ADDITIONALLY REQUIRED OSHA TRAINING

Additional OSHA required training as deemed necessary by the OSHM or SSHO shall be provided as needed. This may include training related to specific chemical contaminants (such as lead, arsenic, etc.) or task specific hazards such as confined space, heavy equipment, hand tool operation, specialized PPE, etc.

6.15 BUDDY SYSTEM TRAINING

Team members shall be trained to keep in visual contact with each other at all times, and to remain constantly aware of site hazards, symptoms of exposure to chemical substances, areas with restricted access, temperature extremes, and other hazards in their work area that could affect their buddy.

6.16 VISITOR TRAINING

Site visitors are defined as persons who: (1) are not employed at the project site; (2) do not routinely enter restricted work areas; and (3) spend short periods at the site (i.e., 1 to 2 days per visit). Site visitors may include client personnel, EODT personnel, commercial vendors, auditors or inspectors from Federal, state or local regulatory agencies, or political representatives. Visitors shall be required to comply with the general requirements listed in paragraph 6.16.1, and shall be given site and hazard information training IAW the applicable provisions of paragraph 6.16.2 listed below.

6.16.1 General Requirements for All Site Visitors

Regardless of the purpose of the site visit, or the control zones to be entered, the following requirements shall apply to all site visitors:

1. The EODT SUXOS and SSHO shall be notified of the nature and duration of the visit before visitors are permitted to enter the site;
2. The visitor shall sign the Visitor Log and shall record their name, date of visit, and the name of the company or agency represented;
3. The site visitor shall be escorted by a UXO-qualified EODT representative at all times while in the area; and
4. Visitors shall comply with the applicable safety and health requirements described below.

6.16.2 Hazard Information Training for Site Visitors

6.16.2.1 Visitors Entering the Support Zone Only

Visitors wishing to observe site activities from the support zone (SZ), without entering the exclusion zone (EZ), shall receive general hazard information training which incorporates the following topics:

1. Location and description of potential hazards and risks;
2. A short briefing about the chemical hazards found on site;
3. Areas of the site that are closed to visitors;
4. The site evacuation plan and emergency procedures; and
5. Other topics as deemed appropriate.

6.16.2.2 Visitors Entering the EZ

Site visitors who enter an EZ shall be subject to the same site and hazard information training specified in paragraph 6.3 of this Section. This training shall be conducted prior to the visitor entering an EZ. In the event of a visitor entering the EZ, all OE-related operations shall cease, unless the visitor is EOD qualified. Visitors requesting entry to an EZ shall also be required to present documentation of OSHA HAZWOPER training and medical surveillance, consistent with the requirements for general site employees.

6.17 DAILY TAILGATE SAFETY MEETINGS

Prior to commencing operations each day, all EODT, contractor and subcontractor personnel shall be given a safety briefing by the SSHO. This briefing shall identify the anticipated site activities and the potential hazards that may be encountered during that day's activities. The tailgate safety briefings shall also be used to review the following: anticipated weather conditions and weather related hazards; use of safety equipment and procedures; emergency evacuation and medical procedures; emergency notification signals; accident prevention; and relevant sections of the SSHP and WP. These topics will be reviewed daily to ensure that site operations are carried out in a safe and healthful manner. Records of all Tailgate Safety Meetings documenting date, attendance, and topics covered shall be maintained using the EODT Documentation of Training Form.

6.18 WEEKLY SAFETY TRAINING

At the start of each work period, which is normally Monday, a site-specific safety topic will be selected by the SSHO and discussed in detail by either the SSHO or a speaker selected by the SSHO. All site personnel are required to attend the training and the SSHO shall document this training on the EODT Documentation of Training Form. The training will consist of site-specific hazards such as the known chemicals, ordnance, temperature extremes, etc. This training will be conducted in conjunction with the tailgate safety briefing.

7.0 PPE PROGRAM

7.1 INTRODUCTION

All personnel performing operations on site shall be required to use the appropriate level of protection, as specified in this section and the CTHA forms presented in the site-specific SSHP Addendum. It is anticipated that site personnel may be required to perform operations in levels of PPE ranging from Level D, to Modified Level D, and Level C, IAW the hazards associated with a given task or operation. All PPE requirements for site operations, activities, or zones will be based on available site characterization and historical data and will represent the initial PPE levels that will be used during the start of specific site operations. Initial levels of PPE may be down-graded based upon the site monitoring results obtained IAW the Site Monitoring Plan presented in Section 9.0 of this SSHP. The PPE levels presented in this Section will be reassessed if any of the following occur:

1. The results obtained from the on-site monitoring are below the action levels specified for the initial/current PPE levels;
2. The results obtained from the on-site monitoring are above the action levels specified for the initial/current PPE levels;
3. Previously unidentified chemicals or conditions are noted;
4. Significant changes in weather conditions occur which impact the use of assigned PPE;
5. A new task is introduced to the SOW or a previously assigned and evaluated task is expanded in scope; and
6. Discovery and confirmation of CWM.

For project tasks assigned after the approval of this SSHP, the EODT OSHM, in conjunction with the SSHO, will assess the task hazards, assign the appropriate PPE level, complete a Certification of Task Hazard Assessment form and forward it to the KO for approval. Upon approval, the new form will be added to this SSHP. Any changes in PPE levels involving the downgrading of PPE levels will be allowed only after review and approval by the EODT OSHM.

7.2 SPECIAL CONSIDERATIONS

The following special considerations shall be observed in the selection and use of PPE for the levels discussed below.

1. Hard hats are required only when working around heavy equipment or when an overhead or impact hazard exists.
2. Steel toe/shank boots are not required during surface/subsurface location of anomalies unless a serious toe hazard exists, whereupon a fiber safety toe will be used.
3. Safety glasses will be required only when an eye hazard exists and will provide personnel with protection from impact hazards, and, if necessary, UV radiation.

4. The OSHA standards for PPE, 29 CFR 1910.132 - 138 will be incorporated into all phases of PPE selection, use and training.
5. Personnel using or dispensing products that contain hazardous materials that present a skin contact hazard, will wear chemical resistant gloves.

7.3 TASK SPECIFIC ASSIGNMENT OF PPE

Initial task-specific PPE assignments for each project site will be presented in a table similar to that provided in Table 7-1. This table will be used to list the anticipated site tasks and the level of PPE that will be worn during the initial performance of each task. Downgrading or upgrading of the initial PPE levels in Table 7-1 may occur if specified conditions related to contamination levels are met and if approval has been obtained from the OSHM. Changes to the initial PPE levels will be documented in the site Safety Log maintained by the SSSH. Currently listed in this generic version of Table 7-1 are some of the general tasks that may apply to all sites where the specified level of PPE is typically worn in the absence of any chemical contaminants. When a new site is assigned to EODT through the modification to TO 0003, Table 7-1 will be modified in the site-specific SSHP Addendum and will include the site-specific tasks and initial PPE assignments.

TABLE 7-1: INITIAL TASK-SPECIFIC ASSIGNMENT OF PPE LEVELS

Task to be performed	Level of PPE
Mobilization and site set-up / Demobilization and site closure	D
Vegetation clearing with bladed gas powered weed cutters or chain saws	Mod D1 *
Location surveying and mapping	D
Surface clearance of OE and debris	D
Magnetometer surveying and subsurface investigation of anomalies	D
OE disposal operations	D
EMM operation	D
Handling Scrap Metal and ORS	D
Refueling gasoline or diesel powered equipment	Mod D2 *

* - See paragraph 7.5 for explanation of D1 and D2.

7.4 LEVEL D PPE

The following is a general description of the typical Level D PPE that will be worn during general site activities IAW Table 7-1:

1. Work clothes (cotton);
2. Leather work gloves (if a potential exists for hand cut, abrasion, pinch or puncture);
3. Boots - work boots;
4. Hard hat (as required, see paragraph 7.2);
5. Safety glasses (as required for eye impact and UV protection); and
6. Snake leggings (required when working in wooded/vegetated areas during warm weather conditions where snakes may be present on site).

7.5 MODIFIED LEVEL D PPE

Modifications to the standard Level D may be needed depending upon the type and degree of hazard that may accompany a given task. Modifications to Level D may include the addition of chaps for chain saw use, addition of snake leggings or other upgrades to Level D. In each case, Modified Level D (also referred to as Mod D) will typically include the same basic PPE as Level D, but this will be modified by the addition of PPE that is specific for the protection of personnel during the a specific task. Therefore various levels of Mod D may be needed for the performance of a given TO. The site-specific SSHP Addendum will be consulted to confirm the Mod D requirements needed for each task where Mod D is specified in Table 7-1. The Mod D PPE listed below provides the general variations of Mod D expected for this SEDA generic SSHP.

- ◆ Mod D1 - For Vegetation Removal
 1. Same PPE as Level "D";
 2. Hard hat with face shield (wire or nylon mesh);
 3. Leather anti-vibration work gloves;
 4. Kevlar chaps (for use with chain saw);
 5. Toe guards or steel-toed boots; and
 6. Ear plugs and muffs.

- ◆ Mod D2 - For Refueling
 1. Same PPE as Level "D"; and
 2. Nitrile gloves.

7.6 LEVEL C PPE

The assignment of Level C PPE will be to those tasks conducted in the areas where personnel may be exposed to airborne contaminants at levels exceeding ½ of the permissible exposure limit. The actual contaminants of concern, and the type of Level C PPE to be used to protect the personnel from the specific contaminants will be specified within each of the site-specific SSHP Addendums to be attached to this generic SSHP. When the initial PPE is set at Level C, downgrading of the PPE will occur if breathing zone (BZ) sampling can document that there is no potential for personnel receiving an exposure above the action level(s) presented in Section 9.0.

7.7 RESPIRATOR ISSUE

The respirator requirements presented in this paragraph have been designed to comply with applicable OSHA and USACE regulations found in 29 CFR 1910.134 and EM 385-1-1 Section 5.E. These requirements also comply with the requirements of the EODT Respiratory Protection Program, and shall not be changed without prior approval from the OSHM.

7.7.1 Respirator Selection

Available site archival and characterization data, and information related to the physical and toxic properties of site contaminants, will be used by the OSHM to select the respiratory protective equipment for each task. At no time will respirators or their components be altered or combined in a manner that is not approved. Doing so may void the respirator approval and significantly affect the performance of the respirator.

7.7.2 Selection Criteria

The selection of the proper type of respiratory protection will be continually based upon the following:

1. The type of contaminant(s) expected or known to present a potential for exposure;
2. The physical properties, toxicological effects, and anticipated exposure concentrations;
3. The warning properties and initial signs and symptoms of exposure;
4. The nature of the operation where exposure may occur;
5. The location of the work area in relation to the nearest area having respirable air;
6. The period of time for which respiratory protection is needed; and
7. The characteristics and limitations of the respirator.

7.7.3 Task-Specific Respiratory Assignment

Specific respirators with specific filtration requirements will be selected for each task where there exists a potential for an unprotected overexposure to airborne contaminants. Any modifications to the type of respiratory protection specified by this section will be made in writing, approved by the OSHM and CEHNC KO and amended to this SSHP. Respiratory protection will only be issued to those personnel who have been medically cleared to wear respiratory protection and who have a current fit test for the type of respirator being used. The specific respirator face piece and filtration system to be used will be listed in each site-specific SSHP Addendum.

7.7.4 Respirator Training

Training in the use of respiratory protective equipment shall be conducted by the SSHO prior to the on-site use of respiratory protection. The respiratory training shall be conducted IAW with the provisions outlined in Section 6.0 of this SSHP and shall be documented by the SSHO.



7.8 PPE INSPECTION, MAINTENANCE AND STORAGE

Site personnel using PPE will be responsible for keeping the equipment clean, and in good working condition. EODT shall establish and maintain a PPE storage area where field personnel may store their PPE during non-use times. Respirators used on site will be allowed to dry after decontamination in an area that is free of site contaminants and other hazards. All site personnel will be responsible for daily inspections of their PPE to ensure that it is maintained in safe working order. PPE that is worn out or defective will be brought to the attention of the SSHO and replaced as needed.

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8.0 MEDICAL SURVEILLANCE

8.1 INTRODUCTION

As required by the EODT CSHP and to comply with the requirements of 29 CFR 1910.120(f), EODT has established a comprehensive Medical Surveillance Program. This program was established to allow for the generation of the Site-specific Medical Surveillance Plan (SMSP) which is presented in this Section. This SMSP contains the general medical surveillance requirements that will be applicable to the EODT personnel and tasks at SEDA under this generic SSHP. Site personnel to be included in the SMSP will be those who have a potential for occupational exposure to hazardous substances; wear respiratory protection or perform operations where they are exposed to other significant safety and health threats (such as extreme physical exertion, noise and temperature extremes). EODT subcontractors shall provide site personnel who meet the medical surveillance requirements of this Section.

8.2 PURPOSE AND SCOPE

The purpose of the SMSP is: (1) to assess the individual's health status prior to participation in site operations; (2) to determine the individual's ability to perform work assignments in the levels of PPE required by this SSHP; (3) to establish baseline data for comparison to future medical surveillance data in order to monitor any changes in the health status of site personnel; and (4) to establish site specific facilities and procedures for emergency and non-emergency medical treatment of personnel injured while participating in site activities. Physical assessments conducted under this SMSP are designed to identify any conditions that could predispose personnel to illness or injury resulting from exposure to chemical, physical or biological hazards, or the physical demands of using PPE.

8.3 GENERAL REQUIREMENTS OF THE SMSP

Examinations of personnel required by this SMSP shall be conducted by, or supervised by, a licensed physician, who is board-certified in occupational medicine or who has had extensive experience in the recognition, evaluation and treatment of occupational diseases. The physician designated by EODT to administer the SMSP will be:

Dr. Robert Paret
Occupational Health Services
123 W. Tennessee, Suite 401, Oak Ridge, Tennessee 37830
(423) 481-0991

If, due to logistical restrictions, it is not feasible for the above mentioned physician to examine some or any of the site personnel, the OSHM may locate and designate an alternate physician to conduct the health assessments. The alternate physician must meet the qualification requirements of the

above mentioned designated physician. The alternate physician shall be responsible for performing examinations equivalent to those outlined in this SMSP, and shall be provided the information required in paragraph 8.4 of this Section.

8.4 PHYSICIANS STATEMENT

The results of each employee examination shall be provided by the physician to the employee, and a written physician's statement shall be sent to EODT. The physician's statement shall, as a minimum, include the following: 1) the employee's name and social security number; 2) the physician's opinion regarding any conditions which would place the employee at an increased risk as a result of participation in site activities; 3) a statement indicating if the employee is qualified to wear a respirator; 4) a statement that the employee is qualified to participate in CWM and HTW related site activities; 5) the physician's recommended limitations upon the employee's assigned work, if any; 6) any supplemental or follow-up examinations or tests which the physician believes are required to complete the assessment; and 7) a statement that the employee has been informed by the physician of the results of the examination and any conditions which may require further examination or treatment.

8.5 MEDICAL SURVEILLANCE EXAMINATIONS

In order to provide the means for accurately assessing each employee's health status, medical surveillance examinations shall be conducted IAW the specifications listed in this paragraph. The OSHM shall ensure that all EODT and subcontractor personnel receive the medical examinations as required in this Section.

8.5.1 Pre-assignment Health Assessment

The pre-assignment health assessment shall be conducted prior to personnel participation in site activities involving potential exposure to chemical or physical hazards. The pre-assignment health assessment shall have been conducted within the past 12 months and will, as a minimum, include the following elements and medical tests:

1. A complete medical and occupational history;
2. A complete physical examination;
3. Laboratory blood studies;
4. Urinalysis;
5. Chemistry panel;
6. PPE evaluation and pulmonary function testing;
7. Audiometric and vision testing;
8. Chest X-ray;
9. Electrocardiogram (as determined by the physician); and
10. Drug testing.

8.5.2 Project Specific Testing

In the event that site-specific medical surveillance requirements are needed due to the presence of on-site contaminants, the site-specific test will be included in the site-specific SSHP Addendum.

8.5.3 Supplemental Examination

Any site worker who has: been injured; received a health impairment; developed signs or symptoms from possible over-exposure; or received a documentable over-exposure without the use of respiratory protection, shall undergo a supplemental examination. The contents of this examination will be based upon the type of injury, illness, signs, symptoms or exposure involved and will be determined by the physician. Prior to reassignment to site activities, the physician shall certify that the employee is fit to return to work. If necessary, the physician shall specify in writing any restrictions or follow-up tests which may be required.

8.5.4 Follow-up Health Assessments

The physician will notify EODT, and the employee, if an occupationally related condition is detected which requires additional testing and assessment. The physician will also inform EODT and the employee as to the nature and extent of the recommended follow-up health assessment. A statement outlining the employee's fitness for work shall be provided to the employee and EODT upon conclusion of the follow-up health assessment.

8.6 HEALTH CARE ADMINISTRATIVE SERVICES

In support of this SMSP, EODT has designated Dr. Paret for the establishment and maintenance of any medical records related to this project. These records will be treated as private and confidential information, and will be complete enough to provide data for use in health maintenance, treatment, and epidemiologic studies and in helping the government and EODT with program evaluation and improvement. The medical records will contain sufficient information to identify the employee, support the diagnosis, justify the treatment, and document an additional follow-up case or referral.

8.7 INDUSTRIAL HYGIENE SERVICES

EODT will maintain an industrial hygiene surveillance program administered by the OSHM to ensure the following:

1. The proper implementation of this generic SSHP and its applicable site-specific SSHP Addendums;
2. The establishment and maintenance of record keeping for all qualitative and quantitative exposure measurements;
3. The establishment of applicable respiratory protection requirements as needed; and
4. The provision of technical expertise for the support and implementation of site tasks.

8.8 EMERGENCY AND NON-EMERGENCY MEDICAL TREATMENT

Provisions have been made with the hospital and ambulance services listed below to ensure prompt and effective medical treatment for personnel who are injured or become ill as a result of site operations. On-site basic first aid will be provided by the EODT first aid/CPR personnel. In the event of an on-site injury or illness, the SSHO will be contacted immediately and informed of the nature and degree of the injury/illness. While responding to the incident, the SSHO will determine the course of action to be taken and will contact appropriate medical support and transportation services, as needed.

8.8.1 Treatment of Minor Injuries

For minor injuries, the two EODT personnel with first aid/CPR training will provide the initial first aid response. If additional/advanced attention is required, the SSHO will determine the course of action to transport the injured person to the designated medical facility. If the SSHO determines that a site vehicle may be used for transportation, a first aid trained attendant will accompany the driver and injured person. If ambulance service is required, the SSHO will contact the SEDA ambulance service specified in Section 14.0 of this SSHP. Those personnel receiving minor injuries will be transported to the Geneva General Hospital located in Geneva, New York. This hospital is located approximately 15 miles north of the site. Geneva General Hospital will not be used for the treatment of trauma injuries since it does not have a trauma center.

8.8.2 Treatment of Serious Injuries

For serious injuries, the EODT first aid/CPR personnel shall initiate appropriate emergency first aid. The SSHO shall contact the SEDA Fire Department who will provide on-site medical support response with Emergency Medical Technician (EMT) and Advanced Life Support (ALS) personnel. The SEDA ambulance service will also provide transportation of the injured person, or will contact Mercy Flight air ambulance service out of Canandaigua, New York. Based upon the determination of the SEDA EMT or ALS personnel, Mercy Flight will then transport the injured person to the trauma center at either the University Hospital located in Syracuse, New York, or Strong Memorial in Rochester, New York. Advanced medical support services will be available during transportation by Mercy Flight

8.9 ON-SITE MEDICAL SUPPLIES

Portable first aid kits for the treatment of injuries and burns shall be provided in all support, contamination reduction and work zones established on site. Additionally, a large first aid cabinet will be maintained in the project office for responding to serious injuries. All first aid supplies shall be inspected by the SSHO at least weekly to ensure adequate supplies are available and in proper condition. The contents of the first aid kits have been approved by the EODT designated physician and will be maintained at proper inventory levels.



8.10 MEDICAL SUPPORT POLICIES

EODT site personnel will be provided routine occupational medical surveillance services by either Dr. Paret, or another occupational physician, at no cost to the employee. As stated previously, the scope of the SMSPP provided by EODT includes efforts to prevent, diagnose, or treat occupational illnesses and injuries. EODT shall not provide definitive diagnosis or treatment for non-occupational injuries or illnesses, with the only exception to this policy being an emergency situation where immediate medical attention is necessary to prevent loss of life, relieve suffering, or to preclude permanent injury which would result if treatment were delayed.

8.11 DESIGNATED HOSPITAL

Primary treatment for minor illnesses or injuries which could occur on site will be provided by the Geneva General Hospital. This hospital is located in Geneva, New York, approximately 15 miles from the site and is equipped to provide general hospital assistance, to include treatment of common injuries and stabilization of patients with more serious injuries. Personnel with serious or life threatening injuries, which are greater than the level of care available at Geneva General Hospital, will be attended to and transported as described in para 8.9.2 of this Section. A map to the Geneva General Hospital is presented in Figure 14-1, and written instructions are located in paragraph 14.6.2 of this SSHP. No maps for Strong Memorial or University Hospital are provided since EODT personnel will not be involved in the transportation of personnel to these facilities.

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9.0 MONITORING PLAN

On-site sampling and monitoring will be conducted during the site activities specified in this Section to evaluate potential chemical and physical hazards to which site personnel may be exposed. The on-site monitoring will assist in determining the effectiveness of control measures, the need for upgrading or downgrading PPE requirements, and the effectiveness of safe work practices. Direct reading, real-time instruments will be used whenever possible, or required, during site operations to detect and qualify the hazards. If a reading is achieved which exceeds the action levels specified in Table 9-1, the EODT SSHO will take the steps outlined in this Section to correct the situation or minimize the exposure.

9.1 MONITORING RESPONSIBILITIES

Sampling and monitoring will be conducted by the EODT SSHO, or by other site personnel who have been trained by the SSHO in the proper calibration and operation of monitoring equipment. All monitoring equipment will be provided and operated by EODT. Any readings at or above the action levels, as specified in Table 9-1, will be reported to the OSHM. The sampling and monitoring equipment to be used during a given operation will be selected based upon the nature and degree of the hazards present, and will be specified in each of the site-specific SSHP Addendums.

9.2 MONITORING SCHEDULE

Any exposure sampling or monitoring specified in the site-specific SSHP Addendum will focus on the potential exposure to chemical and physical hazards generated during operations where the specific hazards have been anticipated. Table 9-1 will be used to identify the type(s) of monitoring equipment to be used, the frequency at which the monitoring will be conducted, assignment of monitoring responsibility, monitoring method to be employed, action level, and resultant action to be taken. The general monitoring requirements for those hazards anticipated at SEDA are currently listed in Table 9-1, however, this table will be modified as needed for each site added to TO 0003.

TABLE 9-1: SITE MONITORING SCHEDULE AND ACTION LEVELS

Hazard to be Monitored	Monitoring Equipment	Monitoring Responsibility	Monitoring Frequency/Location	Action Level	Action to be Taken
Heat Stress	Digital Oral Thermometer	EODT SSHO	As required by the SSHO, based upon site conditions and the requirements of Para 10.5 of this SSHP.	1. Oral Temperature greater than 99.6°F. 2. Oral Temperature greater than 100.4°F.	1. Reduce next work cycle to two thirds of last cycle. 2. Halt operations involving impermeable and semi-permeable clothing.
Cold Stress	Digital Thermometer	EODT SSHO	Every four hours once ambient temperature becomes less than 60.8 °F.	See Table 10-4 to determine the temperatures where specific controls must be taken.	See Table 10-4 for appropriate control measures.
Noise	Sound Level Meter	EODT SSHO	Conducted initially during the operation of potential high noise operations, and periodically thereafter, according to the recommendations of the EODT OSHM, and for each demolition shot.	Sound levels greater than 85 dBA.	Conduct noise dosimetry reading to determine the 8-hour noise TWA. Affected personnel will be issued and use hearing protection devices during the monitoring.
	Noise Dosimeter	EODT SSHO	Whenever noise levels in the hearing zone exceed 85 dBA.	None set, follow directions in Action to be Taken column.	Report dosimeter readings to the EODT OSHM to ensure hearing protection is adequate for the level of noise experienced.

The guidelines presented in Table 9-1 represent the minimum requirements. Monitoring frequency will be escalated or reduced based on the results of previous monitoring and/or other signs of potential exposures (odors, etc.). Monitoring for airborne hazards with the direct reading instruments will be conducted in the BZ, in the work area, and on the perimeter of the exclusion zone whenever possible. Monitoring for high noise will be conducted in the worker's hearing zone.

9.3 NOISE MONITORING

High noise levels associated with vegetation removal and EMM operation will be monitored to determine if hearing protection devices will be required, and to ensure that the level of hearing protection being used is adequate. At the start of potential high noise operations, sound level readings will be taken in the hearing zone of the effected personnel. Noise dosimetry will be conducted for any operation where sound level readings indicate a potential for exposures above 85 dBA. Table 9-1 will be consulted to determine the type, amount and frequency of noise monitoring.

9.4 COLD AND HEAT STRESS MONITORING

Cold and heat stress monitoring will be conducted IAW the guidelines presented in Section 10.0. This monitoring will be conducted by the SSHO, and will be used to adjust personnel work schedules and rates in the event that temperature extremes are experienced during site operations. The action levels presented in Table 9-1 will be used by the SSHO to determine when, and what type of, adjustment to site operations will be required to minimize the potential for heat or cold stress.

9.5 REAL-TIME MONITORING OF RESPIRABLE DUST LEVELS

Due to the known potential for heavy metals to be present in the soil, monitoring for respirable dust will be conducted in the BZ of the workers involved with potentially high dust level activities during the processing of soils with high lead levels. The action levels for real-time respirable dust levels are specified in Table 9-1. Monitored levels in excess of this action level will require increasing methods of dust control and/or upgrading of PPE, as determined by the OSHM.

9.6 PERSONAL BZ SAMPLING FOR LEAD CONTAINING DUST

To assess 8-hour TWA exposures to airborne contaminants, integrated air sampling may be required for personnel operating at SEDA. All integrated air samples will be collected IAW approved NIOSH or OSHA sampling techniques using a personal sampling pump calibrated according to specifications, and using the appropriate collection media. The SSHO will begin sampling of site personnel at the start of the contaminant producing activities and will collect samples from the personnel with the greatest exposure potential. After collection of the air samples, the samples will be sent to an American Industrial Hygiene Association accredited laboratory.



9.7 MONITORING EQUIPMENT CALIBRATION AND MAINTENANCE

All sampling and monitoring instrumentation used on site will be calibrated and/or response checked IAW the manufacturer's specifications, before and after use each day. If an instrument fails to calibrate or respond correctly, it will be removed from service until it can be repaired IAW manufacturer's specifications. Instruments used in the EZ during operations related to soils with high lead levels will be cleaned with wet wipes after each day of use to remove any gross amounts of dust or debris.

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10.0 HEAT AND COLD STRESS PREVENTION

10.1 INTRODUCTION

Since SEDA operations will be conducted throughout the year, it is anticipated that personnel will be on site during periods when both heat and cold stress could become problematic. During activities conducted on site, extreme temperature conditions can create serious safety and health threats to site workers. This section addresses the potential hazards associated with heat and cold stress, and outlines the procedures for monitoring and controlling these hazards. This plan will be implemented as needed by the SSHO.

10.2 INTRODUCTION TO HEAT STRESS

Heat stress is one of the most potentially serious illnesses that affect site workers. Impermeable PPE interferes with the evaporation of perspiration and causes the body to retain metabolic and environmentally induced heat. Individuals will vary in their susceptibility and degree of response to the stress induced by increased body heat. Factors which may predispose a worker to heat stress include: lack of physical fitness; lack of acclimatization to hot environments; degree of hydration; level of obesity; current health status (e.g., having an infection, chronic disease, diarrhea, etc.); alcohol or drug use; and the worker's age and sex. For the remainder of this Section, reference to "liquids" shall indicate water or an electrolyte replacement solution - not tea, coffee or soft drinks.

10.3 HEAT STRESS DISORDERS

10.3.1 Heat Rash

Heat rash is caused by continuous exposure to hot, humid air and is aggravated by wet chafing clothes. This condition can decrease a worker's ability to tolerate hot environments.

1. Symptoms: Mild red rash, especially in areas of the body which sweat heavily.
2. Treatment: Decrease amount of time in protective gear and provide powder such as corn starch or baby powder to help absorb moisture and decrease chafing. Maintain good personal hygiene standards and change into dry clothes if needed.

10.3.2 Heat Cramps

Heat cramps are caused by a rate of perspiration that is not balanced by adequate fluid and electrolyte intake. The occurrence of heat related cramps are often an indication that excessive water and electrolyte loss has occurred, which can further develop into heat exhaustion or heat stroke.

1. Symptoms: Acute, painful spasms of voluntary muscles such as arms, legs, or the back.
2. Treatment: Remove victim to a cool area and loosen restrictive clothing. Stretch and massage affected muscles. Have patient drink one to two cups of liquids immediately, and every twenty minutes thereafter. Consult with physician if condition does not improve. If available, an electrolyte replacement solution should be taken along with water.

10.3.3 Heat Exhaustion

Heat exhaustion is a state of very definite weakness or exhaustion caused by excessive loss of fluids from the body. This condition leads to inadequate blood supply and cardiac insufficiency. Heat exhaustion must be treated quickly and if allowed to go untreated, may develop into heat stroke. Additionally, the muscular fatigue and loss of concentration associated with heat exhaustion may significantly increase the potential for an accidental injury.

1. Symptoms: Pale or flushed, clammy, moist skin, profuse perspiration, and extreme weakness. Body temperature is basically normal or slightly elevated, the pulse is weak and rapid, and breathing is shallow. The individual may have a headache, be dizzy or nauseated.
2. Treatment: Remove the individual to a cool, air-conditioned area, elevate feet and allow the individual to rest. Consult physician, in severe cases. Have patient drink one to two cups of liquids immediately, and every 20 minutes thereafter. If the symptoms of heat exhaustion do not subside, or become more severe, immediate medical attention will be required.

10.3.4 Heat Stroke

Heat stroke is an acute, dangerous reaction to heat stress caused by a failure of the body's heat regulating mechanisms. The failure of the individual's temperature control mechanism causes the perspiration system to stop working correctly, causing the body core temperature to rise very rapidly to a point (105+°F) where brain damage and death will result if the person is not cooled quickly.

1. Symptoms: The victim's skin is hot, and may or may not be red and dry, due to the fact that the individual may still be wet from sweat due to physical exertion or having worn protective clothing; nausea; dizziness; confusion; extremely high body temperatures, rapid respiratory and pulse rate; delirium; convulsions; unconsciousness or coma.
2. Treatment: Cool the victim immediately. If the body temperature is not brought down quickly, permanent brain damage or death may result. Cool the victim by either sponging or immersing the victim in cool water to reduce the core temperature to a safe level (<102° F). If conscious, give the victim cool liquids to drink. Observe the victim and obtain immediate medical help. Do not give the victim caffeine or alcoholic beverages.

10.4 PREVENTATIVE MEASURES

10.4.1 Minimal Preventative Measures

To avoid heat related illnesses, proper preventative measures shall be implemented whenever environmental conditions dictate the need. The preventative measures listed in this paragraph represent the minimal steps to be taken and shall include the following procedures:

1. The SSHO shall observe personnel prior to the start of daily operations to assess the individual's susceptibility to heat. Susceptible personnel will be monitored by the SSHO.
2. Site workers shall be trained to recognize and treat heat related illnesses. This training shall include the signs, symptoms and treatment of heat stress disorders.

3. Workers will be encouraged to drink a minimum of sixteen ounces of liquids prior to start of work in the morning, after lunch, during breaks, and prior to leaving the site daily. Disposable four to twelve ounce cups and liquids shall be provided on site. Intake of water and an electrolyte replacement solution should be equally divided.
4. A shelter or shaded area will be provided where workers may be protected from direct sunlight during rest periods.
5. Monitoring of ambient or physiological heat stress indices shall be conducted to allow prevention and/or early detection of heat induced stress. Monitoring shall be conducted IAW paragraph 10.2.4 of this Section.
6. Site workers will be given time to acclimatize to working in hot environments, which usually takes two to six days, allowing the worker's body to become adjusted to hot environments. This process involves a gradual increase of the workload over the two to six day period. The recommended acclimatization schedule suggests starting workers at fifty percent of the anticipated work load and increasing each day by ten percent. For fit or trained individuals, the acclimatization period may be shortened to two or three days.

10.4.2 Additional Preventative Measures

When possible and/or feasible, the following measures will also be implemented to aid in prevention or reduce the effects of heat induced stress:

1. As needed, cooling devices will be provided to aid in body heat exchange. Cooling devices may include cooling jackets, vests or suits and field showers or hose-down areas. Depending on the severity of the heat exposure, some form of artificial cooling may be required to ensure protection of the workers.
2. Workers will be encouraged to achieve and maintain an optimum level of physical fitness. Increased physical fitness will allow workers to better tolerate and respond to heat and heavy work loads. In comparison to an unfit person, a fit person will have: less physiological strain; a lower heart rate and body temperature; and a more efficient sweating mechanism.

10.5 PHYSIOLOGICAL HEAT STRESS MONITORING

When site personnel are engaged in site activities with ambient air temperatures greater than 75°F, physiological heat stress monitoring shall be conducted to allow for the near real-time surveillance of the physiological affects caused by personnel exposure to heat. The physiological monitoring methods listed in this para are to be implemented based upon the severity of the heat and the work load. As a minimum, the SSHO shall monitor the worker's heart rate, as outlined in para 10.5.1, as an indication of the physiological stress induced by the work load and exposure to heat. However, if monitoring with the heart rate method indicates the need for closer, more direct monitoring, the oral temperature method outlined in para 10.5.2 will be implemented. The need for monitoring body water loss will be determined by the SSHO, and will be based upon observation of the sweat loss

experienced by site personnel during their work cycle. The frequency of physiological monitoring shall be determined using the information presented in Table 10-1.

10.5.1 Heart Rate Monitoring

The worker's baseline heart rate should be recorded prior to initiation of site activities by measuring the radial pulse rate for thirty seconds. After each work cycle, the heart rate should be measured by taking the pulse rate (PR) as early as possible into the resting period. Taking the radial (wrist) pulse rate is the preferred method, however the carotid (neck) pulse rate may be taken if a worker has difficulty finding the radial pulse. The PR at the beginning of the rest period should not exceed one hundred and ten (110) beats per minute (bpm). If the PR is higher than 110 bpm, the next work period should be shortened by thirty-three percent, while the length of the rest period stays the same. If the PR exceeds 110 bpm at the beginning of the next rest period, the work cycle should be further shortened by thirty-three percent. This procedure is continued until the PR at the beginning of the rest cycle is maintained below 110 bpm.

10.5.2 Oral Temperature Monitoring

If deemed necessary by the SSHO, oral temperature (OT) monitoring will be conducted. The worker's OT will be taken and recorded prior to initiation of site activities using a clinical thermometer placed under the tongue. The OT must be taken prior to consumption of cool liquids and will be done at the end of each work period or at a frequency determined by Table 10-1. Whenever the OT exceeds 99.6°F, the work cycle must be shortened by one third, without changing the length of the rest period. If a worker's OT has exceeded 99.6°F, test the OT again at the end of the rest cycle, and do not allow the worker to return to work until the OT drops below 99.6°F. If a worker's OT exceeds 100.4°F the worker shall not be allowed to work in impermeable or semi-permeable PPE for the remainder of that work day.

10.5.3 Body Weight Loss

If expected site conditions and work requirements have the potential for causing excessive fluid loss, the SSHO shall monitor the workers fluid loss by weighing each worker prior to and again at the conclusion of each days' site activities. This will be needed to ensure that proper hydration is being maintained and that the total amount of water weight loss throughout the day does not exceed 1.5% of the employee's body weight. Body weights will be taken with the workers wearing undergarments only. If, as determined by the SSHO, site conditions and work requirements cause an extreme amount of fluid loss, body weights will also be taken prior to the lunch break. Calculation of the water weight loss, and assessing the effectiveness of hydration shall be conducted as follows:

1. Subtract the ending weight (W_{ending}) from the daily starting weight (W_{start}) to obtain the weight lost (W_{lost}) for a given work period: $(W_{\text{start}}) - (W_{\text{ending}}) = (W_{\text{lost}})$.

2. Multiply the starting weight by 1.5% to obtain permissible weight loss (W_{perm}):
 $(W_{start}) \times 0.015 = (W_{perm})$.
3. Compare (W_{lost}) to the (W_{perm}), if (W_{lost}) is less than or equal to (W_{perm}), then hydration during the measured period has been adequate, but if (W_{lost}) is greater than (W_{perm}), then hydration should be increased during the next work period.

**TABLE 10-1:
SUGGESTED FREQUENCY OF PHYSIOLOGICAL MONITORING ^{a, d}**

<u>ADJUSTED TEMPERATURE</u> ^b	<u>NORMAL WORK ENSEMBLE</u> ^c	<u>IMPERMEABLE ENSEMBLE</u>
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5°-90°F (30.8°-32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5°-87.5°F (28.1°-28.1°C)	After each 90 minutes of work	After each 60 minutes of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 minutes of work	After each 120 minutes of work

- a For work levels of 250 kilo calories/hour.
- b Calculate the adjusted air temperature (t_{adj}) by using this equation: $t_{adj} \text{ } ^\circ\text{F} = t \text{ } ^\circ\text{F} + (13 \times \% \text{ sunshine})$. Measure air temperature (t) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows. Use decimal expression of % sunshine)
- c A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.
- d Source: NIOSH/OSHA/USCG/EPA. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. DHHS (NIOSH) 85-115. Cincinnati, OH.

10.6 REQUIREMENT FOR ADDITIONAL MONITORING

The SSHO will report to the EODT OSHM in the event that one or more EODT personnel experience adverse heat related effects even though the physiological monitoring and work period reduction requirements found in para 10.5 are followed. The EODT OSHM will then determine what other monitoring or control methods will be used to further control the effects of heat exposure.

10.7 HEAT STRESS DOCUMENTATION

The SSHO shall be responsible for recording all heat stress related information. This will include training sessions and physiological monitoring data. Training session shall be documented using the EODT Training Roster. Pulse rate monitoring data will be recorded on the Heat Stress Monitoring Log, with the OT and/or water loss calculations recorded in the Safety Log, and/or Monitoring Log.

10.8 INTRODUCTION TO COLD STRESS

The effects of cold stress experienced by site personnel depend upon many environmental and personal factors, such as ambient air temperature, wind speed, duration of exposure, type of protective clothing and equipment worn, type of work conducted, level of physical effort, and health status of the worker. In cold environments, overexposure can cause significant stress on the body which can lead to serious, and potentially permanent injury. Cold may affect exposed body surfaces and extremities, or may affect the deeper body tissues and body core. Presented below is information about the most common cold stress disorders, their signs, symptoms, effects, and control techniques.

10.9 COLD STRESS DISORDERS

10.9.1 Immersion Foot or Trench Foot

These two cold injuries occur as a result of exposure to cool or cold weather and persistent dampness or immersion in water. Immersion foot usually results from prolonged exposure when air temperatures are above freezing, whereas trench foot normally occurs from shorter exposure at temperatures near freezing. The symptoms for each disorder are similar and include tingling, itching, swelling, pain and/or numbness, lack of sweating, and blisters.

10.9.2 Frostbite

Frostbite occurs when there is actual freezing of the water contained in body tissues. This usually occurs when temperatures are below freezing, but excessive wind can result in frostbite even when ambient temperatures are above freezing. Frostbite can occur from several types of cold exposure, such as: exposure of bare skin to cold and wind; exposure to extremely cold ambient temperatures; skin contact with rapidly evaporative liquids (gasoline, alcohol or cleaning solvents) at temperatures below 39.2°F; or from skin contact with metallic objects whose temperatures are below freezing. The extremities are usually affected first since the body's initial response to cold stress involves decreasing the blood flow to the extremities, thereby reducing heat loss. The tissue damage caused by frostbite can be superficial, near the surface of the skin, or extend deep into body tissues which can cause severe tissue damage. During the initial stages of frostbite, the skin may have a prickly or tingling sensation and will later become numb with cold. The appearance of the affected skin may range from superficial redness of the skin to white, hard, frozen-looking tissues.

10.9.3 Hypothermia

Hypothermia results when the body loses excessive heat. When this occurs, the blood vessels in the skin and extremities constrict, reducing the flow of warm blood to those areas which have a high surface area to volume relation. This reduction in blood flow reduces heat loss and usually affects the peripheral extremities first. Ears, fingers and toes begin to experience chilling, pain and then numbness due to loss of both blood flow and heat. Shivering begins as the body's core temperature begins to drop, and the body uses the shivering to compensate and create metabolic heat. Shivering is often the first sign of hypothermia. The pain and numbness in the extremities is an indication that

the heat loss is increasing, but when shivering becomes severe and uncontrollable, the heat loss in the body core has become excessive. Further heat loss produces speech difficulty, reduced mental alertness, forgetfulness, loss of manual dexterity, collapse, unconsciousness and finally death.

10.10 TREATMENT OF COLD STRESS DISORDERS

The intent of all cold stress treatment is to bring the deep body core temperature back to normal. Work performed in cold environments should be discontinued for any worker who exhibits the signs or symptoms associated with hypothermia or frostbite. Workers exhibiting those symptoms should be brought to a warm area and allowed to rest and warm-up. If a worker's clothing becomes wet, which reduces its insulation effect, it should be removed and replaced by dry clothing, or allowed to dry before resuming work. Warm, non-alcoholic, de-caffeinated drinks or soup should be given to increase the body core temperature, and re-warming should be gradual.

For frostbite, the victim should be sheltered from the wind and cold and given warm drinks. If the frostbite is superficial, the frozen area(s) should be covered with extra clothing or blankets or warmed against the body. **Do not use direct heat, and do not pour hot water over or rub the affected area.** Warming should be gentle and gradual. Failure to do this could lead to bleeding in the tissues and increase the possibility of infection. If the frostbite is deep, (i.e. the affected area is frozen and hard to the touch), immediate medical attention should be obtained. The safe thawing of deep frostbite is beyond the expertise and facilities found onsite.

10.11 PREVENTION OF COLD STRESS DISORDERS

10.11.1 Cold Stress Monitoring

Guidance for the monitoring of cold stress is provided by the ACGIH in the Threshold Limit Values and Biological Exposure Indices booklet. In order to comply with the cold stress TLV, EODT shall implement the following monitoring schedule:

1. A suitable thermometer shall be available on sites when the air temperature is below 60.8°F;
2. Whenever the air temperature on site falls below 30.2°F, the temperature shall be measured and recorded at least once every two hours;
3. Whenever the air temperature on site falls below 30.2°F, the wind speed shall be measured and recorded together with the air temperature;
4. The equivalent wind chill temperature shall be obtained from Table 10-2, and recorded, in all cases when air speed measurements are required; and
5. The SSHO shall utilize the applicable TLV limits listed in Table 10-3 to determine if elevated control measures must be implemented during site activities.

TABLE 10-2: EQUIVALENT CHILL TEMPERATURE

EST. WIND SPEED (in mph)	ACTUAL TEMPERATURE READING (° F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	EQUIVALENT WIND CHILL TEMPERATURE (° F)											
CALM	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40 *	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
	LITTLE DANGER In < 1 hr with dry skin. Maximum danger of false sense of security			INCREASING DANGER Danger from freezing of exposed flesh within one minute				GREAT DANGER Flesh may freeze within 30 seconds				
Trench foot and immersion foot may occur at any point on this chart.												

* - Wind speeds greater than 40 mph have little additional effect

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TABLE 10-3: ACGIH COLD STRESS TLVs

TLV Temp.	Working Conditions or Task to be Performed	Required Control Measures
< 60.8°F	Any site or work condition.	Thermometer required on site.
	Fine work performed continuously for more than 10-20 min.	Special provisions for keeping the hands warm, i.e., radiant heaters, warm air jets, etc.
	Tasks with sedentary workload.	Gloves are to be used by workers.
< 39.2°F	Site with windy conditions.	Reduce cooling effect of wind by using shields or an easily removable wind breaker.
	Task where exposed body areas cannot be protected from cold or frostbite.	Auxiliary heating units are to be supplied.
	Tasks where clothing may become wet with either perspiration or water.	Provisions shall be made to allow site personnel to change into dry clothes.
	Workers handling evaporative liquids.	Ensure clothing does not become soaked with liquid.
	Tasks with light workload.	Gloves are to be used by workers.
≤ 35.6°F	Workers who become emersed in water or whose clothing becomes wet.	Treatment for hypothermia and immediate change of dry clothing provided.
< 30.2°F	Any task.	Air temperature and wind speed (if over 5 mph) recorded at least every 4 hours. Cover metal handles with insulating material.
< 19.4°F Air	Tasks with moderate work.	Gloves to be used by workers.
< 19.4°F ECT	Any task.	Heated warming shelters with warm drinks will be made available for breaks. Record ECT along with air temperature readings. Warn personnel not to contact unprotected metal parts with bare skin.
< 10.4°F ECT	Any task.	Buddy system enforced, protect from wind to greatest extent possible, acclimatize workers, moderate workload to prevent perspiration, and conduct worker cold stress training.
< -11.2°F or < 0°F with 5 mph wind	Personnel who routinely work at this temperature.	Personnel are to be medically certified as suitable for this level of exposure.
< -25.6 ECT	Any level of work or type of task.	No unprotected skin exposure.

ECT - Equivalent Chill Temperature.

Air - Ambient air temperature

10.11.2 Controls Implemented by Site Personnel

During work in cold environments, the SSHO will use the tailgate safety briefing to inform site personnel of the temperature and wind conditions anticipated for the day's site activities. The SSHO will also advise site personnel of the general practices, listed below, which will be utilized in the prevention and control of cold stress.

1. Dress using layered clothing which should include, an inner-most layer (such as cotton or silk) to trap heat and absorb perspiration, an insulating layer of wool or synthetic fiberfill (such as polypropylene), a layer of work weight clothing, and an outer protective layer designed to retain heat and be wind/water proof (such as nylon, or Gortex™);
2. Wear gloves, socks and a hat that are synthetic or wool insulated;
3. Remove outer layers of clothing during breaks in heated shelters to prevent inner layers from getting wet with perspiration;
4. Cover all exposed skin and use a wind breaker in windy, cold conditions;
5. Eat well-balanced meals and maintain an adequate intake of appropriate fluids;
6. Seek a warm protected area when signs and symptoms of cold stress become evident; and
7. Protect clothing from getting wet with perspiration by monitoring and moderating the level of physical activity, and if necessary, by removing excessive layers of clothing.

10.11.3 Work/Rest Cycles

To date, there are no Federally mandated regulations related to work/rest schedules for cold stress. The ACGIH has published a work/rest schedule, which is provided in Table 10-4 of this Section. However, this table only applies to temperatures below 0°F. Therefore, for temperatures above 0°F, site personnel will take a minimum of one break every hour for temperatures between 0°F and 30°F, and for temperatures above 30 °F, workers shall take at least one rest period every two hours or whenever they exhibit signs or symptoms of cold stress.

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TABLE 10-4: TLV WORK/REST SCHEDULE FOR 4 HOUR WORK SHIFT *

Air Temp. °F Approx.	No Wind		5 MPH Wind		10 MPH Wind		15 MPH Wind		20 MPH Wind	
	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-4° to -8°	Normal	1	Normal	1	Normal	1	Normal	1	Normal	1
-9° to -13°	Normal	1	Normal	1	Normal	1	Normal	1	75 min.	2
-14° to -18°	Normal	1	Normal	1	Normal	1	75 min.	2	55 min.	3
-15° to -19°	Normal	1	Normal	1	75 min.	2	55 min.	3	40 min.	4
-20° to -24°	Normal	1	75 min.	2	55 min.	3	40 min.	4	30 min.	5
-25° to -29°	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-30° to -34°	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-35° to -39°	40 min.	4	30 min.	5	Non-emergency work should cease					
-40° to -44°	30 min.	5	Non-emergency work should cease							
-45 & Below	Non-emergency work should cease									

- Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up cycle in a warm location and with an extended break in a warm location (e.g. lunch) at the end of the 4-hours. For light-to-moderate work: apply the schedule one step lower.
 - The following is suggested as a guide for estimating wind velocity if other, more accurate means are not available: 5 mph - light flag moves; 10 mph - light flag fully extended; 15 mph - raises newspaper sheet; 20 mph - blowing and drifting snow.
 - This table applies only to acclimatized workers with appropriate dry clothing for winter work.
- * Adapted from the "1993-1994 Threshold Limit Values and Biological Exposure Indices, American Conference of Governmental Industrial Hygienist, Cincinnati, OH.

11.0 SITE CONTROL

11.1 CENTER OF OPERATIONS

The field office and storage area(s) for the EODT SEDA OE operations will be set up either in the Government furnished building located at the entrance to the Open Burning (OB) grounds, or in another building designated by the BRAC office that may be closer to actual sites where operations are being conducted under a given TO. The office area will be used to store project documents, files, materials and supplies in a lockable area that will be secured at the end of each day's operations. Both SEDA and off-facility phone communications will be available at the EODT center of operations.

11.2 PROJECT SITE ACCESS

For each project site, access control will be established and access will be restricted to those personnel directly involved in site operations. Prior to EODT personnel initiating hazardous operations, site boundary and access control will be established around the appropriate work and exclusion zones. Appropriate signs and barricades will be used to restrict access and visiting personnel will be directed to check in at the site office.

11.3 ACCESS CONTROL AND SECURITY

11.3.1 Work Zone and Exclusion Zone

During the conduct of OE operations, a system of work and exclusion zones will be used to keep the number of personnel on site to a minimum, and to only those personnel necessary for conduct of a given on-site task. For the purpose of this generic WP, a WZ is defined as any location where EODT or subcontractor personnel are conducting any of the site tasks specified in the SOW or any sub-task that involves the potential for personnel exposure to safety or health hazards. Additionally, an exclusion zone (EZ) will be established to protect off-site personnel from the blast and fragmentation hazards that may occur due to the detonation of an UXO. This size of the EZ correlates to the size of the PWD.

11.3.2 HTW Sub-zones

Depending upon the nature and degree of hazards and contamination present at a site, various WZs may be required within one project site. Segregation of areas with differing levels of hazard will minimize the number of personnel exposed to the hazards. Authorized entry into any WZ will be given to only those personnel required to safely conduct the task at hand, and visitors will be controlled and escorted as described in this Section. WZ security will be the primary duty of the SUXOS and SSHO, but all site personnel will also take an active role in ensuring that the site is not accessed by unauthorized personnel. Depending upon the nature of OE and HTW contamination within a site, EODT may utilize a system of ropes, engineering tape, flags or signs to establish sub-

zones on-site. To control HTW contamination hazards, the WZs identified below will be used. The actual size, shape and configuration of the zones specified for a given site will be determined using site-specific information and will be specified in each SSHP Addendum.

1. Support Zone (SZ) - EODT personnel shall establish and maintain a SZ which shall encompass the site specified in the SOW. After the initial mobilization/site set-up activities are completed, and on-site OE operations are initiated, access to the support zone will be restricted to only approved EODT, subcontractor and CEHNC personnel. All other personnel entering the site shall be considered visitors and will be treated according to the requirements of this Section. The SZ shall be the location where EODT shall stage site support equipment and facilities.
2. Contamination Reduction Zone (CRZ) - If needed, a CRZ shall be established prior to site personnel entering the site to conduct any on-site tasks involving the production of HTW contamination. This zone shall contain the Personal Decontamination Station (PDS) that will be used by site personnel to decontaminate PPE prior to its removal from the site.
3. Hot Zone (HZ) - If dictated by the level of HTW contamination, EODT personnel will establish a HZ prior to site personnel conducting any on-site tasks. Only those personnel who have met the requisite training and medical surveillance shall be allowed to enter the HZ for any reason once on-site operations commence. Personnel exiting the HZ shall do so only through the CRZ PDS and shall be logged in/out of the HZ by the SSHO.

11.4 SITE CONTROL DURING DEMOLITION OPERATIONS

Site access control will be especially critical during demolition operations. OE within a grid that is found to be fuzed or unsafe to move will be BIP or the OE may be consolidated within the grid for disposal at the end of the day if it is determined to be unfuzed and safe to move. During demolition operations, the demolition team will post sentries and road barriers in strategic locations so as to effectively secure the EZ in a full 360° arc around the demolition location. The size of the EZ will be determined according to the requirements of the WP and the type of ordnance being demolished. Road blocks may be placed by EODT personnel if the need arises and after coordination with the CEHNC OSS who will coordinate with the responsible SEDA personnel. During demolition operations, EODT will also utilize bullhorns and sirens to announce verbal and audible warnings prior to initiating the demolition shot.

11.5 EQUIPMENT STORAGE AND SECURITY

During non-working periods, all project equipment used on site, to include hand tools, will be secured in a lockable location. For the storage of explosives, EODT shall use Government provided facilities which will remain locked at all times when explosives are not being issued or received. Two keys will be required to gain access to the magazine, and EODT ordnance accountability and explosives logs will be used to control inventory.

11.6 SITE MAPS

A site map will be available to site personnel and used during site briefings to provide site personnel with pertinent information relevant to the site, and the site hazards. The site map should detail, as applicable, the following information: site size and shape; restricted areas; designated assembly points; the site access routes; staging areas; site control zones; and any other information deemed necessary by the SUXOS or SSHO. The site map will be used by the SSHO during the initial site training and the daily tailgate briefings to inform site personnel pertinent site features. Site maps of each SEDA project site will be included in Appendix C of each site-specific WP.

11.7 SITE COMMUNICATIONS

Effective on-site and off-site communication are an integral part of site control and will be established prior to initiating site activities. On-site communication will be available through the use of two-way radios, air horn, bull horns and hand signals. Off-site communication will be available to ensure effective communication with emergency response services and will include the use of a cellular phone or radio communication to a location with hard-wired telephone service. All site personnel will be familiar with the different methods of both on-site and off-site communication, to include the following hand and audible signals:

1. Hand gripping throat: "Breathing problem, can't breathe"
2. Thumbs up: "OK"
3. Thumbs down: "No, negative"
4. Pointing to ear(s): "Can't hear, don't understand"
5. Waving hand(s) over head: "Need assistance now"
6. Pointing to eyes then pointing to person/object: "Watch person/object closely"
7. Grab buddy's wrist: "Evacuate site now, no questions"
8. One long air horn blast: "Evacuate site to assembly point"
9. Two short air horn blasts: "Condition under control, return to site"

11.8 BUDDY SYSTEM

An important element in controlling personnel exposure to site hazards is the implementation of buddy system procedures. These procedures ensure that no site personnel are allowed to work without another qualified worker present to provide assistance if needed. At all times buddies should be able to:

1. Observe their buddy for signs of exposure to chemical, physical or biological hazards, with special emphasis to symptoms of heat/cold stress;
2. Periodically check the integrity of their buddy's protective clothing;
3. Observe the site area in which they are working for hazards;
4. Remain within verbal or visual contact with their buddy at all times; and
5. Notify the team leader and or field office if emergency assistance is needed.

12.0 PERSONNEL AND EQUIPMENT DECONTAMINATION

12.1 PERSONNEL HYGIENE AND SANITATION FACILITIES

Personnel hygiene and sanitation facilities will be established on site IAW 29 CFR 1910.120(n) and EM 385-1-1, Section 2, to ensure that personnel are provided the means for maintaining good personal hygiene. A personal washing area, toilet facilities, and a lunch/break area will be available at the field office, and as a minimum, washing and toilet facilities will also be located at the actual site where operations are being conducted. Temporary chemical toilet facilities will be used to fulfill the on-site toilet requirement and each temporary toilet shall be serviced weekly. EODT will provide a minimum of one temporary toilet on site for every ten personnel assigned to the project.

Hand and face washing facilities on site will be utilized by all personnel upon exiting a WZ or entering a SZ prior to eating, drinking, tobacco use, or other hand-to-face activities. Due to the lack of immediately available water resources anticipated for each of the SEDA sites, handi-wipes and rinse water will be provided for on-site hand and face washing. When site personnel are returning to the office area at lunch and prior to leaving the site, the running water facilities in the office area will be used to conduct a final washing.

12.2 POTABLE AND NONPOTABLE WATER SUPPLIES

An adequate supply of potable (drinkable) water shall be provided on site at all times, and will be supplied IAW the following provisions:

1. Containers used for potable water shall be capable of being tightly closed, equipped with a tap, maintained in a sanitary manner, and cleaned at least weekly;
2. A container used for distribution of drinking water shall be clearly labeled as to its contents and not used for any other purpose;
3. Where single service cups are provided, separate sanitary containers will be provided for the storage of the unused cups and for the disposal of the used cups;
4. Water shall not be dipped from the container and use of a common cup is prohibited; and
5. Any outlets/storage containers for nonpotable water, such as water for decontamination will be conspicuously labeled as being unfit for drinking, washing or cooking, and no cross connection or open potential will exist between potable and non-potable water sources.

12.3 SITE HOUSEKEEPING

All work areas will be maintained in a clean/neat fashion, free of loose debris and scrap. Any materials/equipment not being used will be removed and stored or disposed of accordingly. All work areas shall be supplied with a trash receptacle with lid, the contents of which shall be emptied daily into a central storage container that will be tightly closed each night prior to departing the site.



12.4 PERSONNEL DECONTAMINATION

For those SEDA sites where the type and degree HTW contamination necessitates the use of personal protective clothing (PPC) to safeguard personnel health, a PDS shall be established in the CRZ to facilitate decontamination and PPC removal. The PDS shall be established prior to, and utilized during, any site activities involving the potential for personnel exposure to contaminated areas. To the greatest extent feasible, the PDS shall be established up-wind from the HZ and shall be geographically located to minimize exposure of the unprotected personnel and equipment in the SZ. During the set up of the PDS, signs shall be set up at each station to remind personnel of the proper activity to be conducted at the particular station. Since the type and degree of HTW contamination for various sites around SEDA will vary significantly, the decontamination procedures and requirements for each site will be presented in Section 12 of each site-specific SSHP Addendums.

12.5 EMERGENCY PDS

For those sites where decontamination is required, an Emergency PDS (EPDS) will be set-up immediately adjacent to the PDS to facilitate the decontamination of site personnel who are not capable of being processed out of the PDS. The EPDS will be setup so as to allow for the rapid decontamination of an injured worker, rapid removal of PPE, and safe transport of the injured worker from the HZ to the CRZ and into the SZ. The EPDS will include the following stations and supplies:

Station A (in the HZ)

HZ drop cloth for positioning two five-gallon sprayers (one with a soap solution and a second with clean water), blunt-nosed scissors and first aid supplies.

Station B (in the HZ)

Porous stretcher for EZ side of the Hot Line.

Station C - Opposite Station A (in the CRZ)

Drop cloth for location of: first aid kit, eye wash kit, burn blanket, bloodborne pathogen universal controls kit, and fire extinguisher.

Station D - Opposite Station B (in the CRZ)

Stretcher for the PDS side of the Hot Line.

12.6 EQUIPMENT DECONTAMINATION

Tools and equipment used on site will be kept free of accumulations of soil and other debris and will be washed prior to removal from the site. Equipment used in the field, to include PPE, shall be cleaned and inspected at the end of each work day to ensure that the equipment is maintained in safe operating condition. Any equipment found to be defective will be brought to the attention of the SSHO and SUXOS. In the event that personnel decontamination is required for a particular site due to the presence of HTW contamination, equipment decontamination will also be required. Site-specific equipment decontamination procedures will be generated and included in Section 12 of the applicable site-specific SSHP Addendum to this generic SSHP.

13.0 ENGINEERING CONTROLS, SWP'S AND STANDING ORDERS

13.1 GENERAL

This Section outlines the engineering controls, SWPs, and site Standing Orders which will be followed by all site personnel to eliminate or reduce the risk of exposure to the anticipated site hazards. The procedures presented in this are key guidance issues for personnel safety and are not intended to address all OSHA/USACE compliance issues. The SSHO will be the one responsible for ensuring full compliance with applicable regulatory requirements. However, site personnel shall report to the SSHO any conditions or hazards that do not comply with, or are not addressed by, this Section. Listed below are the general site rules that will be followed by all site personnel.

1. The applicable regulatory requirements of 29 CFR 1910, 29 CFR 1926, and EM 385-1-1 shall be followed during all site activities.
2. All OE investigation, handling, transportation, and demolition will be conducted IAW the CEHNC Safety Concepts and Basic Considerations for Unexploded Ordnance (UXO), revised February 16, 1996 (see Appendix G of the WP).
3. Personnel will, to the greatest extent possible, avoid contact with indigenous wildlife. Any bites or stings received from wildlife will be reported to the SSHO.
4. During warm weather, personnel working in vegetated or wooded areas will wear snake leggings and long sleeve shirts with the sleeves rolled down to reduce contact with insects and hazardous plants. Personnel are also cautioned to use insect repellent for ticks and insect bites and to inspect themselves upon leaving the work area.
5. Site personnel shall inform the SSHO of any known medical conditions which may cause, or result in, an adverse health condition. This shall include hypersensitive allergic reactions to stinging and biting insects or contact with poisonous plants; diabetes; high blood pressure; skin or eye sensitivity to ultraviolet radiation (UV); chronic illness; and acute illnesses. Persons with known hypersensitive allergic reactions to stinging/biting insects or toxic plants shall carry appropriate emergency antidotes on their person at all times when on site.
6. Site personnel shall not participate in horseplay or other prohibited acts that could cause harm or injury to site personnel, property or the environment.

13.2 ENGINEERING CONTROLS

In 29 CFR 1910.134(a) and 29 CFR 1910.120(g), OSHA mandates that engineering controls be used, whenever feasible, to control personnel exposures to chemical and physical hazards which exceed the OSHA Permissible Exposure Limit, or other published exposure limits. However, due to the nature of OE operations, and the hazards encountered on an OE site, the design and use of engineering controls is typically not feasible. To maximize personnel protection, EODT has evaluated and identified the engineering controls listed below for use on applicable SEDA sites.

1. During demolition of OE, EODT shall utilize sand bags and earth tamping to minimize and control the noise and fragmentation associated with the explosive disposal of OE.
2. All powered hand tools and equipment will be operated with the manufacturer's guards in place, unless use of the guards under site conditions creates a greater hazard to personnel.
3. Non-sparking tools will be used for OE demolition operations.

13.3 HEAVY EQUIPMENT OPERATION

Heavy equipment utilized on site shall be operated under strict adherence to the applicable OSHA regulations found in 29 CFR 1910, 29 CFR 1926, the requirements of EM 385-1-1, Section 16, and the guidelines listed below:

1. The operation of heavy equipment shall be limited to authorized personnel specifically trained in its operation;
2. A competent person shall visually inspect heavy equipment daily prior to operation, and report any abnormalities/deficiencies to the SSHO;
3. The operator shall ensure the proper operation of, and shall use, the safety devices provided with the vehicle, including seat belts, backup warning indicators, and horns;
4. While in operation, all personnel not directly required in the area shall keep a safe distance from the equipment;
5. The operator cab shall be kept free of non-essential items, and loose items shall be secured;
6. Personnel shall avoid moving into the path of operating equipment, especially areas blinded from the operator's vision;
7. When heavy equipment must negotiate in tight quarters, or if the operator cannot see the path of the bucket, a secondary person shall be stationed to guide the operator; and
8. Additional riders shall not be allowed on equipment unless it is specifically designed for that purpose (i.e., there is an additional seat with a seat belt).

13.4 POWER AND HAND TOOL OPERATION

13.4.1 Power Tools

Power tools have great capability for inflicting serious injury upon personnel if they are not used and maintained properly. To control the hazards associated with power tool operation, the requirements outlined in 29 CFR 1910, Subpart P, 1926, Subpart I, and EM 385-1-1, Section 13 and the safe work practices listed below shall be observed when using power tools:

1. Operation of power tools shall be conducted by personnel trained in the use of the tool, its operation, and safety precautions;
2. Power tools shall be inspected prior to use, and defective equipment shall be removed from service until repaired;
3. Power tools designed to accommodate guards for moving parts shall have such guards properly in place prior to and during use;

4. Loose fitting clothing or long hair shall be secured away from moving parts;
5. Hands, feet, etc., shall be kept away from all moving parts;
6. Maintenance and/or adjustments to equipment shall not be conducted while it is in operation or connected to a power source, and maintenance on gasoline powered tools shall be conducted only after the spark plug has been removed and secured;
7. An adequate operating area shall be provided, allowing sufficient clearance and access for operation;
8. Electrical tools shall be operated IAW the applicable specifications outlined in paragraph 13.7 of this Section; and
9. Good housekeeping practices shall be followed at all times.

13.4.2 Hand Tools

Use of improper or defective tools can contribute significantly to the occurrence of accidents on site. Therefore, the requirements outlined in EM 385-1-1, Section 13 and the safe work practices listed below shall be observed when using hand tools:

1. Hand tools shall be inspected for defects prior to each use;
2. Defective hand tools shall be removed from service and repaired or properly discarded;
3. Tools shall be selected and used in the manner for which they were designed;
4. Be sure of footing and grip before using any tool;
5. Do not use tools that have split handles, mushroom heads, worn jaws, or other defects;
6. Leather work gloves shall be worn to increase gripping ability and to protect the hand if a cut, laceration or puncture hazard exists during the use of the tool;
7. Safety glasses or a face shield shall be used if use of tools presents an eye/face hazard;
8. Do not use makeshift tools or other improper tools;
9. When working on elevated surfaces, tools shall be secured to ensure they cannot fall on someone below; and
10. Use non-sparking tools in the presence of explosive vapors, gases, or materials.

13.5 EXCAVATIONS

While the current SOW calls for the excavation of lead contaminated soils to a maximum depth of two feet, the potential exists for excavations to be conducted deeper than two feet upon approval and request of the CEHNC OSS. For the conduct of this project, all excavation activities shall be conducted in accordance with EM 385-1-1, Section 25, Subpart P of 29 CFR 1926, and the EODT Excavation and Trenching SOP found in Appendix G of the WP. The guidelines below are intended to reflect minimum requirements to be followed on this site, and shall be implemented if excavations greater than four feet are required by the on-site CEHNC Safety Representative.

1. Prior to initiation of any excavation or trenching activity, the location of underground installations shall be determined;

2. When the excavation/trench achieves a depth of five feet, or if a cave-in hazard exists, a competent person shall inspect the excavation prior to entry by personnel to determine if there are any indications that a cave-in could occur;
3. An excavation greater than five feet in depth shall be inspected daily by a competent individual prior to commencement of work activities;
4. Evidence of cave-ins, slides, sloughing, or surface cracks will be cause for work to cease until necessary precautions are taken to safeguard workers;
5. Excavations five feet or deeper, will be sloped at an angle not greater than one and one half foot horizontal to one foot vertical (34° measured from the horizon);
6. Excavations five feet or deeper which can not be sloped as specified in item 5 above shall require a registered engineer to design the sloping/benching/support system;
7. Protective systems shall be selected from OSHA 29 CFR 1926 Subpart P and/or designed by a registered professional civil engineer;
8. Spoils, equipment and other materials shall be placed over 2 ft. from the excavation edge;
9. Materials used for sheeting, shoring, or bracing shall be in good condition;
10. Timbers shall be sound, free of large or loose knots, and of appropriate dimensions;
11. Safe access shall be provided into the excavation(s) by means of a gradually sloped personnel access/egress ramp, or ladders or stairs will be provided;
12. Ladders used shall extend 3 ft. above grade level and be secured from movement;
13. Excavations 4 ft. or more in depth shall have a means of egress at a frequency such that lateral travel to the egress point does not exceed 25 ft.;
14. Walkways or bridges with standard guardrail shall be provided where employees are required or permitted to cross over excavations;
15. If the depth of an excavation is greater than 4 feet, it shall be inspected by the SSHO to determine if it meets the criteria for a confined space; and
16. If an excavation is determined to be a Confined Space, the requirements set forth in the Confined Space Program found in the EODT CSHP shall apply.

13.6 MATERIAL HANDLING AND LIFTING

Many types of objects are handled in normal day to day operations. Care should be taken in lifting and handling heavy or bulky items since the manual or mechanical lifting of such items may cause hazards to site personnel. Materials being lifted either mechanically or manually will not be moved, or suspended, over personnel unless positive precautions have been made to protect the personnel from falling objects. Whenever heavy or bulky material is to be moved, the size, shape, and weight of the object, and the distance and path of movement, must be considered to prevent joint and back injuries. The following hierarchy shall be followed in selecting a means for material handling:

1. Elimination of material handling through engineering design;
2. Movement of the material by mechanical device (i.e., lift truck, crane etc.);

3. Movement by manual means using mechanical aid (i.e., dolly or cart); and
4. Movement by manual means with protective equipment (i.e., lifting belt or lifting monitor).

The lifting fundamentals listed below address the proper manual material lifting procedures. These lifting procedures will be followed whenever personnel are required to lift objects.

1. A firm grip on the object is essential, therefore the hands and object shall be free of oil, grease and water, which might prevent a firm grip;
2. The hands, and especially the fingers, shall be kept away from any points that cause them to be pinched or crushed, especially when setting the object down;
3. The item shall be inspected for metal slivers, jagged edges, burrs, rough or slippery surfaces and pinch points, and gloves shall be used, if necessary, to protect the hands;
4. The feet shall be placed far enough apart for good balance and stability;
5. Personnel shall ensure that solid footing is available prior to lifting the object;
6. When lifting, personnel shall get as close to the load as possible, bend their legs at the knees, keep their back as straight as possible, and lift the object with the legs, as they are straightening from their bending position;
7. Never carry a load that cannot be seen over or around;
8. When placing an object down, the stance and position are identical to that for lifting, with the back kept straight and the legs bent at the knees, while the object is lowered; and
9. If needed, EODT shall provide back support devices to aid in preventing back injury during lifting activities.

When two or more people are required to handle an object, coordination is essential to ensure that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each person, if possible, shall face the direction in which the object is being carried.

13.7 ELECTRICAL HAZARDS

Electrical wiring and apparatus safety procedures shall be conducted in accordance with OSHA Standard 29 CFR 1910.137(2), and EM 385-1-1, Section 11. These requirements include, but are not limited to:

1. All electrical wiring and equipment shall be of a type listed by Underwriters Laboratories (UL) or Factory Mutual Engineering Corporation for the specific application;
2. Electric wire or flexible cord passing through work areas shall be covered or elevated to protect it from damage by foot traffic, vehicles, sharp corners, or pinching;
3. Patched, oil-soaked, worn, or frayed electric cords or cables will not be used;
4. Extension cords shall not be fastened with staples, hung from nails, or suspended by wire;

5. Portable and semiportable electrical tools and equipment shall be grounded by a multiconductor cord having an identified grounding conductor and a multicontact polarized plug-in receptacle;
6. Tools protected by approved double insulation, or its equivalent, need not be grounded;
7. UL-listed ground fault circuit interrupters (GFCIs), calibrated to trip within the threshold value of 5 milliamps (± 1 milliamp), are required on all circuits for portable electric tools;
8. In instances where the GFCI is sensitive to equipment vibration, the SSHO shall ensure proper equipment grounding prior to the equipment being used; and
9. Flexible cord sets shall be UL-listed, include an equipment ground wire, and be classified as hard usage or extra hard usage (i.e., with "outdoor" or "WA" printed on the jacket).

13.8 MACHINE AND EQUIPMENT GUARDING

In order to protect site personnel from unguarded moving machinery and equipment surfaces, the requirements found in OSHA 29 CFR 1910, Subpart O, USACE EM 385-1-1, Section 16B and the general provisions below will be followed:

1. All belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains or other reciprocating, rotating or moving parts of machinery or equipment shall be guarded IAW manufacturer's specifications if they create a hazard through contact with personnel;
2. All hot surfaces of equipment, including exhaust pipes or other lines, shall be guarded or insulated to prevent injury and fire;
3. No guard, safety appliance or device shall be removed from machinery or equipment, or made ineffective except when making immediate repairs, lubrication or adjustments, and then only after the power has been shut off; and
4. All guards or safety appliances or devices removed for repair, lubrication or adjustments will be replaced immediately upon completion of said activity and before the power is turned on.

13.9 FIRE AND EXPLOSION HAZARDS

13.9.1 Causes of Fires and Explosions

Although fires and explosions may arise spontaneously, they are more commonly the result of carelessness during the conduct of site activities, such as during refueling of heavy or handheld equipment. Some potential causes of explosions and fires include:

1. Ignition of explosive or flammable chemical gases or vapors by external ignition sources;
2. Agitation of shock or friction-sensitive compounds; and
3. Sudden release of materials under pressure.

13.9.2 Fire Prevention

Explosions and fires not only pose the obvious hazards of intense heat, open flames, smoke inhalation, and flying objects, but may also cause the release of toxic chemicals into the

environment. Site personnel involved with potentially flammable material or operations shall follow the guidelines listed below and EM 385-1-1, Section 9, to prevent fires and explosions:

1. Prior to initiation of site activities involving explosive/flammable materials, all potential ignition sources shall be removed or extinguished;
2. Non-sparking and explosion-proof equipment shall be used whenever the potential for ignition of flammable/explosive gases/vapors/liquids exists;
3. Smoking shall be prohibited at, or in the vicinity of, operations which may present a fire hazard, and the area shall be conspicuously posted with signs stating "No Smoking or Open Flame Within 50 Feet";
4. Flammable and/or combustible liquids must be handled only in approved, properly labeled metal safety cans equipped with flash arresters and self-closing lids;
5. Transfer of flammable liquids from one metal container to another shall be done only when the containers are electrically interconnected (bonded);
6. The motors of all equipment being fueled shall be shut off during the fueling operations; and
7. Outdoor flammable/combustible materials storage areas will be: lined and contained; located fifty feet from buildings; and kept free of weeds, debris and other combustible materials.

13.9.3 Fire Protection

To ensure adequate fire protection, the SSHO will inspect the site to ensure that all flammable and combustible materials are being safely stored in appropriately configured storage areas and containers. The SSHO will also ensure that no flammable/combustible materials are stored near any sources of ignition, and that sources of ignition are removed a safe distance from storage areas. If needed, storage areas will be segregated from the remainder of the site through the use of flagging and signs. Portable fire extinguishers shall be located on site IAW the requirements of Section 14.0.

13.10 SIGNS AND LABELS

An important element of site safety involves providing site personnel with information related to hazardous operations, areas and materials. To ensure effective, consistent communication of these hazards, the requirements of OSHA 29 CFR 1910.145 and USACE EM 385-1-1, Section 8, will be implemented, including the following use color schematics:

1. Red - Identifies dangerous conditions, emergency stop controls, fire detection and suppression equipment and containers of flammable liquids;
2. Orange - Designates dangerous parts of machinery or energized equipment;
3. Yellow - Designates conditions requiring caution, marking dangerous chemicals, marking physical hazards, and markings for ionizing radiation;
4. Blue - Designates information of a non-safety nature; and
5. Green - Designates safety equipment and operator devices, and location of first aid and safety equipment (other than firefighting equipment).

In addition to the requirements listed above, the following guidelines will be incorporated in the selection and display of signs, labels and tags:

1. Signs, tags or labels shall provide personnel with adequate hazard warning and caution;
2. Signs, tags and labels shall be visible at all times when the hazard or problem exists, and shall be removed or covered when the hazard or problem no longer exists;
3. In the event that radio frequencies present a hazard to personnel, appropriately colored and configured signs will be posted;
4. Products containing hazardous materials will be labeled IAW the hazard communication requirements found in paragraph 4.5 of this SSHP;
5. All site personnel shall be informed as to the meaning of the various signs, tags and labels used throughout the site;
6. Danger signs shall have the word "DANGER" in white on a black oval background and shall indicate a specific immediate danger, capable of causing irreversible damage or injury and indicates that specific precautions be taken to avoid the danger;
7. Caution signs shall have the word "CAUTION" in yellow on a black background and shall be used to call attention to a specific potential hazard, capable of causing severe but not irreversible damage or injury, against which proper precautions should be taken;
8. General safety signs shall have key words in white on a green background and shall indicate notices of general practice and rules; and
9. General information signs shall have the word "NOTICE" in white on a blue background and shall provide general information required to avoid confusion or misunderstanding.

13.11 BIOLOGICAL HAZARDS

As this project is currently planned, it is not anticipated that site personnel will have substantial contact with biological hazards for most of the project duration. However, the potential exists for this project to extend into the warmer months, and therefore, information related to biological hazards is being included in this SSHP. The biological hazards which may be found on site include: hazardous plants and animals; bees, hornets, wasps, ticks and other biting or stinging insects. Employee awareness and the SWPs outlined here and in Appendix G of the WP should reduce the risk associated with these hazards.

13.11.1 Hazardous Plants

During the conduct of site activities, a variety of hazardous plants may be encountered. The ailments associated with these plants range from mild allergic reactions, to contact dermatitis. However the plants which present the greatest degree of risk to site personnel (i.e., potential for contact vs. effect produced) are those which produce tissue injury and skin reactions.

13.11.1.1 Plants Causing Skin and Tissue Injury

Contact with splinters, thorns and sharp leaf edges is of special concern to site personnel. This concern stems from the fact that punctures, cuts and even minor scrapes caused by accidental contact may result in non-infectious skin lesions, and the introduction of fungi or bacteria through the skin or eye. This is especially important in light of the fact that the warm moist environment created inside impermeable protective clothing is ideal for the propagation of fungal and bacterial infection. Personnel receiving any of the injuries listed above, even minor scrapes, should report immediately to the SSHO for initial care, and continued observation, of the injury.

13.11.1.2 Plants Causing Skin Reactions

The hazardous plants of concern on this site that cause allergic skin reactions are poison oak, poison ivy and poison sumac. The skin reaction associated with contacting these plants is caused by the body's allergic reaction to toxins contained in oils produced by the plant. Becoming contaminated with the oils does not require contact with only the leaves. Contamination can be achieved through contact with other parts of the plant such as the branches, stems or berries, or contact with contaminated items such as tools and clothing. The allergic reaction associated with exposure to these plants may include: blistering at the site of contact; reddening, swelling, itching and/or burning at the site of contact; pain, if the reaction is severe; and conjunctivitis, asthma, and other allergic reactions if the person is extremely sensitive to the poisonous plant toxin. If the rash is scratched, secondary infections can occur. The rash usually disappears in 1 to 2 weeks in cases of mild exposure and up to 3 weeks when exposure is severe.

To aide site personnel in avoiding the hazardous plants listed previously, the SSHO shall provide either pictures or examples of poison oak, ivy and sumac during the initial site hazard information training, as specified in paragraph 6.3.2 of this SSHP. In addition, the preventative measures listed below will prove effective for most site personnel:

1. Avoid contact with any poisonous plants on site, and keep a steady watch to identify, report and mark poisonous plants found on site;
2. Wash hands, face or other exposed areas at the beginning of each break period and at the end of each work day;
3. Avoid contact with contaminated tools, equipment, and clothing, and wash contaminated tools, equipment and clothing on a daily basis; and
4. Barrier creams, detoxification/wash solutions and orally administered desensitization may prove effective and should be tried to find the best preventative solution.

13.11.2 Snakes

When site activities are conducted in warm weather, the potential for contact with poisonous snakes becomes a very real danger. Normally, if a person is approaching a snake, the noise created by the

person is usually sufficient to frighten the snake into leaving. However, extreme caution must be exercised when conducting site operations around areas where snakes might be found (i.e., rocks, bushes, logs, or in holes, crevices, and abandoned pipes). Additionally, all site personnel entering or working in areas where snakes could be encountered will be required to wear snake leggings.

The types of poisonous snakes that may be encountered at the SEDA project site include the Timber rattlesnake, and the copperhead. The venomous snakes that may be found on site belong to the pit viper group, which means that they have large, triangular-shaped heads with sensor pits on both sides of the head between the eye and nostril. Pit vipers also have vertical (catlike) pupils versus round pupils and when looking at the snake's head from directly above the snake, the eyes cannot be seen.

The average adult length of the timber rattlesnake is 36-60 inches, and it is typically a large heavy bodied snake. The reddish-brown stripe running down the back is disrupted by a series of large, black chevron-like cross bands on the pinkish gray or tan body. The tail is uniformly black, the head is large and triangular in shape, and sometimes a dark diagonal line can be seen running through, or just behind, the eye.

The copperhead has an average adult length of 22-36 inches, and is a stout-bodied snake with broad, light brown to gray cross bands, alternating with dark brown to reddish-brown cross bands which take on an hourglass shape. On the sides of the body the dark bands usually have light centers and occasionally one dark spot.

As stated previously, EODT will issue snake leggings during warm weather conditions for all personnel entering an area where snakes may be encountered. However it will also necessary for site personnel to exercise extreme caution when working in wooded and grassy areas. At no time should personnel place their hands in areas they cannot see, such as under rocks, fallen trees, dense brush, etc. All site personnel will immediately report to their team leader and the SSHO any sighting or encounter with venomous snakes. The procedures to be followed in the event someone is bitten by a snake are:

1. Do not cut "Xs" over the bite area as this will intensify the effect of the venom;
2. Do not apply suction to the wound since this has a minimal effect in removing venom;
3. Do not apply a tourniquet since this will concentrate the venom and increase the amount of tissue damage in the immediate area;
4. If possible, and safe to do so, kill the snake, bag it and transport it with the victim;
5. If killing the snake cannot be done without risking further bites to other site personnel, get an accurate description of the snake so it can be identified for selection of anti-venom;
6. Do not allow the victim to run for help since running increases the heart rate and will increase the spread of the venom throughout the body;

7. Keep the victim calm and immobile;
8. Have the victim hold the affected extremity lower than the body while waiting for medical assistance; and
9. Transport the victim to medical attention immediately.

13.11.3 Stinging Insects

Contact with stinging insects like bees, hornets and wasps may result in site personnel experiencing adverse health effects that range from being mildly uncomfortable to being life threatening. Therefore, stinging insects present a serious hazard to site personnel, and extreme caution must be exercised whenever site conditions increase the risk of encountering stinging insects. Some of the factors related to stinging insects that increase the degree of risk associated with accidental contact are as follows:

1. The nests for these insects are frequently found in the type of remote areas where many waste sites are located;
2. The nests can be situated in trees, rocks, bushes or in the ground, and are usually difficult to see;
3. Accidental contact with these insects is highly probable, especially during warm weather conditions when the insects are most active;
4. If a site worker accidentally disturbs a nest, the worker may be inflicted with multiple stings, causing extreme pain and swelling which can leave the worker incapacitated and in need of medical attention;
5. Some people are hypersensitive to the toxins injected by a sting, and when stung, experience a violent and immediate allergic reaction resulting in a life-threatening condition known as anaphylactic shock;
6. Anaphylactic shock manifests itself very rapidly and is characterized by extreme swelling of the body, eyes, face, mouth and respiratory passages; and
7. The hypersensitivity needed to cause anaphylactic shock, can in some people, accumulate over time and exposure; therefore, even if someone has been stung previously, and has not experienced an allergic reaction, there is no guarantee that they will not have an allergic reaction upon receipt of another sting.

With these things in mind and with the probability of contact with stinging insects, all site personnel shall comply with the following safe work practices:

1. If a worker knows that he is hypersensitive to bee, wasp or hornet stings, they must inform the SSHO of this condition prior to participation in site activities;
2. All site personnel will be watchful for the presence of stinging insects and their nests, and shall advise the SSHO if a stinging insect nest is located or suspected in the area;
3. Any nests located on site shall be flagged off and site personnel notified of its presence;

4. If stung, site personnel shall immediately report to the SSHO to obtain treatment and to allow the SSHO to observe them for signs of allergic reaction; and
5. Site personnel with a known hypersensitivity to stinging insects shall keep required emergency medication on or near their person at all times.

13.11.4 Biting Insects

Many types of biting insects such as mosquitos, flies and fleas may be encountered on site. The use of insect repellents will be encouraged by the SSHO if deemed necessary. The biting insects of greatest concern are the Black Widow and Brown Recluse spiders, due to the adverse health effects caused by their bite. Site personnel will report to the SSHO if they locate either of these spiders on site or notice any type of bite resulting from site activities. The SSHO shall brief site personnel as to identification and avoidance of these spiders. Additional information related to the Black Widow and Brown Recluse is presented in the EODT SOP found in Appendix G of the WP.

13.11.5 Ticks

Due to the anticipated climate during the planned start and duration of the project, the potential for site personnel to encounter ticks is low for this project. However, since the project may extend into the warmer spring months, the potential exists for site personnel to encounter ticks. In the United States, three groups of ticks can transmit to humans diseases caused by bacteria, viruses and other microbial vectors. The diseases which may be associated with personnel exposure to ticks indigenous to the project site may include: ehrlichiosis, often called rashless (or spotless) Rocky Mountain spotted fever; lyme disease; Rocky Mountain spotted fever (RMSF); and tularemia, which is most frequently contracted by human contact with infected animals such as rabbits. All of these diseases start with the affected person developing a flu-like illness including fever. Aside from the use of insect repellants, the major factor in preventing the transmission of disease through tick bites is the early detection of the tick on the skin. According to the Center for Disease Control, ticks are most likely to transmit infection after approximately two or more days of feeding. Additionally, ticks typically transmit infection during the nymph stage (juvenile) since the nymphs are small in size (less than two millimeters) and are rarely noticed. Adult ticks can transmit disease, but due to their larger size, they are more likely to be noticed and removed before having sufficient time to transmit infection. Another key factor in the prevention of infection is the proper removal of the tick. To remove an imbedded tick, use fine point tweezers, grasp the tick close to the skin and pull the tick straight out. Do not twist the tick, and do not squeeze the ticks body. Wash the affected area with soap and water after removal and apply an antibiotic to the area for several days to prevent infection at the bite site. Any ticks removed from site personnel should be kept in a labeled container and the affected person shall notify the SSHO of the bite occurrence. Additional details regarding preventative measures and signs/symptoms of tick borne infections is presented in Appendix G of the WP.

13.12 ILLUMINATION

In order to control the potential for injury or illness involved with situations where site personnel have limited visibility, EODT personnel will, as a general rule, work from 30 minutes after sunrise to 30 minutes before sunset. To ensure that site personnel have the minimum level of lighting needed to perform their tasks, the illumination levels presented Section 7 of EM 385-1-1 will be maintained.

13.13 OE HAZARDS

13.13.1 General SWPs

For all site activities, the OE procedures and practices listed below shall be strictly enforced:

1. All OE related activities shall be conducted IAW applicable sections of the CEHNC Safety Concepts and Basic Considerations for Unexploded Ordnance (UXO).
2. All OE items will be independently identified by two UXO-qualified technicians.
3. Only the minimum number of personnel required to perform a given OE related activity will be involved in the operation.
4. Movement and handling of OE will be kept to a minimum at all times.
5. Only EODT UXO-qualified personnel will be involved in the investigation, identification movement and handling of known or potential OE items and explosive materials.
6. ORS and inert training ordnance may be handled by non-UXO-qualified personnel only after it has been deemed to be inert, and free of explosive residues, by UXO-qualified personnel.
7. The preferred method of OE disposal is BIP, however, to reduce the number of times personnel must handle explosive demolition materials, those items identified as being unfuzed and safe to move may be collected, stored and consolidated for disposal.
8. No soil penetrating activities shall be allowed without the area first being surveyed for anomalies by UXO-qualified personnel.
9. No smoking, or flame or spark sources, will be allowed in the WZ, unless approved by the SSHO, and then only in areas designated by the SSHO or the Team Leader.

13.13.2 Investigation of Anomalies

EODT UXO-qualified personnel will use the procedures listed below during the subsurface investigation of anomalies.

1. Only EODT UXO-qualified personnel will conduct an investigation of an anomaly.
2. To gain access to a subsurface anomaly, area, EODT UXO-qualified personnel may use either a hand tools or mechanical EMM to remove soil above the area.
3. If EMM is used, EODT personnel will visually inspect the excavation site prior to each one foot lift to ensure that no OE are visible from the surface or within one foot of the surface. If an anomaly is present, its identity will be assessed prior to the continued soil removal.

4. Once the lift has been removed, and the excavated area will be inspected to determine if any OE have been uncovered. The bucket contents will then be visually inspected prior to dumping the contents, and once dumped, the contents will be checked with a magnetometer.
5. When the EMM has excavated to a depth of approximately one foot over the item, one UXO Specialist will utilize hand tools and a shovel to investigate the item. The SSHO will inspect and monitor the excavation IAW the provisions of this plan prior to excavation entry.
6. In all cases where OE is identified, the procedures listed below will be followed to determine the disposition of the OE:
 - a. Those OE items that are identified as being unfuzed and safe to move by two EODT personnel will be consolidated within the grid for disposal according to the demolition requirements of the SOW and the CEHNC OSS.
 - b. If an OE item is identified as being fuzed or unsafe to move, the CEHNC OSS will be notified, and the item will be disposed of IAW guidance from the CEHNC OSS.

13.13.3 OE SWPs for Non-UXO-Qualified Personnel

Non-UXO qualified personnel on site shall follow the SWPs listed below during all site activities:

1. Non-UXO qualified personnel shall receive site-specific OE recognition training prior to participation in site activities;
2. Non-UXO qualified personnel shall be escorted on site by UXO-qualified personnel, until such time as the area is QC checked and verified clear of OE hazards;
3. Once an area has been cleared, non-UXO qualified personnel may perform duties in the area unescorted, but shall not enter an uncleared area unescorted; and
4. Non-UXO qualified personnel shall not touch or disturb any object which could potentially be OE related, and shall immediately notify the nearest UXO-qualified person of the presence of the object.

13.14 USE OF PRODUCTS CONTAINING HAZARDOUS MATERIALS

Due to the nature of the products to be used on site, and the manner in which they will be used, it is not anticipated that there will be a potential for personnel airborne exposure to the hazardous materials used on site. To help ensure this, and to avoid skin contact with any hazardous materials, EODT personnel will follow the SWPs listed below.

1. The handling and transportation of explosive materials used for OE disposal will be conducted in strict compliance with the SOPs presented in Appendix G of the WP. These procedures present very specific guidelines for the handling, transportation and use of demolition materials, and any personnel involved with demolition operations will as a matter of site training read these SOPs in detail and will follow their guidance implicitly.

2. To determine the chemical properties of the hazardous materials and the protective measures to be used, all site personnel who use products containing hazardous materials shall personally review the MSDS for each product used.
3. All products containing a hazardous material with a potential for airborne exposure (i.e., gasoline and other fuels, spray paints, etc.) will be used outdoors or in well-ventilated areas, and personnel will stand upwind of the dispensing point when dispensing the product.
4. Personnel using or dispensing a product with a skin contact hazard, will utilize protective gloves, as identified in Chapter 7 of this SSHP, when dispensing the material.
5. Only those personnel who have received appropriate HAZCOM training, as outlined in section 6.10 of this SSHP, shall use a product containing hazardous materials.
6. Personnel shall immediately wash any affected area of the skin that accidentally comes in contact with a hazardous material identified as being a skin contact hazard.

13.15 CONTROL OF HAZARDOUS ENERGY SOURCES (LO/TO)

While LO/TO procedures are not typically needed for OERA operations, there is a potential that some maintenance operations on equipment and facilities will require the control of energized systems. Energized systems are defined as those systems that contain residual or stored energy, or are connected to an energy source. Site operations involving the construction, installation, set up, adjustment, modification, inspection, maintenance or servicing of machines or equipment may require the use of LO/TO procedures to ensure the protection of site personnel. These activities may include the lubrication, cleaning or unjamming of machines or equipment, and making adjustments where site personnel are exposed to the unexpected energization or startup of the equipment or the release of hazardous energy. During the initial startup of site operations, the OSHM and SSHO will determine what potential site operations may require the use of LO/TO procedures to control energized systems. It will then be the responsibility of the SSHO to ensure the application of the LO/TO SOP found in Appendix G of the WP.

13.16 SITE STANDING ORDERS

To maintain safety and health awareness, a list of standing orders has been developed which outlines the practices that must be followed at all times. These standing orders will be enforced by the SSHO, and personnel violating these orders may be subject to disciplinary action. The general standing orders for the site and the standing orders for the WZ are listed in tables 13-1 and 13-2. As a reminder to site personnel, these tables will be posted in the office trailers and equipment storage areas, and will be reviewed periodically during the tailgate safety briefings.

TABLE 13-1: GENERAL SITE STANDING ORDERS

1. Running and horseplay are prohibited in all areas of the site.
2. Ignition of flammable materials in any work zone is prohibited, unless directed by the SSHO.
3. Buddy System procedures will be enforced during all site operations.
4. The number of personnel in any work area will be the minimum number necessary to perform work tasks in a safe and efficient manner.
5. Site personnel will check in with the SSHO prior to leaving the site, and again upon returning to the site.
6. Site visitors are to be escorted by UXO-qualified EODT personnel at all times.
7. Site personnel will perform only those tasks which they are qualified to perform.
8. Site personnel will remain aware of site conditions at all times and will alert the SSHO to any changes which could pose a hazard to site personnel, the environment or the public.
9. Remember, "When in doubt. Don't". Ask questions first.

TABLE 13-2: WORK ZONE STANDING ORDERS

1. No matches, lighters or other spark sources are allowed in any designated WZ unless approved by the SSHO and then only in those areas on site selected and approved by the Team Leader.
2. No personnel will enter a designated WZ without authorization from the SUXOS, SSHO or Team Leader.
3. No eating, drinking, smoking, or use of chewing gum, tobacco or cosmetics will be permitted in any WZ, unless approved by the SSHO and then only in those areas designated by the Team Leader.
3. Always have your buddy with you in each WZ, and follow the buddy system procedures.
4. No personnel will be allowed in a designated WZ without appropriate training, medical surveillance and PPE as specified by the SSHP.
5. Remain alert to site conditions and report any changes or unusual occurrences to the SSHO.
6. Verbal communication shall be immediately available at all times between the EZ personnel and the SZ.
7. Remember -- **Site Safety and Health is Everyone's Responsibility** -- Do your part.

14.0 EMERGENCY RESPONSE / CONTINGENCY PROCEDURES

14.1 INTRODUCTION

The frequency and severity of emergency situations can be dramatically reduced through proper implementation of the SSHP. However, if an emergency does occur, quick, decisive action will be required since delays in minutes can create or escalate life-threatening situations. In an emergency, on-site response and rescue personnel must respond immediately and required equipment must be on hand and in proper working order. To ensure rapid, effective response to a site emergency, the procedures and contingency plans outlined in this Section, shall be implemented prior to and during the conduct of any site activities involving exposure to safety and health hazards.

14.2 PRE-EMERGENCY PLANNING

14.2.1 Identification of Local Emergency Services

EODT site personnel will meet with appropriate local authorities prior to the initiation of on-site activities. During these meetings, EODT will inform local authorities of the activities to be performed under this SSHP, and the potential hazards they pose to site personnel, the environment, and the general public. EODT personnel shall obtain information related to the emergency services available, including phone numbers and procedures for summoning the services. These telephone numbers and procedures will be posted in on site and in site vehicles IAW this Section.

14.2.2 Identification of Potential Emergencies

The potential safety and health hazards associated with the site activities at SEDA have been identified to the greatest extent possible. These hazards then assessed to determine the possibility for these hazards resulting in an emergency situation. Contingency plans for responding to the potential emergency situations have been developed and are included in this section. The potential emergencies which may result during the conduct of site activities are as follows:

1. Personal injury from the unintentional detonation of OE;
2. Injury or illness associated with contact with physical or biological hazards;
3. Fire;
4. Inclement weather; and
5. Spill of hazardous materials.

14.2.3 Identification/Coordination of Emergency Transportation Services

Prior to the initiation of site activities involving the potential for exposure to the site hazards identified in this SSHP, the SSHO will coordinate with the SEDA Fire Department, which is responsible for the dispatching of the SEDA ambulance service, to determine the most effective and efficient procedures for transporting site personnel that may become seriously injured or ill as a



result of site activities. This coordination is required due to the relative remoteness of the site length of time it may take to transport an injured/ill person to an appropriate medical facility.

14.3 EMERGENCY RESPONSE CHAIN OF COMMAND/CONTACTS

14.3.1 On-scene Incident Commander

In the event of an emergency, the SSHO will assume the responsibility of the On-scene Incident Commander (OSIC), and will be assisted by the SUXOS. The alternate person to assume this role, in the event that the SSHO is unavailable or incapacitated, will be the SUXOS. The OSIC will have the responsibility of directing all on-site and off-site emergency response personnel, and shall, as soon as possible, advise the CEHNC OSS of the emergency situation.

14.3.2 CEHNC Emergency Coordinator

Upon notification of an on-site emergency, the CEHNC OSS may be directed by CEHNC to assume the role of Emergency Coordinator (EC). The EC will then have overall responsibility for coordinating the efforts of the OSIC, and off-site emergency response agencies. The EC shall ensure that required off-site emergency services have been summoned and will also be responsible for notifying and coordinating all relevant Federal, state and local regulatory and response agencies.

14.3.3 On-site Emergency Response Personnel

During site activities EODT personnel will, to the greatest extent possible, act in the role of on-site emergency response personnel. The personnel assigned to these tasks will be designated by the EODT SUXOS and SSHO prior to initiation of site activities involving the potential for an on-site emergency. EODT on-site emergency response personnel will receive training in the response actions that they will be authorized to, and may be directed to, perform during a site emergency.

14.3.4 Off-site Emergency Response Services

The off-site emergency response services which may be needed include: land and air ambulance personnel and transportation; medical facilities for the treatment of physical injuries; local fire and law enforcement support; and spill response support. These resources will, in the event of an emergency, be contacted by the OSIC or EC through the SEDA Fire Department.

14.4 OFF-SITE COMMUNICATIONS

It will be the responsibility of the SUXOS to ensure that off-site communications are available at all times. Site operations shall not be conducted unless means of off-site communications are established. Off-site communication will be accomplished through the use of telephone service to the responsible support agencies. The telephone numbers for all emergency services and contacts are listed in Table 14-1. These phone numbers shall be posted in the office/break area and all site personnel shall be aware of the procedures for obtaining off-site emergency services.

TABLE 14-1: EMERGENCY TELEPHONE NUMBERS

Service / Contact	Agency / Position	Telephone Number
Police	SEDA Police	(607) 869-0448
Fire	SEDA Fire Department	(607) 869-1316
Ambulance	SEDA Ambulance Service	(607) 869-1243
Hospital	Geneva General Hospital	(315) 798-4222
USEPA (24 Hours)		(256) 655-2222
Poison Control Center		(800) 962-1253
CEHNC Safety Office		(256) 895-1582 or 1598
Fred Whissel	CEHNC Project Manager	(256) 895-1443
Kevin Healy	CEHNC Project Engineer	(256) 895-1627
Sharon Butler	CEHNC Contracting Officer	(256) 895-1136
TBD	On-site CEHNC OE OSS	TBD
725 th Ordnance Company (EOD)	Local EOD Support	(315) 772-5408 / 09
Michael Short	Director of Operations	(423) 988-6063
Douglas Murray	Project Manager	(423) 988-6063
Andrew Bryson, CIH	Occup. Safety and Health Mgr.	(423) 988-6063

14.5 ON-SITE COMMUNICATIONS

14.5.1 General Requirements and Procedures

Evacuation routes, assembly points, emergency and site control procedures, hospital routes, and emergency numbers will be discussed each day at the tailgate safety briefing to ensure all site personnel are familiar with this information. Hospital route maps, and the list of emergency contacts presented in Table 14-1, will be posted in all EODT office and storage areas and maintained in all site vehicles. All site personnel will be familiar with the location of these lists and maps, and will be aware of the location of the closest telephone and/or radio communications.

14.5.2 Communication Between the EZ and the SZ to the Field Office

Communication between personnel at the field office and personnel in each WZ of the EZ shall be established and maintained at all times via radio, with a cellular phone as an emergency back-up. Prior to starting EZ activities each day, and hourly throughout the day, field teams will contact the field office to ensure effective contact with personnel in the office.

14.5.3 EZ Alarm System

The SSHO and each Team Leader will have an air horn for informing personnel of an emergency. The effectiveness of the air horn will be tested in each WZ to ensure that all site personnel can clearly perceive the alarm above operational noise levels. If operational noise levels prevent site personnel from detecting the air horn alarm, other means of notification will be implemented. One long blast on the air horn will be the signal to evacuate the site immediately. The initial assembly point for each WZ will be located in a safe area identified during the tailgate safety briefing each morning. Once personnel are assembled, the SUXOS will conduct a head count, and await instructions from the OSIC, which may include: further evacuation to the Field Office; emergency response instructions; or any other instructions as deemed necessary by the OSIC. The OSIC will be responsible for assessing the situation and directing the appropriate actions to be taken.

14.6 HOSPITAL ROUTES

14.6.1 Area Specific Instructions

Prior to the start of site activities each day, the SSHO will review the specific medical emergency instructions. All site vehicles shall be provided with copies of the instructions/maps needed to effectively transport injured personnel to medical attention. Prior to the initiation of site activities, and periodically thereafter, the hospital routes outlined below will be driven by the SSHO to ensure the routes are free of construction or other unanticipated delays. If unanticipated delays occur along the specified hospital route, the SSHO shall identify the next best route, generate a map with the new route highlighted, and communicate the route change to all site personnel.

14.6.2 Directions to the Geneva General Hospital

Route 1: From Post #3, take a right on SR 96A and follow it north to Highway 20. Take Highway 20 heading west into downtown Geneva and follow signs to Geneva General Hospital.

Route 2: From Post #1, take a left onto SR 96 and follow it north to Highway 20. Take Highway 20 heading west into downtown Geneva and follow signs to Geneva General Hospital.

14.7 EMERGENCY EQUIPMENT

14.7.1 General Requirements

The emergency equipment listed below in Table 14-2 shall be on site, stored in the location indicated, and available for use during the operation specified. All emergency equipment shall be maintained in proper working order and inspected by the SSHO at least weekly to ensure completeness and proper working order. In the event that any of the disposable items are utilized, the SSHO shall ensure they are replaced immediately. Site operations shall not be conducted if the required emergency equipment is not immediately available on site.

TABLE 14-2: EMERGENCY EQUIPMENT REQUIREMENTS

Emergency Equipment	Number per Location	Locations Where Emergency Equipment is to be Stored	Operation Where Emergency Equipment is Required
First Aid/Burn Kit/Burn Blanket	1 ea.	Each WZ within the EZ Support Vehicle and the Field Office	All operations
Portable Eye Wash Kit	1 ea.	Each WZ within the EZ, Support Vehicle and the Field Office	All operations involving use or handling of hazardous materials
CPR Pocket Mask	1 ea.	Each WZ within the EZ, Support Vehicle and the Field Office	All operations
ANSI Approved 15 minute Eye Wash	1 ea.	Field Office	All operations
Biohazard Kit	1 ea.	Each WZ within the EZ, Support Vehicle and the Field Office	All operations
Air Horn	1 ea.	Each WZ in the EZ, Support Vehicle and the Field Office	All operations
Spill Containment/Clean-up Supplies	Varies	Field Office area	All operations involving storage or handling hazardous materials
Stretcher	1 ea.	Designated emergency vehicles, Field Office area	All operations
Fire Extinguisher	1 ea.	Each WZ within the EZ, Vehicle, Flammable Liquid Storage Areas and the Field Office areas	All operations

14.7.2 Portable Fire Extinguishers

To ensure that adequate fire fighting equipment is readily available, the fire extinguishers listed below and in Table 14-2 will be located at the specified locations. Fire extinguishers will be stored in easily accessible, protected and well marked locations, and the SSHO shall ensure that documented, visual inspections are conducted monthly. Site personnel will know the location of fire extinguishers, and be trained in their use. Procedures for small and large fires and explosions are found in paragraph 14.9.2 of this Section.

1. Flammable/combustible liquid storage areas shall have at least one 4A:20B:C: fire extinguisher located within 25-75 feet;
2. All vehicles used in the transport of explosives shall be equipped with two fire extinguishers of not less than 10B units or higher, with one fire extinguisher mounted/placed inside the cab of the vehicle and one mounted outside by the drivers side door;

3. All earth moving equipment (back hoes, bulldozers, drill rigs, etc.) and other vehicles, shall be equipped with a fire extinguisher of not less than 10B units;
4. Temporary offices shall be equipped with a fire extinguisher of not less than 10B units; and
5. At least one portable fire extinguisher having a rating of not less than 20:B units shall be located at each WZ.

14.7.3 First Aid Kit Requirements

To ensure that adequate first aid supplies are available, the size and number of first aid kits shall be sufficient to accommodate the maximum number of people (including government personnel and visitors) on site at any given time. This determination will be made by the EODT designated physician, who must approve the first aid kits used on site. The kits shall be located at each WZ, the location of the WZ first aid kit shall be made known to all WZ personnel. A large, portable first aid kit shall also be maintained in the vehicles assigned to the SSHO and the first aid attendants. Additionally, a large first aid kit will be maintained in the field office trailer, and all first aid kits will be provided with adequate water and other supplies necessary to cleanse burns, wounds or lesions.

14.7.4 Eye Washes

Emergency, portable eye washes will be readily available in each WZ where there is a potential for hazardous materials to come in contact with the eyes. Portable eye wash bottles will be available for immediate use while the injured person is transported to the field office where an approved 15-minute eye flushing station will be available. After flushing, the affected eyes will be bandaged lightly and the person transported to the appropriate medical facility.

14.8 GENERAL EMERGENCY PROCEDURES

Emergency response procedures include all steps to be taken for notifying, evaluating, reacting to, documenting and following-up on a given emergency situation. To ensure all necessary elements are covered, the procedural steps outlined in this paragraph will be implemented for each emergency, regardless of its nature.

14.8.1 Notification

Once an emergency has occurred, the air horn alarm will be sounded to initiate site evacuation and the SSHO/OSIC will be notified of the occurrence and nature of the emergency. Once the OSIC has been informed of the emergency, the OSIC will ensure that all site personnel are alerted to the presence of the emergency. The sounding of the air horn alarm will allow for the following:

1. The notification of personnel as to the presence of an emergency;
2. The cessation of all work activity as required;
3. The reduction of noise levels in order to speed and simplify communication; and
4. The initiation of emergency and/or evacuation procedures.

14.8.2 Assessing the Emergency

If on-site EODT or off-site emergency personnel are to enter the site in response to the emergency, the OSIC shall to the extent possible assess the situation so as to notify the response personnel about the nature of the emergency, to include:

1. What happened:
 - a. type and cause of incident;
 - b. the time the incident occurred;
 - c. extent of damage and chemical release, including extent and route of migration.
2. Where on the project site the incident has occurred.
3. Personnel/Casualties involved:
 - a. victims (number, location and condition) and treatment required; and
 - b. missing personnel.
4. What could happen from this point; consider:
 - a. chemical hazards and the potential for fire/explosion, or release of hazardous materials;
 - b. location of all personnel in relation to hazardous areas; and
 - c. potential for emergency affecting the general public or the environment.
5. What can be done to resolve the situation; consider:
 - a. equipment/personnel resources available and needed for rescue and hazard mitigation;
 - b. resources available and needed from off-site response groups and agencies;
 - c. time needed for off-site response resources to reach the site; and
 - d. hazards involved in rescue and response.

14.8.3 Rescue and Response Actions

Based on the information collected during the emergency assessment, the general response and rescue actions listed below will be taken. Depending upon the nature of the emergency, some actions may be conducted concurrently, and some actions may not be required. At no time will site personnel attempt an emergency response or rescue until the situation has been assessed and the appropriate response outlined by the OSIC. Ensuring that the incident has been properly assessed, and that the appropriate actions have been selected, will ensure that further injuries do not occur due to poor response planning.

1. Evacuate personnel by moving site personnel to a safe distance upwind of the incident.
2. Enforce the buddy system and allow no one to enter the site unattended.
3. Survey casualties, locate victims, assess their condition and determine the resources needed for rescue and casualty stabilization and transportation.
4. Assess existing and potential hazards and decide whether and how to respond.
5. Request aid by contacting the required off-site personnel or facilities, such as ambulance, fire department, police, etc.

6. Allocate personnel and equipment resources to rescue and initiate incident response operations.
7. Control the situation by bringing the hazardous situation under complete or temporary control and use measures to prevent the situation from migrating from the immediate area.
8. Assign PPE IAW the nature and type of emergency.
9. Extricate victims and assist them from the area.
10. Decontaminate personnel, if necessary, by washing or removing outer clothing only if it can be done without causing further danger or damage to the affected personnel.
11. Stabilize injured personnel and administer any medical procedures that are necessary before the victims can be moved.
12. Transport the injured person by the appropriate mode, according to the nature of the injury.
13. Record to whom the incident occurred, the time it occurred, and the destination and condition of the casualty at the time of transport.
14. Record disposition, condition, and location of all personnel affected by the emergency.

14.8.4 Post Emergency Follow-up

Before normal site activities can resume, the site and personnel must be prepared and equipped to handle another emergency. It is also imperative that all Federal, state and local regulatory agencies be notified of the emergency. Therefore, the following activities must be conducted prior to re-start of site activities:

1. Notify all appropriate governmental agencies as required (i.e. OSHA must be notified if there have been any fatalities or five or more personnel hospitalized);
2. Restock and clean all equipment and supplies utilized or damaged in the emergency;
3. The EODT PM and OSHM, in conjunction with the SUXOS, SSHO and CEHNC OSS, shall conduct an accident investigation to determine the cause of the emergency and what preventative measures shall be taken to ensure the emergency does not occur again;
4. The EODT PM and OSHM, in conjunction with the SUXOS, SSHO and CEHNC OSS, shall conduct an emergency response critique to assess the effectiveness of the emergency response procedures, and to identify any areas requiring improvement;
5. Complete the USACE Accident Investigation Report (Eng Form 3394) and any other governmental or EODT accident forms; and
6. Review and revise, as needed, the site operational and emergency response procedures, and if necessary update the SSHP to reflect the new procedures.

14.8.5 Documentation

Documentation related to the emergency shall be recorded in an accurate, authentic and complete fashion. Documentation shall be recorded as soon as possible after the emergency to ensure it is

recorded while the events are vivid in the minds of the personnel involved. The information recorded will include:

1. A chronological record of events;
2. A listing of the personnel involved, including personnel on site, site personnel who responded, personnel in charge, and off-site groups or agencies that responded;
3. A listing of the actions taken to minimize the effects of or mitigate the emergency;
4. The results from any air monitoring conducted during the emergency, and if applicable, results of environmental samples;
5. An assessment of the potential exposures received by site personnel and the surrounding public; and
6. A recording of the injuries or illnesses which occurred as a result of the emergency.

14.9 CONTINGENCY PLANS

The following paragraphs contain emergency specific contingency plans. These plans outline the procedures for mitigating each of the potential emergency situations that were identified in the pre-emergency planning (see paragraph 14.2.2). These contingency plans specify the minimum emergency procedures and may be subject to alteration by the SSHO, based on actual or changing site conditions. Any changes to these contingency plans shall be approved by the EODT OSHM and the CEHNC OSS.

14.9.1 Treatment of Injuries or Illnesses Occurring On Site

In the event of an emergency involving personal injury or illness, immediate, appropriate response will be the key to preventing further injury/illness and providing comfort to the affected party. When possible, each field team will have a First Aid/CPR person assigned to the team. If any site personnel become injured or ill, the applicable procedures listed below will be followed:

1. Upon notification of the injury/illness, the OSIC and the EODT first aid personnel will respond to the injury/illness scene.
2. Depending upon the time needed for the OSIC and first aid personnel to reach the affected party, the WZ personnel may be instructed to initiate first aid actions to stabilize the victim.
3. If possible, and advised to do so by the OSIC, the EZ personnel will transport the injured/ill victim to the EZ support area using a stretcher.
4. Once in the area, the OSIC and first aid personnel will assess the severity of the injury/illness, provide required first aid support, and the OSIC will initiate the necessary procedures needed to ensure rapid, efficient transportation of the affected person to appropriate medical support, if required.
5. If immediate life support is not required, or once the victim is stabilized, the victims PPE will to the extent possible, be removed, while exercising caution not to exacerbate the injury.

6. If EMT or ALS attention and immediate transportation to a medical facility is required, the SEDA ambulance service will be summoned to provide ALS on-site medical support for the effected party. The EMT or ALS will determine the appropriate route of transportation to a medical support facility, and if deemed necessary, Mercy Flight air ambulance may be summoned to transport the effected party to an appropriate trauma center.
7. If additional medical attention is required, but immediate ALS is not required, the SSHO, or a designated person, may transport the affected person to the designated medical facility.

14.9.2 Fires and Explosions

14.9.2.1 Small Fires

A small fire is defined as a fire that can be extinguished with a 4A:20B:C type fire extinguisher. In the event of a small fire, site personnel will take the following actions:

1. The SSHO, SUXOS and CEHNC OSS will be immediately notified of the fire.
2. All unnecessary personnel shall be evacuated to an upwind location.
3. EODT personnel will extinguish the fire from an upwind location.
4. The OSIC will request emergency response assistance (ambulance, fire, police) as needed for any injuries or exposures to smoke or other hazardous chemicals.
5. EODT personnel will not attempt to extinguish any size fire if explosives are involved rather, they will follow the instruction in paragraph 14.9.2.3.
6. Once fire fighting has begun, the OSIC shall notify the SUXOS and CEHNC OSS.
7. After the fire is extinguished, an investigation will be initiated to determine the cause of the fire and to identify any operational changes that may be required to prevent future fires.

14.9.2.2 Large Fires

In the event that a large fire occurs, or if a small fire cannot be extinguished and develops into a large fire, the following actions shall be taken:

1. The SSHO, SUXOS and CEHNC OSS will be immediately notified of the fire.
2. All unnecessary personnel shall be evacuated from the site, to an upwind location.
3. The OSIC shall summon the fire department, and the emergency response services needed for the treatment of injuries, exposures to smoke or other exposures caused by the fire.
4. To the extent that it can be safely conducted, the OSIC will direct site personnel to move vital equipment/supplies from the fire path.
5. To the safest extent possible, and with available resources, EODT personnel will fight the fire from an upwind location.
6. At no time, shall attempts be made to extinguish a fire involving explosives.
7. Once fire fighting has begun, the OSIC shall notify the SUXOS and CEHNC OSS.
8. After the fire is extinguished, an investigation will be initiated to determine the cause of the fire and to identify any operational changes that may be required to prevent future fires.



14.9.2.3 Explosion

In the event of an explosion, all personnel shall evacuate and help secure the site. The OSIC, SUXOS and CEHNC OSS will immediately be notified of the situation and the OSIC shall request the required support equipment and personnel. If personnel injuries have occurred, the OSIC shall direct and coordinate the treatment of the effected personnel IAW para 14.9.1. After an explosion, it is essential that the site be evacuated and that no one is allowed to re-enter the area, except to possibly save a life, for at least 30 minutes after the explosion. The OSIC, in conjunction with the CEHNC OSS will determine what actions will be taken, to resolve the situation, and upon resolution, an investigation will be initiated to determine the cause of the explosion. Any changes to the EODT operational procedures and the SSHP will be made prior to the resumption of site activities.

14.9.3 Inclement Weather

14.9.3.1 General Requirements

In the event of inclement weather, such as heavy precipitation, electrical storms, high winds, dust storms, snow storms, dense fog, or extremely hot or cold weather, it may be necessary to cease site operations and evacuate the site. The SSHO shall be responsible for contacting the U.S. Weather Service on a daily basis and advising the SUXOS of the forecast. If necessary, the weather service will be contacted on a more frequent basis. If inclement weather occurs, the procedures outlined below will be followed until the inclement weather passes.

14.9.3.2 Heavy Precipitation

In the event that heavy precipitation is imminent, or occurs suddenly, site operations shall be halted, equipment will be secured, and site personnel will retreat to shelter in the field office area. The determination to re-start operations will be the responsibility of the SUXOS, who will consult with the SSHO to ensure site conditions are safe for re-entry and continuation of operations.

14.9.3.3 Thunderstorms

Thunderstorms, with their associated lightning, present a significant hazard to site personnel. If a thunderstorm is noticed in the area, the SSHO will observe the storm to determine its direction and speed. If the storm approaches the site, the SSHO shall determine when the storm becomes a threat to the site and will call for an evacuation of the WZs, and site personnel will assemble in the field office area until the storm passes. If the SSHO determines that it is unsafe to remain on site, the SSHO shall call for the evacuation of the site. A severe thunderstorm watch announcement on the radio or television indicates that a severe thunderstorm is possible. A severe thunderstorm warning signifies that a severe thunderstorm has been sighted, or detected by radar, and may be approaching. Work may continue at the work site during severe thunderstorm watches, however, site work shall cease and the WZs will be evacuated during a thunderstorm or severe thunderstorm warning.

14.9.3.4 High Winds

High winds can create conditions which threaten the safety and health of site personnel. If the SSHO determines that the wind levels on site present a hazard to site personnel, site operations will be halted and site personnel will assemble in the field office area. If wind levels are high enough, the SSHO may even require the evacuation of the entire site until such time as the wind drops to safe levels. The determination to re-start operations will be the responsibility of the SUXOS, who will consult with the SSHO to ensure site conditions are safe for re-entry and continuation of operations. At no time will demolition operations be conducted when the wind speed is greater than 25 miles per hour.

14.10 SPILL RESPONSE

14.10.1 Spill Response Supplies

A portable spill response kit containing oil/solvent absorbent pillows/pads, non-sparking shovel, PPE and disposal supplies shall be maintained in a readily accessible location where fuels, oils, solvents and other environmentally harmful materials are stored on site. Upon notification of a spill, the SSHO, or a party designated by the SSHO, will transport this kit to the spill site for use by EODT personnel in the cleanup of the spilled materials.

14.10.2 Spill Response

It is not anticipated that site operations will involve handling large containers of hazardous waste which could be easily spilled. However, small containers (5 gallons or less) of gasoline or diesel fuel may be used and stored onsite. If material from these containers is spilled, EODT personnel will follow these steps:

1. The Team Leader will order the evacuation of the immediate area and the extinguishing of ignition sources, and will immediately notify the SUXOS and OSIC of the spill.
2. The EODT OSIC will evaluate the situation to ensure it is safe for personnel to begin cleanup operations.
3. The OSIC will assign the level of protection to be worn by the spill response personnel.
4. All required supplies will be assembled and positioned such that they are readily available to the spill response personnel.
5. Spill response personnel will take measures to stop the spill and will, if applicable, use absorbents or adsorbents to collect the spilled material.
6. Using non-sparking tools, EODT personnel will collect the contaminated soil and place it in a plastic bag, which will then be placed in an approved drum.
7. The SUXOS will notify the CEHNC OSS that the spill occurred and will brief the OSS as to the cleanup actions that were taken by EODT personnel.
8. The CEHNC OSS will then provide the SUXOS guidance on disposal of the drummed contaminants and any other actions that must be taken.



Insert Figure 14-1 Geneva General Hospital Route Map

(This map to be generated by the SSHO on site prior to the start of site operations)

15.0 LOGS, REPORTS, AUDITS, INSPECTIONS, AND RECORD KEEPING

15.1 SAFETY LOG

The SSHO shall maintain a Safety Log and will record all safety- and health-related activities and events that occur each day. As a minimum this log should include: a reference to the tailgate safety briefing; details of any accidents, injuries, illnesses, or near misses; details and information related to internal and external audits; the reason for, and duration of, "stop work" orders; and any other issues pertaining to site or personnel safety or health.

15.2 INJURY/ILLNESS/ACCIDENT REPORTS

In the event that any personal or property accident/incident occurs at the job site, USACE Eng Form 3394 shall be completed and forwarded within one working day to the OSHM and the CEHNC. In addition, the SSHO will complete the EODT Accident/Injury/Illness/Near Miss Report form and forward a copy to the OSHM along with all relevant supporting documentation. If a near miss occurs, or if an incident occurs that is not reportable to the USACE, the SSHO shall investigate the incident and report the results of the investigation using the EODT Accident/Injury/Illness/Near Miss Report form. This form will be forwarded to the OSHM to be reviewed by the OSHM and PM.

15.3 TRAINING LOG

The SSHO will document all safety- and health-related training in the Site Training Log or on the appropriate training forms. Training to be logged include the initial site-specific training, the Daily/Weekly Safety Briefings, hazard-specific training, OE refresher/recognition training, emergency response exercises, etc. The SSHO shall maintain this log and associated training forms.

15.4 VISITOR LOG

The SSHO shall maintain the visitor log used to record the entry/exit of site visitors, to include EODT; USACE, Federal, state, or local officials. The EODT Site Visitors Log will be used and all information on the form will be logged prior to the visitor entering the project site or WZs.

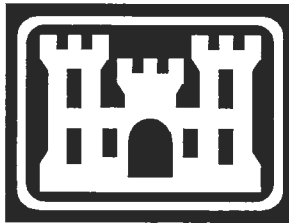
15.5 DAILY AND WEEKLY SITE INSPECTIONS

The SSHO will inspect the site(s) daily to ensure compliance with this SSHP and other regulatory requirements. Inspection results shall be recorded in the Safety Log and documented on the EODT Safety Inspection and Audit Log form. Any safety/health discrepancies noted will be recorded and reported to the SUXOS, PM and OSHM. The SSHO shall also conduct a site compliance audit weekly. This audit will again be recorded in the Safety Log and documented on the EODT Safety Inspection and Audit Log form and is designed to provide a more comprehensive review of site operations. A copy of any daily inspection forms where deficiencies are noted and the weekly audit form will be forwarded to, and reviewed by the OSHM and PM.

ATTACHMENT 1
OF THE
GENERIC SITE SAFETY AND HEALTH PLAN
CORPORATE SAFETY AND HEALTH
PROGRAM CERTIFICATION
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

Contract Number: DACA87-97-D-0005
Task Order: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenoir City, Tennessee 37932

March 1999



1.0 STATEMENT

In accordance with the Occupational Safety and Health Administration (OSHA) requirements outlined in paragraph (b) of the Hazardous Waste Operations and Emergency Response standards, found in 29 CFR 1910.120, and 29 CFR 1926.65, EOD Technology, Inc. (EODT) has developed, and actively implements, a comprehensive Corporate Safety and Health Program (CSHP). This program was developed to not only meet regulatory requirements, but more importantly, to provide EODT with the foundation necessary for ensuring the continued health and well being of all EODT, subcontractor, and client personnel involved in the conduct of site operations. To further meet regulatory compliance, and to ensure its continued development and improvement, the CSHP is reviewed on a periodic basis by EODT's Occupational Safety and Health Manager and Director of Operations. This periodic review allows for the inclusion of new or updated hazard control technology and regulatory requirements. The EODT CSHP will be made available to client personnel for review upon request.

As required by OSHA, the EODT CSHP addresses all necessary and applicable items presented in 29 CFR 1910.120(b)(1)-(4) and 29 CFR 1926.65(b)(1)-(4), and includes the following:

1. The EODT safety and health organizational structure;
2. A comprehensive workplan defining the tasks and objectives for EODT's site operations;
3. An outline and description of the necessary elements to be included in the site specific safety and health plans (SSHP) required for operations on hazardous waste sites, including the use of the SSHP as a tool for pre-entry briefings and hazard information;
4. The specifications for the EODT training and medical surveillance programs;
5. The procedures needed to ensure coordination between EODT and its contractors and subcontractors, including procedures to ensure all affected parties are informed of the known hazards and emergency response procedures associated with site activities;
6. A description of the relationship between the CSHP requirements and the SSHP; and
7. Attachments which contain the EODT standard operating procedures and OSHA required programs to be used for controlling site hazards.

2.0 CERTIFICATION

The signature of the responsible individual below certifies that the statements listed above are true and factual.

Andrew L. Bryson, CIH, MPH

Name (typed)

Signature

4/1/99

Date

ATTACHMENT 2
OF THE
GENERIC SITE SAFETY AND HEALTH PLAN

GENERIC CERTIFICATION OF
TASK HAZARD ASSESSMENT FORMS

FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS

SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

Contract Number: DACA87-97-D-0005
Task Order: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenoir City, Tennessee 37932

March 1999



PREFACE

As a part of the SEDA Generic SSHP submission, EODT is submitting the generic CTHA forms contained in this Attachment for those on-site activities which EODT has anticipated having to perform on a regular basis during SEDA OE operations. These generic CTHA forms have been produced using EODT's professional knowledge regarding the degree and nature of the hazards that are typically encountered during OE operations in the SEDA area. This professional knowledge has allowed EODT to generate the generic CTHA forms which will address the greatest majority of site-specific tasks and hazards. As a part of the site-specific addendums to the generic WP and SSHP, EODT will develop and submit for approval new CTHA forms for any site-specific tasks where the level/type of hazard is greater than that assumed for the generic CTHA forms. If site-specific CTHA forms are submitted, they will supercede the generic CTHA forms presented in this Attachment.



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CERTIFICATION OF TASK HAZARD ASSESSMENT

JEDA CTHA NO.: 001

DATE: 4/2/99

TASK NAME: Field Office, Storage Area and Support Zone Set-up and Close Out

1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.			
<input checked="" type="checkbox"/> Physical exertion <input checked="" type="checkbox"/> Heat Stress (June - September) <input checked="" type="checkbox"/> Cold Stress (October - May) <input checked="" type="checkbox"/> Heavy equipment operations <input checked="" type="checkbox"/> Vehicle traffic in work area(s) <input checked="" type="checkbox"/> Fire hazards (underline) - Gasoline/Diesel use - Explosives handling/storage - Explosive gases/vapors	<input checked="" type="checkbox"/> Lifting hazards <input checked="" type="checkbox"/> Slip, trip or fall <input checked="" type="checkbox"/> High noise (>85 dBA) <input type="checkbox"/> Overhead utilities <input type="checkbox"/> Underground utilities <input type="checkbox"/> Intrusive activity (underline) - Soil drilling - Soil excavation - Setting grounding rod	<input type="checkbox"/> Confined space <input checked="" type="checkbox"/> Hazardous plants (spring/summer) <input checked="" type="checkbox"/> Hazardous wildlife (spring/summer) <input checked="" type="checkbox"/> Ultraviolet radiation <input checked="" type="checkbox"/> Hand/Power Tool use <input type="checkbox"/> Airborne chemical exposure <input checked="" type="checkbox"/> Skin contact w/ hazardous materials <input type="checkbox"/> Ordnance and explosives <input checked="" type="checkbox"/> Cut/Puncture from sharp objects	
2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.			
Chemical Hazard: <input checked="" type="checkbox"/> Low <input type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown		Phys./Bio. Hazard: <input checked="" type="checkbox"/> Low <input type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown	
3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.			
<input checked="" type="checkbox"/> Tailgate Safety Briefing <input checked="" type="checkbox"/> Specialized Training <input checked="" type="checkbox"/> Safe Work Practices	<input checked="" type="checkbox"/> Personal protective equipment <input type="checkbox"/> Air Monitoring <input type="checkbox"/> Site Control Zones	<input type="checkbox"/> Decontamination <input type="checkbox"/> Magnetometer Survey	
<input checked="" type="checkbox"/> Engineering Controls: Tools with manufacturer supplied guards will be used with guards in place.			
<input checked="" type="checkbox"/> Applicable SOPs/Programs: Cold and Heat Stress, Hearing Conservation, the SSHP			
<input type="checkbox"/> Other:			
4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.			
Level of Protection	<input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> Modified
Respiratory Protection	<input type="checkbox"/> SCBA <input type="checkbox"/> Escape SCBA - Size	<input type="checkbox"/> Full face respirator <input type="checkbox"/> ½ Face respirator	<input type="checkbox"/> Cartridge - Type <input checked="" type="checkbox"/> No respirator required
Protective Clothing	<input type="checkbox"/> Fully encapsulating suit <input type="checkbox"/> Standard Tyvek	<input type="checkbox"/> Saranex <input type="checkbox"/> PE Tyvek	<input checked="" type="checkbox"/> Company clothing <input type="checkbox"/> Other:
Gloves (specify inner/outer)	<input type="checkbox"/> Nitrile <input type="checkbox"/> Butyl	<input type="checkbox"/> Neoprene <input type="checkbox"/> Latex	<input checked="" type="checkbox"/> Leather <input type="checkbox"/> Cotton
Head/Face/Eye/Ear Protection	<input checked="" type="checkbox"/> Safety glasses <input checked="" type="checkbox"/> Ear plugs/muffs	<input type="checkbox"/> Safety goggles <input type="checkbox"/> Face shield	<input checked="" type="checkbox"/> Hard hat <input type="checkbox"/> Other:
Foot/Leg Protection	<input checked="" type="checkbox"/> Work boots <input type="checkbox"/> Steel-toed leather boots	<input type="checkbox"/> Steel foot covers <input checked="" type="checkbox"/> Snake leggings	<input type="checkbox"/> Chemical over boots
5.0 Modifications Required: † - Safety glasses required if an eye hazard exists, to include UV hazard; ! - Ear plugs or muffs required for noise levels above 85 dBA, 8-hour TWA; * - Hard hats required if an overhead hazard exists or when working around heavy equipment; ‡ - Snake leggings required in areas where snakes may be present, as prescribed by the SSOH.			
6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.			
Printed Name: Drew Bryson, CIH, MPH		Signature:	



CERTIFICATION OF TASK HAZARD ASSESSMENT

SEDA CTHA NO.: 002

DATE: 4/2/99

TASK NAME: Location Surveying and Mapping

1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.			
<input checked="" type="checkbox"/> Physical exertion <input checked="" type="checkbox"/> Heat Stress (June - September) <input checked="" type="checkbox"/> Cold Stress (October - May) <input type="checkbox"/> Heavy equipment operations <input type="checkbox"/> Vehicle traffic in work area(s) <input checked="" type="checkbox"/> Fire hazards (underline) - Gasoline/Diesel use - Explosive materials - Explosive gases/vapors	<input checked="" type="checkbox"/> Lifting hazards <input checked="" type="checkbox"/> Slip, trip or fall <input type="checkbox"/> High noise (>85 dBA) <input type="checkbox"/> Overhead utilities <input type="checkbox"/> Underground utilities <input checked="" type="checkbox"/> Intrusive activity (underline) - Drilling - Soil excavation - <u>Setting monuments/stakes</u>	<input type="checkbox"/> Confined space <input checked="" type="checkbox"/> Hazardous plants (Spring/Summer) <input checked="" type="checkbox"/> Hazardous wildlife (Spring/Summer) <input checked="" type="checkbox"/> Ultraviolet radiation <input checked="" type="checkbox"/> Hand/Power Tool use <input type="checkbox"/> Airborne chemical exposure <input type="checkbox"/> Skin contact w/ hazardous materials <input checked="" type="checkbox"/> Ordnance and explosives <input checked="" type="checkbox"/> Cut/Puncture from sharp objects	
2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.			
Chemical Hazard: <input checked="" type="checkbox"/> Low <input type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown		Phys./Bio. Hazard: <input type="checkbox"/> Low <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Unknown	
3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.			
<input checked="" type="checkbox"/> Tailgate Safety Briefing <input checked="" type="checkbox"/> Specialized Training <input checked="" type="checkbox"/> Safe Work Practices	<input checked="" type="checkbox"/> Personal protective equipment <input type="checkbox"/> Air Monitoring <input type="checkbox"/> Site Control Zones	<input type="checkbox"/> Decontamination <input checked="" type="checkbox"/> Magnetometer monitoring prior to setting surveyor stakes	
<input type="checkbox"/> Engineering Controls: <input checked="" type="checkbox"/> Applicable SOPs/Programs: Heat and Cold Stress, the SSHP <input type="checkbox"/> Other:			
4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.			
Level of Protection	<input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> Modified
Respiratory Protection	<input type="checkbox"/> SCBA <input type="checkbox"/> Escape SCBA - Size	<input type="checkbox"/> Full face respirator <input type="checkbox"/> ½ Face respirator	<input type="checkbox"/> Cartridge - Type <input checked="" type="checkbox"/> No respirator required
Protective Clothing	<input type="checkbox"/> Fully encapsulating suit <input type="checkbox"/> Standard Tyvek	<input type="checkbox"/> Saranex <input type="checkbox"/> PE Tyvek	<input checked="" type="checkbox"/> Company clothing <input type="checkbox"/> Other:
Gloves (specify inner/outer)	<input type="checkbox"/> Nitrile <input type="checkbox"/> Butyl	<input type="checkbox"/> Neoprene <input type="checkbox"/> Latex	<input checked="" type="checkbox"/> Leather <input type="checkbox"/> Cotton
Head/Face/Eye/Ear Protection	<input checked="" type="checkbox"/> Safety glasses * <input type="checkbox"/> Ear plugs/muffs	<input type="checkbox"/> Safety goggles <input type="checkbox"/> Face shield	<input type="checkbox"/> Hard hat <input type="checkbox"/> Other:
Foot/Leg Protection	<input checked="" type="checkbox"/> Work boots <input type="checkbox"/> Steel-toed leather boots	<input type="checkbox"/> Steel foot covers <input checked="" type="checkbox"/> Snake leggings	<input type="checkbox"/> Chemical Over boots
5.0 Modifications Required: * - Tinted safety glasses required for UV protection in bright sunlight. ‡ - Snake leggings required in areas where snakes may be present, as prescribed by the SSHA.			
6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.			
Printed Name: Drew Bryson, CIH, MPH		Signature:	



CERTIFICATION OF TASK HAZARD ASSESSMENT

SEDA CTHA NO.: 003

DATE: 4/2/99

TASK NAME: Visual Surface Sweep and Debris Removal

1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.			
<input checked="" type="checkbox"/> Physical exertion <input checked="" type="checkbox"/> Heat Stress (June - September) <input checked="" type="checkbox"/> Cold Stress (October - May) <input type="checkbox"/> Heavy equipment operations <input type="checkbox"/> Vehicle traffic in work area(s) <input type="checkbox"/> Fire hazards (underline) - Gasoline/Diesel use - Explosive materials - Explosive gases/vapors	<input type="checkbox"/> Lifting hazards <input checked="" type="checkbox"/> Slip, trip or fall <input type="checkbox"/> High noise (>85 dBA) <input type="checkbox"/> Overhead utilities <input type="checkbox"/> Underground utilities <input type="checkbox"/> Intrusive activity (underline) - Drilling - Soil excavation - Setting monuments/stakes	<input type="checkbox"/> Confined space <input checked="" type="checkbox"/> Hazardous plants (Spring/Summer) <input checked="" type="checkbox"/> Hazardous wildlife (Spring/Summer) <input checked="" type="checkbox"/> Ultraviolet radiation <input checked="" type="checkbox"/> Hand/Power Tool use <input type="checkbox"/> Airborne chemical exposure <input type="checkbox"/> Skin contact w/ hazardous materials <input checked="" type="checkbox"/> Ordnance and explosives <input checked="" type="checkbox"/> Cut/Puncture from sharp objects	
2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.			
Chemical Hazard: <input checked="" type="checkbox"/> Low <input type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown		Phys./Bio. Hazard: <input type="checkbox"/> Low <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Unknown	
3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.			
<input checked="" type="checkbox"/> Tailgate Safety Briefing <input checked="" type="checkbox"/> Specialized Training <input checked="" type="checkbox"/> Safe Work Practices	<input checked="" type="checkbox"/> Personal protective equipment <input type="checkbox"/> Air Monitoring <input checked="" type="checkbox"/> Site Control Zones	<input type="checkbox"/> Decontamination <input type="checkbox"/> Magnetometer	
<input type="checkbox"/> Engineering Controls: <input checked="" type="checkbox"/> Applicable SOPs/Programs: Heat and Cold Stress, the SSHP <input type="checkbox"/> Other:			
4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.			
Level of Protection	<input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> Modified
Respiratory Protection	<input type="checkbox"/> SCBA <input type="checkbox"/> Escape SCBA - Size	<input type="checkbox"/> Full face respirator <input type="checkbox"/> ½ Face respirator	<input type="checkbox"/> Cartridge - Type <input checked="" type="checkbox"/> No respirator required
Protective Clothing	<input type="checkbox"/> Fully encapsulating suit <input type="checkbox"/> Standard Tyvek	<input type="checkbox"/> Saranex <input type="checkbox"/> PE Tyvek	<input checked="" type="checkbox"/> Company clothing <input type="checkbox"/> Other:
Gloves (specify inner/outer)	<input type="checkbox"/> Nitrile <input type="checkbox"/> Butyl	<input type="checkbox"/> Neoprene <input type="checkbox"/> Latex	<input checked="" type="checkbox"/> Leather <input type="checkbox"/> Cotton
Head/Face/Eye/Ear Protection	<input checked="" type="checkbox"/> Safety glasses * <input type="checkbox"/> Ear plugs/muffs	<input type="checkbox"/> Safety goggles <input type="checkbox"/> Face shield	<input type="checkbox"/> Hard hat <input type="checkbox"/> Other:
Foot/Leg Protection	<input checked="" type="checkbox"/> Work boots <input type="checkbox"/> Steel-toed leather boots	<input type="checkbox"/> Steel foot covers <input type="checkbox"/> Kevlar leg chaps	<input type="checkbox"/> Chemical Over boots
5.0 Modifications Required: * - Tinted safety glasses required for UV protection in bright sunlight.			
6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.			
Printed Name: Drew Bryson, CIH, MPH		Signature:	



CERTIFICATION OF TASK HAZARD ASSESSMENT

JEDA CTHA NO.: 004

DATE: 4/2/99

TASK NAME: Vegetation Grubbing and Clearing

1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.

(x) Physical exertion	(x) Lifting hazards	() Confined space
(x) Heat Stress (June - September)	(x) Slip, trip or fall	(x) Hazardous plants (Spring/Summer)
(x) Cold Stress (October - May)	(x) High noise (>85 dBA)	(x) Hazardous wildlife (Spring/Summer)
() Heavy equipment operations	() Overhead utilities	(x) Ultraviolet radiation
() Vehicle traffic in work area(s)	() Underground utilities	(x) Hand/Power Tool use
(x) Fire hazards (underline)	() Intrusive activity (underline)	() Airborne chemical exposure
- Gasoline/Diesel use	- Drilling	(x) Skin contact w/ hazardous materials
- Explosive materials	- Soil excavation	(x) Ordnance and explosives
- Explosive gases/vapors	- Setting monuments/stakes	(x) Cut/Puncture from sharp objects

2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.

Chemical Hazard: (x) Low () Serious	Phys./Bio. Hazard: () Low () Serious
() Moderate () Unknown	(x) Moderate () Unknown

3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.

(x) Tailgate Safety Briefing	(x) Personal protective equipment	(x) Decontamination - Boot wash.
(x) Specialized Training	() Air Monitoring	() Magnetometer Survey
(x) Safe Work Practices	(x) Site Control Zones	(x) Visual Survey for UXO/OE

(x) Engineering Controls: Manufacturer supplied equipment guards will be used. Weed cutter shoulder harness will be properly adjusted and used which eliminates the potential for the blade to kick back and strike the operator's feet or legs.

(x) Applicable SOPs/Programs: Heat and Cold Stress (as applicable), Biological Hazards (spring/summer) Hearing Conservation

(x) Other: Safety observer will be stationed to watch vegetation removal personnel during operation of equipment. Personnel will remain at least 25 feet from other personnel, and will visually inspect areas in front of blade to avoid any metal objects.

4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.

Level of Protection	() A () B	() C (x) D	(x) Modified
Respiratory Protection	() SCBA () Escape SCBA - Size	() Full face respirator () ½ Face respirator	() Cartridge - Type (x) No respirator required
Protective Clothing	() Fully encapsulating suit () Standard Tyvek	() Saranex () PE Tyvek	(x) Company clothing () Other:
Gloves (specify inner/outer)	(x) Nitrile - during refueling () Butyl	() Neoprene () Latex	(x) Leather () Cotton
Head/Face/Eye/Ear Protection	(x) Safety glasses (x) Ear plugs and ear muffs	() Safety goggles (x) Wire or nylon face shield	(x) Hard hat () Other:
Foot/Leg Protection	(x) Work boots () Steel-toed leather boots	() Steel foot covers (i) Kevlar Chaps	(‡) Snake leggings

5.0 Modifications Required: i - Chaps required for chain saw use. ‡ - Snake leggings required in areas where snakes may be present, as prescribed by the SSHO, unless chaps are being worn.

5.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.

Printed Name: Drew Bryson, CIH, MPH

Signature:



CERTIFICATION OF TASK HAZARD ASSESSMENT

SEDA CTHA NO.: 005

DATE: 4/2/99

TASK NAME: Geophysical or Magnetometer Surveying

1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.			
<input checked="" type="checkbox"/> Physical exertion <input checked="" type="checkbox"/> Heat Stress (June - September) <input checked="" type="checkbox"/> Cold Stress (October - May) <input type="checkbox"/> Heavy equipment operations <input type="checkbox"/> Vehicle traffic in work area(s) <input checked="" type="checkbox"/> Fire hazards (underline) - Gasoline/Diesel use - Explosive materials - Explosive gases/vapors	<input checked="" type="checkbox"/> Lifting hazards <input checked="" type="checkbox"/> Slip, trip or fall <input type="checkbox"/> High noise (>85 dBA) <input type="checkbox"/> Overhead utilities <input type="checkbox"/> Underground utilities <input type="checkbox"/> Intrusive activity (underline) - Drilling - Soil excavation - Setting monuments/stakes	<input type="checkbox"/> Confined space <input checked="" type="checkbox"/> Hazardous plants (Spring/Summer) <input checked="" type="checkbox"/> Hazardous wildlife (Spring/Summer) <input checked="" type="checkbox"/> Ultraviolet radiation <input type="checkbox"/> Hand/Power Tool use <input type="checkbox"/> Airborne chemical exposure <input type="checkbox"/> Skin contact w/ hazardous materials <input checked="" type="checkbox"/> Ordnance and explosives <input checked="" type="checkbox"/> Cut/Puncture from sharp objects	
2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.			
Chemical Hazard: <input checked="" type="checkbox"/> Low <input type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown		Phys./Bio. Hazard: <input checked="" type="checkbox"/> Low <input type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown	
3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.			
<input checked="" type="checkbox"/> Tailgate Safety Briefing <input checked="" type="checkbox"/> Specialized Training <input checked="" type="checkbox"/> Safe Work Practices	<input checked="" type="checkbox"/> Personal protective equipment <input type="checkbox"/> Air Monitoring <input checked="" type="checkbox"/> Site Control Zones	<input type="checkbox"/> Decontamination <input type="checkbox"/> Magnetometer Survey	
<input type="checkbox"/> Engineering Controls: <input checked="" type="checkbox"/> Applicable SOPs/Programs: Heat or Cold Stress (as applicable), Hearing Conservation, the SSHP <input type="checkbox"/> Other:			
4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.			
Level of Protection	<input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> Modified
Respiratory Protection	<input type="checkbox"/> SCBA <input type="checkbox"/> Escape SCBA - Size	<input type="checkbox"/> Full face respirator <input type="checkbox"/> ½ Face respirator	<input type="checkbox"/> Cartridge - Type <input checked="" type="checkbox"/> No respirator required
Protective Clothing	<input type="checkbox"/> Fully encapsulating suit <input type="checkbox"/> Standard Tyvek	<input type="checkbox"/> Saranex <input type="checkbox"/> PE Tyvek	<input checked="" type="checkbox"/> Company clothing <input type="checkbox"/> Other:
Gloves (specify inner/outer)	<input checked="" type="checkbox"/> Nitrile - During refueling <input type="checkbox"/> Butyl	<input type="checkbox"/> Neoprene <input type="checkbox"/> Latex	<input checked="" type="checkbox"/> Leather <input type="checkbox"/> Cotton
Head/Face/Eye/Ear Protection	<input checked="" type="checkbox"/> Safety glasses <input type="checkbox"/> Ear plugs and ear muffs	<input type="checkbox"/> Safety goggles <input type="checkbox"/> Wire or Nylon Face shield	<input type="checkbox"/> Hard hat <input type="checkbox"/> Other:
Foot/Leg Protection	<input checked="" type="checkbox"/> Work boots <input type="checkbox"/> Steel-toed leather boots	<input type="checkbox"/> Steel Toe covers <input type="checkbox"/> Kevlar leg chaps	<input checked="" type="checkbox"/> Snake Leggings
5.0 Modifications Required: ‡ - Snake leggings required in areas where snakes may be present, as prescribed by the SSHA.			
6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.			
Printed Name: Drew Bryson, CIH, MPH		Signature:	



CERTIFICATION OF TASK HAZARD ASSESSMENT

SEDA CTHA NO.: 006

DATE: 4/2/99

TASK NAME: Subsurface Anomaly Investigation or Sampling

1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.			
<input checked="" type="checkbox"/> Physical exertion <input checked="" type="checkbox"/> Heat Stress (June - September) <input checked="" type="checkbox"/> Cold Stress (October - May) <input checked="" type="checkbox"/> Heavy equipment operations <input type="checkbox"/> Vehicle traffic in work area(s) <input checked="" type="checkbox"/> Fire hazards (underline) - Gasoline/Diesel use - Explosive materials - Explosive gases/vapors	<input checked="" type="checkbox"/> Lifting hazards <input checked="" type="checkbox"/> Slip, trip or fall <input checked="" type="checkbox"/> High noise (with EMM use) <input type="checkbox"/> Overhead utilities <input type="checkbox"/> Underground utilities <input checked="" type="checkbox"/> Intrusive activity (underline) - Drilling - Soil excavation - Setting monuments/stakes	<input type="checkbox"/> Confined space <input checked="" type="checkbox"/> Hazardous plants (Spring/Summer) <input checked="" type="checkbox"/> Hazardous wildlife (Spring/Summer) <input checked="" type="checkbox"/> Ultraviolet radiation <input checked="" type="checkbox"/> Hand/Power Tool use <input type="checkbox"/> Airborne chemical exposure <input type="checkbox"/> Skin contact w/ hazardous materials <input checked="" type="checkbox"/> Ordnance and explosives <input checked="" type="checkbox"/> Cut/Puncture from sharp objects	
2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.			
Chemical Hazard: <input checked="" type="checkbox"/> Low <input type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown		Phys./Bio. Hazard: <input type="checkbox"/> Low <input type="checkbox"/> Serious <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Unknown	
3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.			
<input checked="" type="checkbox"/> Tailgate Safety Briefing <input checked="" type="checkbox"/> Specialized Training <input checked="" type="checkbox"/> Safe Work Practices	<input checked="" type="checkbox"/> Personal protective equipment <input type="checkbox"/> Air Monitoring <input checked="" type="checkbox"/> Site Control Zones	<input type="checkbox"/> Decontamination <input type="checkbox"/> Magnetometer	
<input type="checkbox"/> Engineering Controls:			
<input checked="" type="checkbox"/> Applicable SOPs/Programs: Heat or Cold Stress, Heavy Equipment Operations, Hand Tools, the SSHP			
<input checked="" type="checkbox"/> Other: Refer to SEDA CTHA No. 008 for EMM operation			
4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.			
Level of Protection	<input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> Modified
Respiratory Protection	<input type="checkbox"/> SCBA <input type="checkbox"/> Escape SCBA - Size	<input type="checkbox"/> Full face respirator <input type="checkbox"/> ½ Face respirator	<input type="checkbox"/> Cartridge - Type <input checked="" type="checkbox"/> No respirator required
Protective Clothing	<input type="checkbox"/> Fully encapsulating suit <input type="checkbox"/> Standard Tyvek	<input type="checkbox"/> Saranex <input type="checkbox"/> PE Tyvek	<input checked="" type="checkbox"/> Company clothing <input type="checkbox"/> Other:
Gloves (specify inner/outer)	<input type="checkbox"/> Nitrile <input type="checkbox"/> Butyl	<input type="checkbox"/> Neoprene <input type="checkbox"/> Latex	<input checked="" type="checkbox"/> Leather <input type="checkbox"/> Cotton
Head/Face/Eye/Ear Protection	<input checked="" type="checkbox"/> Safety glasses <input type="checkbox"/> Ear plugs/muffs	<input type="checkbox"/> Safety goggles <input type="checkbox"/> Face shield	<input checked="" type="checkbox"/> Hard hat <input type="checkbox"/> Other:
Foot/Leg Protection	<input checked="" type="checkbox"/> Work boots <input type="checkbox"/> Steel-toed leather boots	<input type="checkbox"/> Steel foot covers <input type="checkbox"/> Kevlar leg chaps	<input checked="" type="checkbox"/> Snake leggings
5.0 Modifications Required: † - Tinted safety glasses required for UV protection in bright sunlight. ! - Hard hat required for working around EMM. ‡ - Snake leggings required in areas where snakes may be present, as prescribed by the SSHA.			
6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.			
Printed Name: Drew Bryson, CIH, MPH		Signature:	



CERTIFICATION OF TASK HAZARD ASSESSMENT

JEDA CTHA NO.: 007

DATE: 4/2/99

TASK NAME: Demolition Operations


1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.			
<input checked="" type="checkbox"/> Physical exertion <input checked="" type="checkbox"/> Heat Stress (June - September) <input checked="" type="checkbox"/> Cold Stress (October - May) <input checked="" type="checkbox"/> Heavy equipment operations <input type="checkbox"/> Vehicle traffic in work area(s) <input checked="" type="checkbox"/> Fire hazards (underline) - Gasoline/Diesel use - <u>Demolition materials</u> - Explosive gases/vapors	<input checked="" type="checkbox"/> Lifting hazards <input checked="" type="checkbox"/> Slip, trip or fall <input checked="" type="checkbox"/> High noise (>85 dBA) <input type="checkbox"/> Overhead utilities <input type="checkbox"/> Underground utilities <input checked="" type="checkbox"/> Intrusive activity (underline) - Drilling - <u>Soil Tamping</u> - Setting monuments/stakes	<input type="checkbox"/> Confined space <input checked="" type="checkbox"/> Hazardous plants (Spring/Summer) <input checked="" type="checkbox"/> Hazardous wildlife (Spring/Summer) <input checked="" type="checkbox"/> Ultraviolet radiation <input checked="" type="checkbox"/> Hand/Power Tool use <input type="checkbox"/> Airborne chemical exposure <input type="checkbox"/> Skin contact w/ hazardous materials <input checked="" type="checkbox"/> Ordnance and explosives <input checked="" type="checkbox"/> Cut/Puncture from sharp objects	
2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.			
Chemical Hazard: <input checked="" type="checkbox"/> Low <input type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown		Phys./Bio. Hazard: <input type="checkbox"/> Low <input checked="" type="checkbox"/> Serious <input type="checkbox"/> Moderate <input type="checkbox"/> Unknown	
3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.			
<input checked="" type="checkbox"/> Tailgate Safety Briefing <input checked="" type="checkbox"/> Specialized Training <input checked="" type="checkbox"/> Safe Work Practices	<input checked="" type="checkbox"/> Personal protective equipment <input type="checkbox"/> Air Monitoring <input checked="" type="checkbox"/> Site Control Zones	<input type="checkbox"/> Decontamination <input checked="" type="checkbox"/> Post demolition check of area	
<input checked="" type="checkbox"/> Engineering Controls: Soil tamping and other controls shall be used to ensure personnel exposure to impulse noise from the demolition shot(s) is less than 140 dBA.			
<input checked="" type="checkbox"/> Applicable SOPs/Programs: Heat and Cold Stress, Hearing Conservation, Demolition Operations, the SSHP			
<input checked="" type="checkbox"/> Other: Personnel will stay clear of EMM when soil tamping is put in place.			
4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.			
Level of Protection	<input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> Modified
Respiratory Protection	<input type="checkbox"/> SCBA <input type="checkbox"/> Escape SCBA - Size	<input type="checkbox"/> Full face respirator <input type="checkbox"/> ½ Face respirator	<input type="checkbox"/> Cartridge - Type <input checked="" type="checkbox"/> No respirator required
Protective Clothing	<input type="checkbox"/> Fully encapsulating suit <input type="checkbox"/> Standard Tyvek	<input type="checkbox"/> Saranex <input type="checkbox"/> PE Tyvek	<input checked="" type="checkbox"/> Company clothing <input type="checkbox"/> Other:
Gloves (specify inner/outer)	<input type="checkbox"/> Nitrile <input type="checkbox"/> Butyl	<input type="checkbox"/> Neoprene <input type="checkbox"/> Latex	<input checked="" type="checkbox"/> Leather <input type="checkbox"/> Cotton
Head/Face/Eye/Ear Protection	<input checked="" type="checkbox"/> Safety glasses <input type="checkbox"/> Ear plugs/muffs	<input type="checkbox"/> Safety goggles <input type="checkbox"/> Face shield	<input checked="" type="checkbox"/> Hard hat <input type="checkbox"/> Other:
Foot/Leg Protection	<input checked="" type="checkbox"/> Work boots <input type="checkbox"/> Steel-toed leather boots	<input type="checkbox"/> Steel foot covers <input checked="" type="checkbox"/> Snake Leggings	<input type="checkbox"/> Chemical over boots
5.0 Modifications Required: † - Safety glasses required if an eye hazard exists; * - Hard hats required if an overhead hazard exists or when working around EMM. Safety glasses and hard hat, if worn will be secured to prevent them from falling off the face/head. ‡ - Snake leggings required in areas where snakes may be present, as prescribed by the SSHO.			
6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.			
Printed Name: Drew Bryson, CIH, MPH		Signature:	

CERTIFICATION OF TASK HAZARD ASSESSMENT

EDA CTHA NO.: 008

DATE: 4/2/99

TASK NAME: Earth Moving Machinery (EMM) Operation


1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.			
<input checked="" type="checkbox"/> Physical exertion	<input type="checkbox"/> Lifting hazards	<input type="checkbox"/> Confined space	
<input checked="" type="checkbox"/> Heat Stress (June - September)	<input checked="" type="checkbox"/> Slip, trip or fall	<input checked="" type="checkbox"/> Hazardous plants (Spring/Summer)	
<input checked="" type="checkbox"/> Cold Stress (October - May)	<input checked="" type="checkbox"/> High noise (>85 dBA)	<input checked="" type="checkbox"/> Hazardous wildlife (Spring/Summer)	
<input checked="" type="checkbox"/> Heavy equipment operations	<input type="checkbox"/> Overhead utilities	<input checked="" type="checkbox"/> Ultraviolet radiation	
<input type="checkbox"/> Vehicle traffic in work area(s)	<input type="checkbox"/> Underground utilities	<input checked="" type="checkbox"/> Hand/Power Tool use	
<input checked="" type="checkbox"/> Fire hazards (underline)	<input checked="" type="checkbox"/> Intrusive activity (underline)	<input checked="" type="checkbox"/> Airborne chemical exposure	
- Gasoline/Diesel use	- Drilling	<input type="checkbox"/> Skin contact w/ hazardous materials	
- Explosive materials	- Soil excavation	<input checked="" type="checkbox"/> Ordnance and explosives	
- Explosive gases/vapors	- Setting monuments/stakes	<input type="checkbox"/> Cut/Puncture from sharp objects	
2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.			
Chemical Hazard:	<input checked="" type="checkbox"/> Low	<input type="checkbox"/> Serious	Phys./Bio. Hazard:
	<input type="checkbox"/> Moderate	<input type="checkbox"/> Unknown	<input checked="" type="checkbox"/> Low
			<input type="checkbox"/> Serious
			<input type="checkbox"/> Moderate
			<input type="checkbox"/> Unknown
3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.			
<input checked="" type="checkbox"/> Tailgate Safety Briefing	<input checked="" type="checkbox"/> Personal protective equipment	<input checked="" type="checkbox"/> Decontamination	
<input checked="" type="checkbox"/> Specialized Training	<input checked="" type="checkbox"/> Air Monitoring	<input checked="" type="checkbox"/> Magnetometer Survey	
<input checked="" type="checkbox"/> Safe Work Practices	<input checked="" type="checkbox"/> Site Control Zones	<input checked="" type="checkbox"/> Visual UXO/OE Survey	
<input type="checkbox"/> Engineering Controls:			
<input checked="" type="checkbox"/> Applicable SOPs/Programs: Heat and Cold Stress, EMM Operation, Hearing Conservation, the SSHP			
<input checked="" type="checkbox"/> Other: Safety observer will be stationed to watch operator and identify any potential hazards. Personnel will be trained in the proper use of the EMM, to include general maintenance and safety precautions. Magnetometer survey will be conducted prior to the removal of each 12 inch lift.			
4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.			
Level of Protection	<input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/> C <input checked="" type="checkbox"/> D	<input type="checkbox"/> Modified
Respiratory Protection	<input type="checkbox"/> SCBA <input type="checkbox"/> Escape SCBA - Size	<input type="checkbox"/> Full face respirator <input type="checkbox"/> ½ Face respirator	<input type="checkbox"/> Cartridge - HEPA <input type="checkbox"/> No respirator required
Protective Clothing	<input type="checkbox"/> Fully encapsulating suit <input checked="" type="checkbox"/> Standard Tyvek	<input type="checkbox"/> Saranex <input type="checkbox"/> PE Tyvek	<input checked="" type="checkbox"/> Company clothing <input type="checkbox"/> Other:
Gloves (specify inner/outer)	<input checked="" type="checkbox"/> Nitrile - During refueling <input type="checkbox"/> Natural rubber (outer)	<input type="checkbox"/> Neoprene <input type="checkbox"/> Latex (inner)	<input checked="" type="checkbox"/> Leather - as needed <input type="checkbox"/> Cotton
Head/Face/Eye/Ear Protection	<input type="checkbox"/> Safety glasses <input checked="" type="checkbox"/> Ear plugs or ear muffs	<input type="checkbox"/> Safety goggles <input type="checkbox"/> Wire or Nylon Face shield	<input checked="" type="checkbox"/> Hard hat <input type="checkbox"/> Other:
Foot/Leg Protection	<input checked="" type="checkbox"/> Work boots <input type="checkbox"/> Steel-toed leather boots	<input type="checkbox"/> Steel Toe covers <input checked="" type="checkbox"/> Snake leggings	<input type="checkbox"/> Chemical Over boots
5.0 Modifications Required: ‡ - Snake leggings required in areas where snakes may be present, as prescribed by the SSHO. ! - Ear plugs or muffs are required for operations with >85 dBA 8-hour TWA.			
6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.			
Printed Name: Drew Bryson, CIH, MPH		Signature: 	

CERTIFICATION OF TASK HAZARD ASSESSMENT

EDA CTHA NO.: 009

DATE: 4/2/99

TASK NAME: Maintenance, Fueling and Servicing Machinery/Equipment

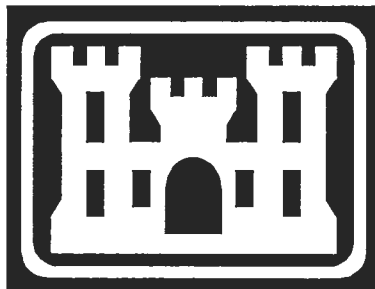
1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.			
(x) Physical exertion	(x) Lifting hazards	() Confined space	
(x) Heat Stress (June - September)	(x) Slip, trip or fall	() Hazardous plants (Spring/Summer)	
(x) Cold Stress (October - May)	() High noise (>85 dBA)	() Hazardous wildlife (Spring/Summer)	
() Heavy equipment operations	() Overhead utilities	(x) Ultraviolet radiation	
() Vehicle traffic in work area(s)	() Underground utilities	(x) Hand/Power Tool use	
(x) Fire hazards (underline)	() Intrusive activity (underline)	() Airborne chemical exposure	
- Gasoline/Diesel use	- Digging with EMM	(x) Skin contact w/ hazardous materials	
- Explosive materials	- Hand digging soil	() Ordnance and explosives	
- Explosive gases/vapors	- Setting monuments/stakes	(x) Cut/Puncture from sharp objects	
2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.			
Chemical Hazard:	(x) Low	() Serious	Phys./Bio. Hazard:
	() Moderate	() Unknown	() Low
			() Serious
			(x) Moderate
			() Unknown
3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.			
(x) Tailgate Safety Briefing	(x) Personal protective equipment	() Decontamination	
(x) Specialized Training	() Air Monitoring	() Magnetometer Survey	
(x) Safe Work Practices	(x) Site Control Zones		
() Engineering Controls:			
(x) Applicable SOPs/Programs: Heat or Cold Stress (as applicable), Hearing Conservation, the SSHP			
() Other:			
4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.			
Level of Protection	() A	() C	() Modified
	() B	(x) D	
Respiratory Protection	() SCBA	() Full face respirator	() Cartridge - Type
	() Escape SCBA - Size	() ½ Face respirator	(x) No respirator required
Protective Clothing	() Fully encapsulating suit	() Saranex	(x) Company clothing
	() Standard Tyvek	() PE Tyvek	() Other:
Gloves (specify inner/outer)	() Nitrile	() Neoprene	(x) Leather
	() Natural Rubber (outer)	() Latex (inner)	() Cotton
Head/Face/Eye/Ear Protection	() Safety glasses	() Safety goggles	() Hard hat
	() Ear plugs/muffs	() Face shield	() Other:
Foot/Leg Protection	(x) Work boots	() Steel foot covers	() Chemical over boots
	() Steel-toed leather boots	(‡) Snake Leggings	
5.0 Modifications Required: ‡ - Snake leggings required in areas where snakes may be present, as prescribed by the SSHO.			
6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.			
Printed Name: Drew Bryson, CIH, MPH		Signature: 	

APPENDIX B
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

STATEMENT OF WORK

Contract Number: DACA87-97-D-0005
Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenior City, Tennessee 37932

March 1999



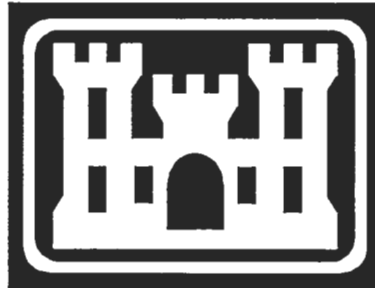
This appendix will contain the site-specific SOW in the site-specific WP addendum for contract number DACA87-97-D-0005, Task Order 0003, Modification ?

APPENDIX C
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

SITE MAPS

Contract Number: DACA87-97-D-0005
Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenoir City, Tennessee 37932

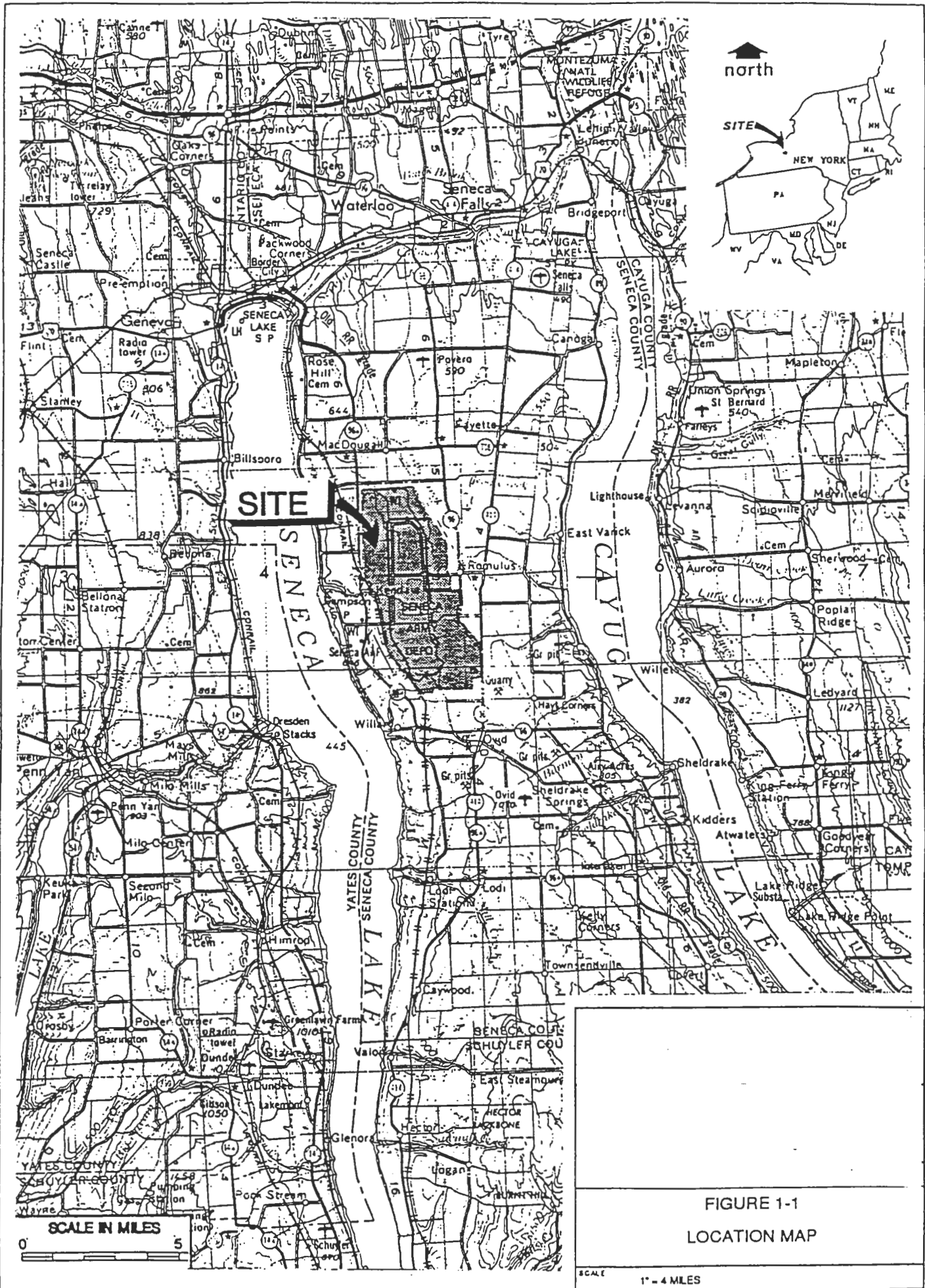
March 1999



TABLE OF CONTENTS

Map Number	Project Map Name
1	Project Location Map
2	Seneca Army Depot Map

Note: EODT will submit Site-specific maps in this Appendix upon generation of the site-specific WP addendum.



north

SITE



SITE

FIGURE 1-1
LOCATION MAP

SCALE IN MILES



SCALE 1" = 4 MILES

REEDER
CREEK

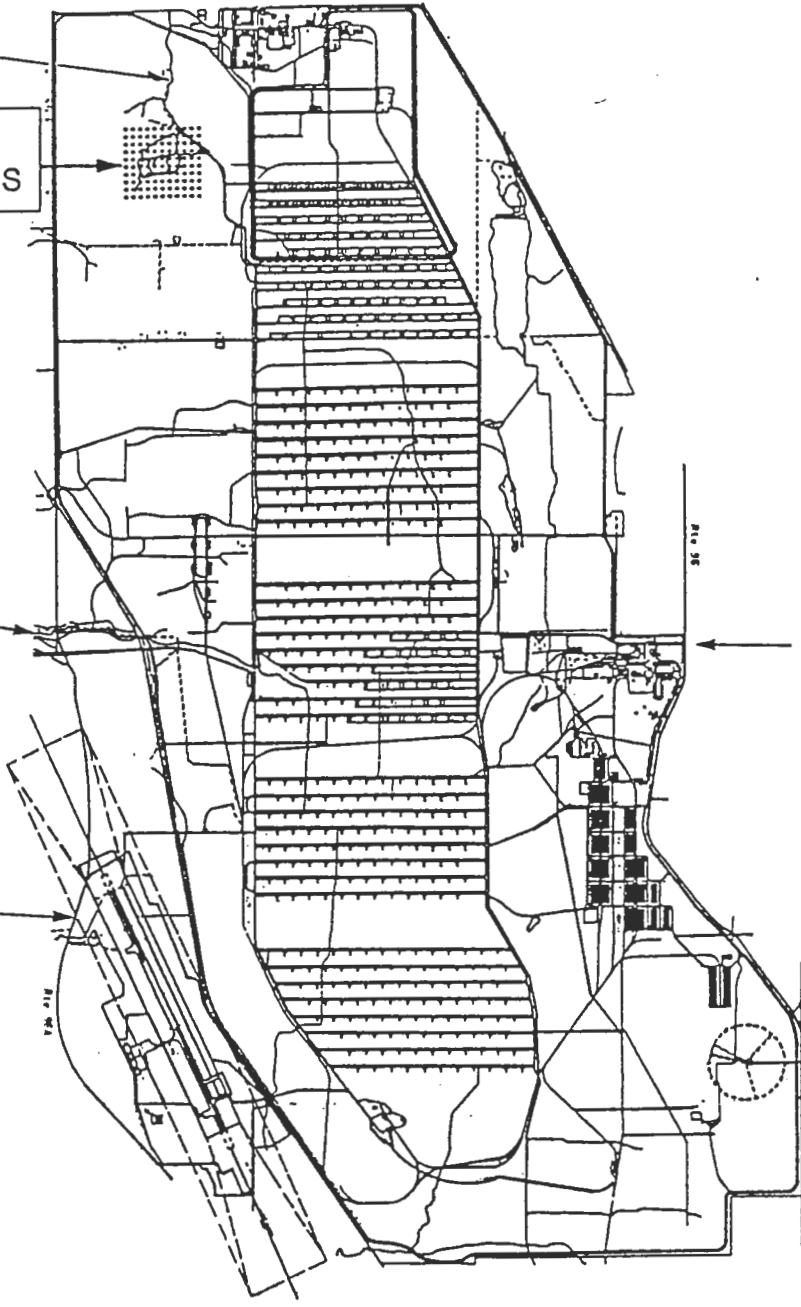
OB/OD
GROUNDS

KENDAIA
CREEK

SEAD
AIRFIELD



POST #1
MAIN GATE



SOURCE: Seneca Army Depot

FIGURE 1-2
SENECA ARMY DEPOT MAP

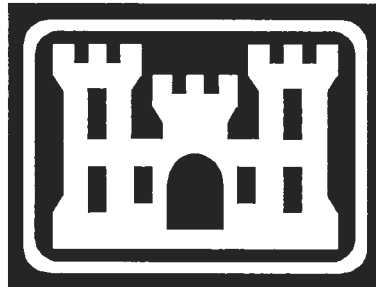
SCALE
1" = 5000' (APPROXIMATE)

APPENDIX D
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

POINTS OF CONTACT

Contract Number: DACA87-97-D-0005
Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenior City, Tennessee 37932

March 1999



POINTS OF CONTACT

1. EMERGENCY SERVICES---911

Hospital (non-trauma): Geneva General Hospital	(315) 798-4222
Hospital (trauma): Syracuse University Hospital	Contact to be made by ambulance
Police: Seda Police/Security	(607) 869-0448
Local EOD: 725th Ordnance Company (EOD)	(315) 772-5408
Fire: Seda Fire Department	(607) 869-1316
Air Ambulance: Mercy Flight	911
Surface Ambulance: South Seneca Ambulance	911

2. MISCELLANEOUS

3. KEY PERSONNEL

A. CEHNC Personnel

Fred Wissel, Project Manager	(256) 895-1443
Sharon Butler, Contracting Officer	(256) 895-1136
TBD , Safety Officer	TBD
Kevin Healy, Lead Engineer	(256) 895-1627

B. SEDA and New York Corps Personnel

Steve Absolom, BRAC Environmental Coordinator	(607) 869-1309
Randall Battaglio, NY Corps of Engineers Project Manager	(607) 869-1523

C. EODT Personnel

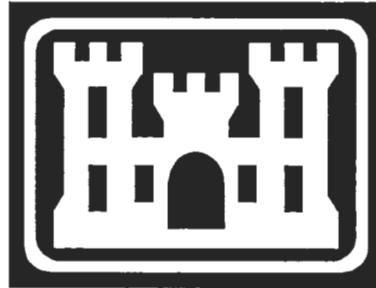
Jeffrey Bleke, Program Manager	(352) 332-8398
Doug Murray, Project Manager	(423) 988-6063
Andrew Bryson, CIH, Program Safety/Training	(423) 988-6063
Michael Short, QA/QC Manager	(423) 988-6063
Salvatore Molle, Senior UXO Supervisor/Site Manager	(423) 988-6063

APPENDIX E
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

SAMPLE FORMS

Contract Number: DACA87-97-D-0005
Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenior City, Tennessee 37932

March 1999



TABLE OF SAMPLE FORMS

USACE Accident Investigation Report (ENG FORM 3394)
OSHA Log and Summary of Occupational Injuries and Illnesses (OSHA No. 200)
EODT Accident/Illness/Near Miss Report
EODT SSHP Review Form
EODT Safety Training Attendance Log
EODT Three-Day On-site Training Log
EODT Safety Inspection and Audit Log
EODT Vehicle Inspection Checklist
EODT Hazard Communication Training
EODT Site Monitoring Log
EODT Heat Stress Monitoring Log
EODT Site Specific Chemical Inventory Form
EODT Site Visitors Log
EODT Site Compliance Checklist
EODT Certification of Task Hazard Assessment
EODT Personal Clothing/Equipment Issue Log
EODT Personal Protective Equipment Training Log
EODT OE Operations Daily/Weekly Report
EODT Personal Data Sheet
EODT Grid Tracking Log
EODT Grid Survey Summary Log for OE Operations
EODT Quality Control Inspection and Audit Log
EODT OE Operations Grid Map
EODT Quality Control Grid Map
EODT Demolition Shot Record
EODT Equipment Data and Price Quote Sheet
EODT Outgoing Correspondence Log
EODT Incoming Correspondence Log
EODT Telephone Correspondence Record
EODT Government Property Tracking Log
EODT Document Control Register
EODT Key Control Log
EODT Ordnance Accountability Log
EODT Explosives Purchase/Receipt Authorization List
EODT Equipment and Supply Hand Receipt Tracking Form

We estimate that it will take from 4 minutes to 30 minutes to complete a line entry on this form, including time for reviewing instructions; searching, gathering and maintaining the data needed; and completing and reviewing the entry. If you have any comments regarding this estimate or any other aspect of this recordkeeping system, send them to the Bureau of Labor Statistics, Division of Management Systems (1220-0029), Washington, D.C. 20212 and to the Office of Management and Budget, Paperwork Reduction Project (1220-0029), Washington, D.C. 20503.

Instructions for OSHA No. 200

Log and Summary of Occupational Injuries and Illnesses

Each employer who is subject to the recordkeeping requirements of the Occupational Safety and Health Act of 1970 must maintain for each establishment a log of all recordable occupational injuries and illnesses. This form (OSHA No. 200) may be used for that purpose. A substitute for the OSHA No. 200 is acceptable if it is as detailed, easily readable, and understandable as the OSHA No. 200.

Enter each recordable case on the log within six (6) workdays after learning of its occurrence. Although other records must be maintained at the establishment to which they refer, it is possible to prepare and maintain the log at another location, using data processing equipment if desired. If the log is prepared elsewhere, a copy updated to within 45 calendar days must be present at all times in the establishment.

Logs must be maintained and retained for five (5) years following the end of the calendar year to which they relate. Logs must be available (normally at the establishment) for inspection and copying by representatives of the Department of Labor, or the Department of Health and Human Services, or States accorded jurisdiction under the Act. Access to the log is also provided to employees, former employees and their representatives.

I. Changes in Extent of or Outcome of Injury or Illness

If, during the 5-year period the log must be retained, there is a change in an extent and outcome of an injury or illness which affects entries in columns 1, 2, 6, 8, 9, or 13, the first entry should be lined out and a new entry made. For example, if an injured employee at first required only medical treatment but later lost workdays away from work, the check in column 6 should be lined out, and checks entered in columns 2 and 3 and the number of lost workdays entered in column 4.

In another example, if an employee with an occupational illness lost workdays, returned to work, and then died of the illness, any entries in columns 5 through 12 should be lined out and the date of death entered in column 8.

The entire entry for an injury or illness should be lined out if later found to be nonrecordable. For example: an injury which is later determined not to be work related, or which was initially thought to involve medical treatment but later was determined to have involved only first aid.

II. Posting Requirements

A copy of the totals and information following the fold line of the last page for the year must be posted at each establishment in the place or places where notices to employees are customarily posted. This copy must be posted no later than February 1 and must remain in place until March 1.

Even though there were no injuries or illnesses during the year, zeros must be entered on the totals line, and the form posted.

The person responsible for the annual summary totals shall certify that the totals are true and complete by signing at the bottom of the form.

V. Instructions for Completing Log and Summary of Occupational Injuries and Illnesses

Column A - CASE OR FILE NUMBER. Self-explanatory.

Column 8 - DATE OF INJURY OR ONSET OF ILLNESS.

For occupational injuries, enter the date of the work accident which resulted in injury. For occupational illnesses, enter the date of initial diagnosis of illness, or, if absence from work occurred before diagnosis, enter the first day of the absence attributable to the illness which was later diagnosed or recognized.

Columns C through F - Self-explanatory.

Columns 1 and 8 - INJURY OR ILLNESS-RELATED DEATHS. Self-explanatory.

Columns 2 and 9 - INJURIES OR ILLNESSES WITH LOST WORKDAYS. Self-explanatory.

Any injury which involves days away from work, or days of restricted work activity, or both must be recorded since it always involves one or more of the criteria for recordability.

Columns 3 and 10 - INJURIES OR ILLNESSES INVOLVING DAYS AWAY FROM WORK. Self-explanatory.

Columns 4 and 11 - LOST WORKDAYS—DAYS AWAY FROM WORK. Enter the number of workdays (consecutive or not) on which the employee would have worked but could not because of occupational injury or illness. The number of lost workdays should not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work. NOTE: For employees not having a regularly scheduled shift, such as certain truck drivers, construction workers, farm labor, casual labor, part-time employees, etc., it may be necessary to estimate the number of lost workdays. Estimates of lost workdays shall be based on prior work history of the employee AND days worked by employees, not ill or injured, working in the department and/or occupation of the ill or injured employee.

Columns 5 and 12 - LOST WORKDAYS—DAYS OF RESTRICTED WORK ACTIVITY.

Enter the number of workdays (consecutive or not) on which because of injury or illness:

- (1) the employee was assigned to another job on a temporary basis, or
- (2) the employee worked at a permanent job less than full time, or
- (3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it.

The number of lost workdays should not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work.

Columns 6 and 13 - INJURIES OR ILLNESSES WITHOUT LOST WORKDAYS. Self-explanatory.

Columns 7a through 7g - TYPE OF ILLNESS. Enter a check in only one column for each illness.

TERMINATION OR PERMANENT TRANSFER—Place an asterisk to the right of the entry in columns 7a through 7g (type of illness) which represented a termination of employment or permanent transfer.

V. Totals

Add number of entries in columns 1 and 8. Add number of checks in columns 2, 3, 6, 7, 9, 10, and 13. Add number of days in columns 4, 5, 11, and 12. Yearly totals for each column (1-13) are required for posting. Running or page totals may be generated at the discretion of the employer.

If an employee's loss of workdays is continuing at the time the totals are summarized, estimate the number of future workdays the employee will lose and add that estimate to the workdays already lost and include this figure in the annual totals. No further entries are to be made with respect to such cases in the next year's log.

VI. Definitions

OCCUPATIONAL INJURY is any injury such as a cut, fracture, sprain, amputation, etc., which results from a work accident or from an exposure involving a single incident in the work environment. NOTE: Conditions resulting from animal bites, such as insect or snake bites or from one-time exposure to chemicals, are considered to be injuries.

OCCUPATIONAL ILLNESS of an employee is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact.

The following listing gives the categories of occupational illnesses and disorders that will be utilized for the purpose of classifying recordable illnesses. For purposes of information, examples of each category are given. These are typical examples, however, and are not to be considered the complete listing of the types of illnesses and disorders that are to be counted under each category.

- 7a. Occupational Skin Diseases or Disorders. Examples: Contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil-acne; chrome ulcers; chemical burns or inflammations; etc.
- 7b. Dust/Diseases of the Lungs (Pneumoconioses). Examples: Silicosis, asbestosis and other asbestos-related diseases, coal worker's pneumoconiosis, byssinosis, siderosis, and other pneumoconioses.
- 7c. Respiratory Conditions Due to Toxic Agents. Examples: Pneumonitis, pharyngitis, rhinitis or acute congestion due to chemicals, dusts, gases, or fumes; farmer's lung; etc.

7d. Poisoning (Systemic Effect of Toxic Materials). Examples: Poisoning by lead, mercury, cadmium, arsenic, or other metals; poisoning by carbon monoxide, hydrogen sulfide, or other gases; poisoning by benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays such as parathion, lead arsenate; poisoning by other chemicals such as formaldehyde, plastics, and resins; etc.

7e. Disorders Due to Physical Agents (Other than Toxic Materials). Examples: Heatstroke, sunstroke, heat exhaustion, and other effects of environmental heat; freezing, frostbite, and effects of exposure to low temperatures; caisson disease; effects of ionizing radiation (isotopes, X-rays, radium); effects of nonionizing radiation (welding flash, ultraviolet rays, microwaves, sunburn); etc.

7f. Disorders Associated With Repeated Trauma. Examples: Noise-induced hearing loss; synovitis, tenosynovitis, and bursitis; Raynaud's phenomena; and other conditions due to repeated motion, vibration, or pressure.

7g. All Other Occupational Illnesses. Examples: Anthrax, brucellosis, infectious hepatitis, malignant and benign tumors, food poisoning, histoplasmosis, coccidioidomycosis, etc.

MEDICAL TREATMENT includes treatment (other than first aid) administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does NOT include first-aid treatment (one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care) even though provided by a physician or registered professional personnel.

ESTABLISHMENT: A single physical location where business is conducted or where services or industrial operations are performed (for example: a factory, mill, store, hotel, restaurant, movie theater, farm, ranch, bank, sales office, warehouse, or central administrative office). Where distinctly separate activities are performed at a single physical location, such as construction activities operated from the same physical location as a lumber yard, each activity shall be treated as a separate establishment.

For firms engaged in activities which may be physically dispersed, such as agriculture; construction; transportation; communications; and electric, gas, and sanitary services, records may be maintained at a place to which employees report each day.

Records for personnel who do not primarily report or work at a single establishment, such as traveling salesmen, technicians, engineers, etc., shall be maintained at the location from which they are paid or the base from which personnel operate to carry out their activities.

WORK ENVIRONMENT is comprised of the physical location, equipment, materials processed or used, and the kinds of operations performed in the course of an employee's work, whether on or off the employer's premises.



NOTE: This form is required by Public Law 91-526 and must be kept in the establishment for 5 years. Failure to maintain and post can result in the issuance of citations and assessment of penalties. (See posting requirements on the other side of form.)

RECORDABLE CASES: You are required to record information about every occupational death; every nonfatal occupational illness; and those nonfatal occupational injuries which involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment (other than first aid). (See definitions on the other side of form.)

Company Name

Establishment Name

Establishment Address

Form Approved O.M.B. No. 1220-0029 See OMB Disclosure Statement on reverse.

Main data table with columns for Case or File Number, Date of Injury or Onset of Illness, Employee's Name, Occupation, Department, Description of Injury or Illness, Extent and Outcome of Injury, and Type, Extent of, and Outcome of Illness. Includes sub-columns for Fatalities, Nonfatal Injuries, and various types of illnesses.

1. ACCIDENT CLASSIFICATION				
PERSONNEL CLASSIFICATION	INJURY/ILLNESS/FATAL	PROPERTY DAMAGE	MOTOR VEHICLE INVOLVED	DIVING
GOVERNMENT <input type="checkbox"/> CIVILIAN <input type="checkbox"/> MILITARY	<input type="checkbox"/>	<input type="checkbox"/> FIRE INVOLVED <input type="checkbox"/> OTHER	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> CONTRACTOR	<input type="checkbox"/>	<input type="checkbox"/> FIRE INVOLVED <input type="checkbox"/> OTHER	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PUBLIC	<input type="checkbox"/> FATAL <input type="checkbox"/> OTHER	XXXXXXXXXX	<input type="checkbox"/>	XXXXXXXXXX

2. PERSONAL DATA				
a. NAME (Last, First, MI)	b. AGE	c. SEX <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE	d. SOCIAL SECURITY NUMBER ____/____/____	e. GRADE
f. JOB SERIES/TITLE	g. DUTY STATUS AT TIME OF ACCIDENT <input type="checkbox"/> ON DUTY <input type="checkbox"/> TOY <input type="checkbox"/> OFF DUTY		h. EMPLOYMENT STATUS AT TIME OF ACCIDENT <input type="checkbox"/> ARMY ACTIVE <input type="checkbox"/> ARMY RESERVE <input type="checkbox"/> VOLUNTEER <input type="checkbox"/> PERMANENT <input type="checkbox"/> FOREIGN NATIONAL <input type="checkbox"/> SEASONAL <input type="checkbox"/> TEMPORARY <input type="checkbox"/> STUDENT <input type="checkbox"/> OTHER (Specify) _____	

3. GENERAL INFORMATION			
a. DATE OF ACCIDENT (month/day/year)	b. TIME OF ACCIDENT (Military time)	c. EXACT LOCATION OF ACCIDENT	d. CONTRACTOR'S NAME
		(1) PRIME:	
e. CONTRACT NUMBER		f. TYPE OF CONTRACT	(2) SUBCONTRACTOR:
<input type="checkbox"/> CIVIL WORKS <input type="checkbox"/> MILITARY <input type="checkbox"/> OTHER (Specify) _____	<input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> SERVICE <input type="checkbox"/> A/E <input type="checkbox"/> DREDGE <input type="checkbox"/> OTHER (Specify) _____	g. HAZARDOUS/TOXIC WASTE ACTIVITY <input type="checkbox"/> SUPERFUND <input type="checkbox"/> DERP <input type="checkbox"/> IRP <input type="checkbox"/> OTHER (Specify) _____	

4. CONSTRUCTION ACTIVITIES ONLY (Fill in line and corresponding code number in box from list - see instructions)	
a. CONSTRUCTION ACTIVITY (CODE)	b. TYPE OF CONSTRUCTION EQUIPMENT (CODE)
/	/

INJURY / ILLNESS INFORMATION (Include name on line and corresponding code number in box for items a, f & g - see instructions)			
a. SEVERITY OF ILLNESS / INJURY (CODE)	b. ESTIMATED DAYS LOST	c. ESTIMATED DAYS HOSPITALIZED	d. ESTIMATED DAYS RESTRICTED DUTY
/	/		
e. BODY PART AFFECTED (CODE)	g. TYPE AND SOURCE OF INJURY/ILLNESS		
PRIMARY _____	TYPE _____ (CODE)		
SECONDARY _____	SOURCE _____ (CODE)		
f. NATURE OF ILLNESS / INJURY (CODE)			
/			

6. PUBLIC FATALITY (Fill in line and corresponding code number in box - see instructions)	
a. ACTIVITY AT TIME OF ACCIDENT (CODE)	b. PERSONAL FLOATION DEVICE USED?
/	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A

7. MOTOR VEHICLE ACCIDENT				
a. TYPE OF VEHICLE	b. TYPE OF COLLISION	c. SEAT BELTS	USED	NOT USED NOT AVAILABLE
<input type="checkbox"/> PICKUP/VAN <input type="checkbox"/> AUTOMOBILE <input type="checkbox"/> TRUCK <input type="checkbox"/> OTHER (Specify) _____	<input type="checkbox"/> SIDE SWIPE <input type="checkbox"/> HEAD ON <input type="checkbox"/> REAR END <input type="checkbox"/> BROADSIDE <input type="checkbox"/> ROLL OVER <input type="checkbox"/> BACKING <input type="checkbox"/> OTHER (Specify) _____	(1) FRONT SEAT		
		(2) REAR SEAT		

8. PROPERTY/MATERIAL INVOLVED		
a. NAME OF ITEM	b. OWNERSHIP	c. \$ AMOUNT OF DAMAGE
(1) _____	_____	
(2) _____	_____	
(3) _____	_____	

9. VESSEL / FLOATING PLANT ACCIDENT (Fill in line and corresponding code number in box from list - see instructions)	
a. TYPE OF VESSEL/FLOATING PLANT (CODE)	b. TYPE OF COLLISION/MISHAP (CODE)
/	/

ACCIDENT DESCRIPTION (Use additional paper, if necessary)

11. CAUSAL FACTOR(S) (Read Instruction Before Completing)

a. (Explain YES answers in item 13)	YES	NO	a. (CONTINUED)	YES	NO
DESIGN: Was design of facility, workplace or equipment a factor?	<input type="checkbox"/>	<input type="checkbox"/>	CHEMICAL AND PHYSICAL AGENT FACTORS: Did exposure to chemical agents, such as dust, fumes, mists, vapors or physical agents, such as, noise, radiation, etc., contribute to accident?	<input type="checkbox"/>	<input type="checkbox"/>
INSPECTION/MAINTENANCE: Were inspection & maintenance procedures a factor?	<input type="checkbox"/>	<input type="checkbox"/>	OFFICE FACTORS: Did office setting such as, lifting office furniture, carrying, stooping, etc., contribute to the accident?	<input type="checkbox"/>	<input type="checkbox"/>
PERSON'S PHYSICAL CONDITION: In your opinion, was the physical condition of the person a factor?	<input type="checkbox"/>	<input type="checkbox"/>	SUPPORT FACTORS: Were inappropriate tools/resources provided to properly perform the activity/task?	<input type="checkbox"/>	<input type="checkbox"/>
OPERATING PROCEDURES: Were operating procedures a factor?	<input type="checkbox"/>	<input type="checkbox"/>	PERSONAL PROTECTIVE EQUIPMENT: Did the improper selection, use or maintenance of personal protective equipment contribute to the accident?	<input type="checkbox"/>	<input type="checkbox"/>
JOB PRACTICES: Were any job safety/health practices not followed when the accident occurred?	<input type="checkbox"/>	<input type="checkbox"/>	DRUGS/ALCOHOL: In your opinion, was drugs or alcohol a factor to the accident?	<input type="checkbox"/>	<input type="checkbox"/>
HUMAN FACTORS: Did any human factors such as, size or strength of person, etc., contribute to accident?	<input type="checkbox"/>	<input type="checkbox"/>	b. WAS A WRITTEN JOB/ACTIVITY HAZARD ANALYSIS COMPLETED FOR TASK BEING PERFORMED AT TIME OF ACCIDENT?		
ENVIRONMENTAL FACTORS: Did heat, cold, dust, sun, glare, etc., contribute to the accident?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> YES (If yes, attach a copy.) <input type="checkbox"/> NO		

12. TRAINING

a. WAS PERSON TRAINED TO PERFORM ACTIVITY/TASK? <input type="checkbox"/> YES <input type="checkbox"/> NO	b. TYPE OF TRAINING. <input type="checkbox"/> CLASSROOM <input type="checkbox"/> ON JOB	c. DATE OF MOST RECENT FORMAL TRAINING. / / (Month) (Day) (Year)
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13. FULLY EXPLAIN WHAT ALLOWED OR CAUSED THE ACCIDENT; INCLUDE DIRECT AND INDIRECT CAUSES (See instruction for definition of direct and indirect causes.) (Use additional paper, if necessary)

a. DIRECT CAUSE

b. INDIRECT CAUSE(S)

14. ACTION(S) TAKEN, ANTICIPATED OR RECOMMENDED TO ELIMINATE CAUSE(S).
DESCRIBE FULLY:

DATES FOR ACTIONS IDENTIFIED IN BLOCK 14.

a. BEGINNING (Month/Day/Year) / /	b. ANTICIPATED COMPLETION (Month/Day/Year) / /		
c. SIGNATURE AND TITLE OF SUPERVISOR COMPLETING REPORT CORPS _____ CONTRACTOR _____	d. DATE (Mo/Da/Yr) / /	e. ORGANIZATION IDENTIFIER (Div, Br, Sect)	f. OFFICE SYMBOL

16. MANAGEMENT REVIEW (1st).

a. CONCUR b. NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE
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17. MANAGEMENT REVIEW (2nd - Chief Operations, Construction, Engineering, etc.)

a. CONCUR b. NON CONCUR c. COMMENTS

SIGNATURE	TITLE	DATE
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18. SAFETY AND OCCUPATIONAL HEALTH OFFICE REVIEW

a. CONCUR b. NON CONCUR c. ADDITIONAL ACTIONS/COMMENTS:

SIGNATURE	TITLE	DATE
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COMMAND APPROVAL

COMMENTS

COMMANDER SIGNATURE	DATE
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EODT ACCIDENT/ILLNESS/NEAR MISS REPORT

SECTION 1 - GENERAL INFORMATION

Name:		SSN:	
Job Title:		D.O.B.:	Sex: Age:
Site Name:		SSO:	
Date of Report:	Date of Incident:	Time of Incident:	
Task/Operation Being Conducted:			
PPE Worn:			
Site Conditions at Time of Incident			
Temperature: _____	Humidity: _____	Wind Speed: _____	Cloud Cover: _____
Direction: _____	Other: _____	Precipitation: _____	
Type of Incident:	<input type="checkbox"/> Personal Injury	<input type="checkbox"/> Personal Illness	<input type="checkbox"/> Chemical Exposure
	<input type="checkbox"/> Motor Vehicle	<input type="checkbox"/> Property Damage	<input type="checkbox"/> Near Miss
If chemical exposure, what material(s) was(were) involved: _____			
What was the nature of exposure (contact, inhalation, etc.): _____			
Other Individual(s) Involved: _____			

SECTION 2 - PERSONAL INJURY/ILLNESS INFORMATION

Nature/Type of Injury/Illness (laceration, strain, etc.): _____	
Cause of Injury/Illness: _____	
Body Part(s) Affected: Primary _____	Secondary _____
Injury/Illness Required:	<input type="checkbox"/> On Site First Aid Treatment <input type="checkbox"/> Emergency Room Treatment <input type="checkbox"/> Hospitalization
Injury/Illness Resulted In:	<input type="checkbox"/> Loss of Work Time <input type="checkbox"/> Limitation of Duties <input type="checkbox"/> Fatality
	<input type="checkbox"/> Other: (Explain) _____
Status at Time of Report:	<input type="checkbox"/> Returned to Work: (Date _____) <input type="checkbox"/> Hospitalized: (Anticipated Stay _____)
	<input type="checkbox"/> Convalescing: (Anticipated Length of Convalescence _____)
	<input type="checkbox"/> Other: _____
On Site First Aid Treatment Given: _____	
Off Site Medical Treatment (attach documentation, including Physician statement): _____	

EODT ACCIDENT/ILLNESS/NEAR MISS REPORT (cont.)

SECTION 3 - MOTOR VEHICLE ACCIDENT

Type of Vehicle/Equipment	Type of Collision	Seat Belt Use
<input type="checkbox"/> Automobile <input type="checkbox"/> Van/Truck <input type="checkbox"/> Bush Hog <input type="checkbox"/> Other: _____	<input type="checkbox"/> Side Swipe <input type="checkbox"/> Rear End <input type="checkbox"/> Backing <input type="checkbox"/> Head on <input type="checkbox"/> Broadside <input type="checkbox"/> Roll	Front Seat <input type="checkbox"/> Yes <input type="checkbox"/> No Back Seat <input type="checkbox"/> Yes <input type="checkbox"/> No

Property/Material/Items Involved

Name of Item	Owner	\$ Amount of Damage
_____	_____	_____
_____	_____	_____
_____	_____	_____

Accident Description (Use additional paper if needed)

SECTION 4 - POST ACCIDENT/INJURY/ILLNESS REVIEW

Has the EODT Home Office been notified? Yes No, If Yes, When? _____ By Whom? _____

Were operations conducted using approved EODT SOP or a SSHP?

Yes Reference: _____

No Explain: _____

SSO's Comments: _____

Employee Comments: _____

Witnesses

Name	Organization	Phone Number
_____	_____	_____
_____	_____	_____
_____	_____	_____

Employee Signature: _____ Date: _____

SSO Signature: _____ Date: _____

Actions to be taken to prevent future occurrence: _____

Actions Completed By: _____ Date: _____

EODT Corp. Review By: _____ Date: _____

EODT SAFETY TRAINING ATTENDANCE LOG
OE OPERATIONS

II. TRAINING COURSE ATTENDEES (continued)

Name (printed)	Signature	Organization

III. VERIFICATION

I certify that the personnel listed on this roster received the safety training described above. Site personnel not attending this training will be briefed before beginning their assigned duties.

 Site Safety and Health Officer

 Sr. UXO Supervisor / Project Manager

**EODT SAFETY INSPECTION AND AUDIT LOG
FOR OE OPERATIONS**

DATE:	TIME:	LOG NO.:
CONTRACT NO.:		DELIVERY ORDER NO.:
LOCATION:		
WEATHER CONDITIONS: _____		

I. AREAS INSPECTED: (List by grid number, Team or task) _____

II. INSPECTION RESULTS

Item Description	Pass	Item Description	Pass
1. Personal Protection (PPE) per SSHP	Y / N	9. UXO/OE Detection Equipment	Y / N
2. Work Practices Follow SSHP	Y / N	10. UXO/OE Detection Equipment Calibration	Y / N
3. Site Control/Decon per SSHP	Y / N	11. MSDSs and Container Labeling per SSHP	Y / N
4. First Aid Kit(s)/Eyewash Station(s)	Y / N	12. On- and Off-Site Communications	Y / N
5. Fire Extinguisher(s)	Y / N	13. Site House Keeping	Y / N
6. Flammable Storage Areas	Y / N	14. Explosives / Ordnance Storage Areas	Y / N
7. Safety and Health Monitoring Equipment Use	Y / N	15. Other: (list)	Y / N
8. Monitoring Equipment Calibration	Y / N	16. Other: (list)	Y / N

III. CORRECTIVE ACTIONS RECOMMENDED (If required): _____

IV: REINSPECTION RESULTS (If required): _____

V. SIGNATURES:

I acknowledge that I have been briefed on the results of this inspection and will take corrective actions (if necessary).

_____ Site Safety and Health Officer Sr. UXO Supervisor / Project Manager

EODT VEHICLE INSPECTION CHECKLIST

(To be used weekly for all vehicles EXCEPT explosive carriers which must be inspected prior to each explosives transport)

Site Name / Location: _____

SUXOS: _____ Inspector: _____ Vehicle: _____
(MAKE AND LICENSE PLATE #)

Date Inspected: _____ Mileage: _____ Owner: _____
(RENTAL, EODT, GFE, CONTRACT)

USE ✓ FOR PASS, X FOR DISCREPANCY

1. DOCUMENTATION:	Pass	Fail	2. BRAKES:	Pass	Fail
Registration	[]	[]	Hand/Emergency	[]	[]
Insurance	[]	[]	Service	[]	[]
Emergency Route Map and Phone Numbers	[]	[]			
3. TIRES:			4. BELTS:		
Pressure	[]	[]	Proper tension	[]	[]
Condition	[]	[]	Condition	[]	[]
5. EQUIPMENT:			6. LIGHTS:		
Fire extinguishers*	[]	[]	Headlights (high & low)	[]	[]
First Aid/CPR/Burn	[]	[]	Brake Lights	[]	[]
Eyewash kits	[]	[]	Parking	[]	[]
Emergency Breakdown Kit	[]	[]	Back-up	[]	[]
Spare Tire	[]	[]	Turn Signals	[]	[]
Tire Changing Equipment	[]	[]	Emergency Flashers	[]	[]
Tie downs*	[]	[]			
Chocks*	[]	[]			
Placards*	[]	[]			
7. FLUID LEVELS:			8. GENERAL:		
Oil	[]	-[]	Windshield Wipers	[]	[]
Coolant	[]	[]	Windshield/Windows	[]	[]
Brake	[]	[]	Seat Belts	[]	[]
Steering	[]	[]	Steering	[]	[]
Transmission	[]	[]	Horn	[]	[]
Windshield Wiper	[]	[]	Gas Cap	[]	[]
Fluid Leaks	[]	[]	Mirrors	[]	[]
			Cleanliness	[]	[]
			Exhaust System*	[]	[]

(Note: Items marked with * are required for explosive carriers and must be inspected prior to each use)

Description of deficiencies: _____

EODT SITE MONITORING LOG

Location: _____ Operation: _____

Contract No.: _____ Delivery Order No.: _____ Work Shift: _____ Start: _____ End: _____ Sampler: _____

TYPE OF MONITORING AND RESULTS

Date	Time (24 hr)	Noise (dBA)	Org. ppm	O ₁ %	LEL %	CO ppm	HCN ppm	Dust mg/m ³						Remarks

Instrument Information

General Remarks and Observations

Type	Make	Model	Serial Number	Cal. Date		

EODT HEAT STRESS MONITORING LOG

Project Location:	Contract Number:	Delivery Order Number:
-------------------	------------------	------------------------

SHO:	Anticipated Weather Conditions:
------	---------------------------------

Date	Name	Organization	Start Time	Pulse Rate	Time	Pulse Rate	Time	Pulse Rate	Time	Pulse Rate	Time	Pulse Rate

Remarks and Observations: _____

EODT SITE SPECIFIC CHEMICAL INVENTORY FORM

Site Name/Location:		Contract No.:			Delivery Order No.:	
Date	Product Name	Supplier's Name and Address	Hazardous Chemicals	Training Given	MSDS Available	

EODT SITE VISITORS LOG FOR OE OPERATIONS

LOCATION:			CONTRACT NO.:			DELIVERY ORDER NO.:	
Date	Name	Company	Reason for Visit	Safety Briefing Given By	Time		Escort Req'd (Y / N)
					In	Out	

EODT SITE COMPLIANCE CHECKLIST

GENERAL SITE INFORMATION

Site Name/Location: _____

Contract Number: _____ Delivery Order Number: _____

SSHO: _____ SUXOS: _____ PM: _____

Audit Performed By: _____ Date: _____

COMPLIANCE ITEMS	In Compliance?		
	Yes	No	N/A
1.0 CORPORATE SAFETY AND HEALTH PROGRAM AND SITE SAFETY AND HEALTH PLAN			
1.1 Written Corporate Safety and Health Program (CSHP) available upon request to site, contractor and regulatory personnel			
1.2 Relevant CSHP Attachments, Programs and SOPs on site and being followed			
1.3 Work Plan (WP) and Site Safety and Health Plan (SSHP) on site, and SSHP Review Form signed by all site personnel			
1.4 Safety/training/visitor/monitoring logs available and up to date			
2.0 SITE CHARACTERIZATION AND HAZARD ASSESSMENT			
2.1 Potential IDLH conditions identified prior to employee entry			
2.2 PPE selected and provided for initial entry if potential exists for exposures above PEL			
2.3 Escape bottle provided if air purifying respirator is used during initial entry/site evaluation			
2.4 Minimum Level B used if unable to characterize site hazards prior to initial site entry/evaluation			
2.5 Monitoring for IDLH conditions and radiation hazards conducted during initial entry/evaluation			
2.6 A certificate of task hazard assessment has been completed which identifies the appropriate PPE and other control methods to be used to protect personnel from task hazards			
3.0 SITE CONTROL			
3.1 Written Site Control Plan or procedures incorporated in SSHP			
3.2 Elements of site control program are being implemented (buddy system, on- and off-site communications, etc.)			
3.3 Site control zones established and posted as per SSHP			
3.4 Site personnel following the standing orders for each zone			

EODT SITE COMPLIANCE CHECKLIST (continued)

COMPLIANCE ITEMS	In Compliance?		
	Yes	No	N/A
4.0 TRAINING PROGRAM			
4.1 All personnel have received the required 40 hour OSHA HAZWOPER training (or its equivalent) and annual refreshers if needed			
4.2 Personnel have received three day on-site supervised training and the Three Day Training Form has been signed by all personnel			
4.3 Management and supervisory personnel have received additional eight hour Management and Supervisor training			
4.4 Copies of all training certificates are available on site			
4.5 Emergency response personnel have been designated/trained to handle anticipated emergencies			
4.6 Site Hazard Information Training has been given to site personnel and documented IAW SSHP			
4.6.1 Employees informed of potential risks/hazards identified for each task they perform			
4.6.2 Employees notified of chemical, physical and toxicological properties of identified or suspected contaminants			
4.7 Hazard Communication Training has been given to personnel who work with products containing hazardous substances, to include a review of the relevant MSDSs			
4.8 Site personnel given OSHA required, task/hazard specific training, such as PPE, Hearing Conservation, etc. and training forms completed			
4.9 At least two site personnel are trained in First Aid/CPR			
4.10 Daily tailgate safety briefings and weekly safety meetings are being conducted and documented			
5.0 MEDICAL SURVEILLANCE			
5.1 Medical surveillance provided, as a minimum, to personnel who: are exposed at or above the PEL/TLV; use respirators; or are a member of emergency response team			
5.2 Provisions made for medical surveillance of personnel who receive a documented, unprotected over exposure or develop signs and symptoms of exposure			
5.3 Site specific medical tests, as required by the SSHP, have been conducted prior to site personnel participating in site activities where exposure can occur			
5.4 Physicians written statement retained in employees records, and a copy is available on site			
5.5 Personnel with potential occupational exposure to blood or other potentially infectious body fluids have been given the opportunity to be vaccinated against HBV, and personnel who decline have signed the HBV Vaccination Declaration Form			

EODT SITE COMPLIANCE CHECKLIST (continued)

COMPLIANCE ITEMS	In Compliance?		
	Yes	No	N/A
6.0 ENGINEERING CONTROLS, EQUIPMENT, WORK PRACTICES AND PPE			
6.1 Engineering controls and safe work practices (SWPs) being used when ever feasible			
6.2 Equipment required by the WP and SSHP is on site, inspected and in proper working order			
6.3 PPE selected according to the limitations of the PPE, site hazards, and level/type of hazard			
6.4 SCBA or positive pressure supplied airline with escape provided for known or potential IDLH conditions			
6.5 Level A suits are being used for operations where the potential exists for liquid or vapor contact with materials that are highly corrosive to the skin or toxic through skin absorption			
6.6 All PPE is being inspected, used, cleaned, stored and maintained in accordance with the SSHP and the written PPE program in the CSHP			
6.7 Respirators issued only to personnel who have training/medical approval to used respirators			
6.8 Personnel using respirators have been fit tested for the respirator being used			
7.0 MONITORING			
7.1 Monitoring equipment being calibrated, operated and maintained IAW manufacturer's requirements, and calibration, monitoring and maintenance records available			
7.2 Monitoring being conducted IAW the SSHP, to include to: potential IDLH or explosive conditions; personal exposures to chemical and physical hazards; exposures when a change in tasks or location occurs; or when previously unidentified materials/hazards are identified			
7.3 High-risk workers monitored initially and all workers monitored-if levels indicate the need			
7.4 Work area and perimeter monitoring being conducted IAW the SSHP			
7.5 Site monitoring log being completed for all personnel and area monitoring			
8.0 HANDLING DRUMS AND CONTAINERS			
8.1 Drums and containers used on site meet DOT, OSHA and EPA regulations			
8.2 Drums and containers found on site are being inspected prior to being moved or handled			
8.3 Unlabeled drums and containers being handled as hazardous waste until identified otherwise			
8.4 Drum and container movement being minimized			
8.5 Drums/containers opened IAW approved methods listed in SSHP			
8.6 Containers assessed for radioactive waste			

EODT SITE COMPLIANCE CHECKLIST (continued)

COMPLIANCE ITEMS	In Compliance?		
	Yes	No	N/A
8.7 Drum sampling performed IAW the approved sampling plan			
8.8 Staging of drums and containers being conducted IAW the Staging Plan found in the SSHP			
8.9 DOT salvage drums and adequate spill response materials available and written spill containment program available			
8.10 Materials are assessed for compatibility prior to being bulked together			
8.11 Shock sensitive waste being identified and handled appropriately			
8.12 Lab packs are opened by properly trained personnel			
8.13 Drums and containers being transported off site by an licensed hazardous waste hauler			
9.0 DECONTAMINATION PROGRAM			
9.1 Decontamination procedures developed/implemented prior to personnel/equipment site entry			
9.2 Site workers properly trained and complying with the written decontamination procedures			
9.3 All potentially contaminated equipment, clothing and PPE are being properly decontaminated			
9.4 Decontamination solutions are being properly containerized at the end of each day			
9.5 Decontamination procedures evaluated for effectiveness			
9.6 On site showers and change houses comply with 29 CFR 199.141.			
10.0 EMERGENCY RESPONSE AT UNCONTROLLED HAZARDOUS WASTE SITES			
10.1 This site is exempt from this section, no site personnel will be responsible for responding to a site emergency. All emergency response will be handled by off site agencies. An Emergency Action Plan, IAW 29 CFR 1910.38, is incorporated in the SSHP. (If Yes to this question, skip to Section 11.0, otherwise continue with the remainder of this Section)			
10.2 Written emergency response plan incorporated in SSHP			
10.3 Written procedures for reporting incidents to local, state and federal agencies			
10.4 Emergency response plan reviewed, rehearsed regularly and amended as needed			
10.5 Emergency phone numbers and hospital maps posted on site and placed in all vehicles			
10.6 First aid, burn and eye wash kits available on site and in each vehicle, with a bloodborne pathogen control kit located with each first aid kit			
10.7 Adequate type, number and size fire extinguishers properly located/inspected at least monthly			

EODT SITE COMPLIANCE CHECKLIST (continued)

COMPLIANCE ITEMS	In Compliance?		
	Yes	No	N/A
10.8 Flammable storage areas properly posted with "No Smoking, Matches or Open Flame Within 50 Feet" signs			
10.9 Employee alarm system on site and perceivable by site personnel			
11.0 ILLUMINATION			
11.1 No work being conducted on site till thirty minutes after sun rise or after thirty minutes before sunset, and adequate light levels maintained in all other work place facilities			
12.0 SANITATION			
12.1 Adequate supply of potable water available from appropriately labeled containers or outlets			
12.2 Non-potable water sources appropriately labeled and no open or potential cross connection to potable sources exists			
12.3 Appropriate type and adequate number of toilets available			
12.5 Wash facilities available and located near site but away from exposure potentials			
12.6 Site being maintained in a neat and orderly fashion, free of trash and debris			

REMARKS, OBSERVATIONS AND RECOMMENDATIONS

Signature of Auditor: _____ Date: _____

I acknowledge that I have been briefed on the results of this audit and will take any necessary corrective actions.

Site Safety and Health Officer

Date

Sr. UXO Supervisor / Project Manager

Date

EODT CERTIFICATION OF TASK HAZARD ASSESSMENT

TASK NAME: _____

DATE: _____

1.0 Hazard Identification: Items checked are known or anticipated site hazards, or may occur as a result of site operations.

<input type="checkbox"/> Physical exertion <input type="checkbox"/> Heat Stress <input type="checkbox"/> Cold Stress <input type="checkbox"/> Heavy equipment operations <input type="checkbox"/> Vehicle traffic in work area(s) <input type="checkbox"/> Fire hazards (underline) • Gasoline/Diesel use • Explosive materials • Explosive gases/vapors	<input type="checkbox"/> Lifting hazards <input type="checkbox"/> Slip, trip or fall <input type="checkbox"/> High noise (>85 dBA) <input type="checkbox"/> Overhead utilities <input type="checkbox"/> Underground utilities <input type="checkbox"/> Intrusive activity (underline) • Soil drilling • Soil excavation • Setting trailer anchors	<input type="checkbox"/> Confined space <input type="checkbox"/> Toxic/Hazardous plants <input type="checkbox"/> Toxic/Hazardous animals/insects <input type="checkbox"/> Ultraviolet radiation <input type="checkbox"/> Hand/Power Tool use <input type="checkbox"/> Airborne chemical exposure <input type="checkbox"/> Skin contact w/ hazardous materials <input type="checkbox"/> Ordnance and explosives <input type="checkbox"/> Cut/Puncture from sharp objects
--	---	---

2.0 Degree of Hazard: Anticipated degree of hazard, based on the hazards associated with this task.

Chemical Hazard:	<input type="checkbox"/> Low <input type="checkbox"/> Moderate	<input type="checkbox"/> Serious <input type="checkbox"/> Unknown	Phys./Bio. Hazard:	<input type="checkbox"/> Low <input type="checkbox"/> Moderate	<input type="checkbox"/> Serious <input type="checkbox"/> Unknown
------------------	---	--	--------------------	---	--

3.0 Control or Protective Measures: Items checked will be used to control or mitigate the above mentioned hazards.

<input type="checkbox"/> Tailgate Safety Briefing <input type="checkbox"/> Specialized Training <input type="checkbox"/> Safe Work Practices	<input type="checkbox"/> Personal protective equipment <input type="checkbox"/> Air Monitoring <input type="checkbox"/> Site Control Zones	<input type="checkbox"/> Decontamination <input type="checkbox"/> Magnetometer Survey
--	--	--

Engineering Controls: Tools with manufacturer supplied guards will be used with guards in place

Applicable SOPs/Programs: Heat Stress, Hearing Conservation, the SSHP

Other: _____

4.0 Task PPE: PPE has been assigned based on the potential for exposure as identified by this hazard assessment.

Level of Protection	<input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/> C <input type="checkbox"/> D	<input type="checkbox"/> Modified
Respiratory Protection	<input type="checkbox"/> SCBA <input type="checkbox"/> Escape SCBA - Size	<input type="checkbox"/> Full face respirator <input type="checkbox"/> ½ Face respirator	<input type="checkbox"/> Cartridge - Type <input type="checkbox"/> No respirator required
Protective Clothing	<input type="checkbox"/> Fully encapsulating suit <input type="checkbox"/> Standard Tyvek	<input type="checkbox"/> Saranex <input type="checkbox"/> PE Tyvek	<input type="checkbox"/> Company clothing <input type="checkbox"/> Other:
Gloves (specify inner/outer)	<input type="checkbox"/> Nitrile <input type="checkbox"/> Butyl	<input type="checkbox"/> Neoprene <input type="checkbox"/> Latex	<input type="checkbox"/> Leather <input type="checkbox"/> Cotton
Head/Face/Eye/Ear Protection	<input type="checkbox"/> Safety glasses <input type="checkbox"/> Ear plugs/muffs	<input type="checkbox"/> Safety goggles <input type="checkbox"/> Face shield	<input type="checkbox"/> Hard hat <input type="checkbox"/> Other:
Foot/Leg Protection	<input type="checkbox"/> Leather boots <input type="checkbox"/> Steel-toed leather boots	<input type="checkbox"/> Steel foot covers <input type="checkbox"/> Kevlar leg chaps	<input type="checkbox"/> Chemical over boots - Material

5.0 Modifications Required:

6.0 Certification: The PPE and other control methods and procedures to be used in the conduct of this task have been selected as a result of a hazard assessment conducted by individual identified below.

Printed Name: _____

Signature: _____

EODT PERSONAL PROTECTIVE EQUIPMENT TRAINING LOG

Name: _____ <div style="display: flex; justify-content: space-between; font-size: small; margin-top: 5px;"> Last First MI </div>	Employee No.: _____	SSN: _____ - _____ - _____
--	---------------------	----------------------------

Completion of the information below certifies that the employee listed above has successfully completed the required PPE training specified. This training has included instruction related to: why, when and what PPE is needed; how to don, doff, adjust and wear the PPE; limitations of the PPE; and care, maintenance, useful life and disposal of the PPE.

Date	Type of PPE	Site Where Trained	Date	Type of PPE	Site Where Trained
	Safety Glasses				
	Hard Hat				
	Ear Plugs: Type:				
	Ear Muffs: Type:				
	Leather Gloves				
	Leather Boots				
	Steel-toed Boots				
	Face Shield				
	Chaps				
	Snake Leggings				
	Toe Protectors				

EODT PERSONAL CLOTHING/EQUIPMENT ISSUE LOG

Project Name:					Project Location:			
Contract No.:		Delivery Order No.:			Issued To:			
Item	Issued By	Date Issued	Size	Qty.	Received (initials)	Date Returned	Rec'd By (initials)	Condition *
Shirt								
Pants								
Coveralls								
T-shirt								
Leather Gloves								
Chaps								
Face Shield								
Ear Muffs			NA					
Hard Hat			NA					
Safety Glasses			NA					

Remarks/Condition of Returned Clothing/Equipment:

EODT OE OPERATIONS DAILY/WEEKLY REPORT

III. SAFETY COMMENTS:

IV. UXO SUMMARY

A. UXO/OE LOCATED

DESCRIPTION	ID NO.	QTY.	DISPOSITION

B. DEMOLITION SUPPLIES USED:

DESCRIPTION	QTY.
DETONATORS, ELECTRIC	
DETONATORS, NON-ELECTRIC	
DETONATION CORD	
PERFORATORS (JETX)	
TIME FUZE	
SMOKELESS POWDER	
GREEN STICK	

C. SCRAP GENERATION / DISPOSITION: _____

EODT OE OPERATIONS DAILY/WEEKLY REPORT

V. PERSONNEL / EQUIPMENT UTILIZATION (continued)

B. EQUIPMENT USED ON SITE

DESCRIPTION	QTY.	HOURS	SOURCE	REMARKS
Backhoe, Wheeled / Tracked				
Bull Dozer				
Bush Hog				
Chain Saw				
Differential Global Positioning System				
Excavator, Tracked				
Magnetometers				
Radio, Base Station				
Radio, Hand Held				
Top Con				
Truck, Heavy (4-wheel drive)				
Truck, Light				
Truck, Pick-up				
Vehicle (All Purpose, 4-Wheel Drive)				
Vehicle-All Purpose Utility (APUV)				
Vehicle (Sedan)				
Vehicle (Van)				
Gas Powered Brush Cutter				
Other Equipment (List)				

VL COMMENTS / CONCERNS

VIL SIGNATURES / DATE

_____ Sr. UXO Supervisor	_____ Date	_____ Site Safety and Health Officer	_____ Date
-----------------------------	---------------	---	---------------

EOD TECHNOLOGY, INC.

Personal Data Sheet

Name: _____ Date: _____

Address: _____

Telephone: () _____ SSN: _____

DOB: _____ Place of Birth: _____

Driver's License No.: _____ State: _____ Expiration Date: _____

Height: _____ Weight: _____ Hair Color: _____ Eyes Color: _____

Glasses: Yes () No () Inserts Yes () No () Mask Type: _____

Mask Size: Large Medium Small (Circle One) Fit Date: _____

Trouser Size: _____ Shirt Size: _____ Shoe Size: _____

OSHA Certification Date: _____ Medical Surveillance Date: _____

CPR Certification Date: _____ First Aid Date: _____

Any Physical Limitations: No () Yes () If yes, please explain: _____

Emergency Medical Information

Medications (list): _____

Allergies (list): _____ Blood Type: _____

Emergency Notification

Person to Contact in Case of Emergency: _____

Home Phone Number: () _____ Work Phone Number: () _____

Home Address: _____

Authorization For Treatment

I authorize examination and treatment of myself by the Emergency Department of a competent medical facility nearest to the location of my employment. I authorize a copy of my medical records to be sent to the physicians/facility providing the treatment, if deemed necessary by the treating physicians.

Signature: _____ Date: _____

EODT GRID SURVEY SUMMARY LOG FOR OE OPERATIONS

(To be used in conjunction with OE Operations / QC Grid Map)

DATE:		LOCATION:				GRID NO.:	PAGE:
CONTRACT NO.:			DELIVERY ORDER NO.:			TEAM LEADER:	
Item No.	Description	No. Pieces	Fuse Type & Condition	Fill Type	Depth	Condition/State of Degradation	Comments

**EODT QUALITY CONTROL INSPECTION AND AUDIT LOG
FOR OE OPERATIONS**

DATE:	TIME:	LOG NO.:
CONTRACT NO.:	DELIVERY ORDER NO.:	
LOCATION:		
WEATHER CONDITIONS: _____		
I. AREAS INSPECTED: (List by grid number, coordinates or description)		

II. INSPECTION RESULTS: _____		

III. CORRECTIVE ACTIONS RECOMMENDED (If required): _____		

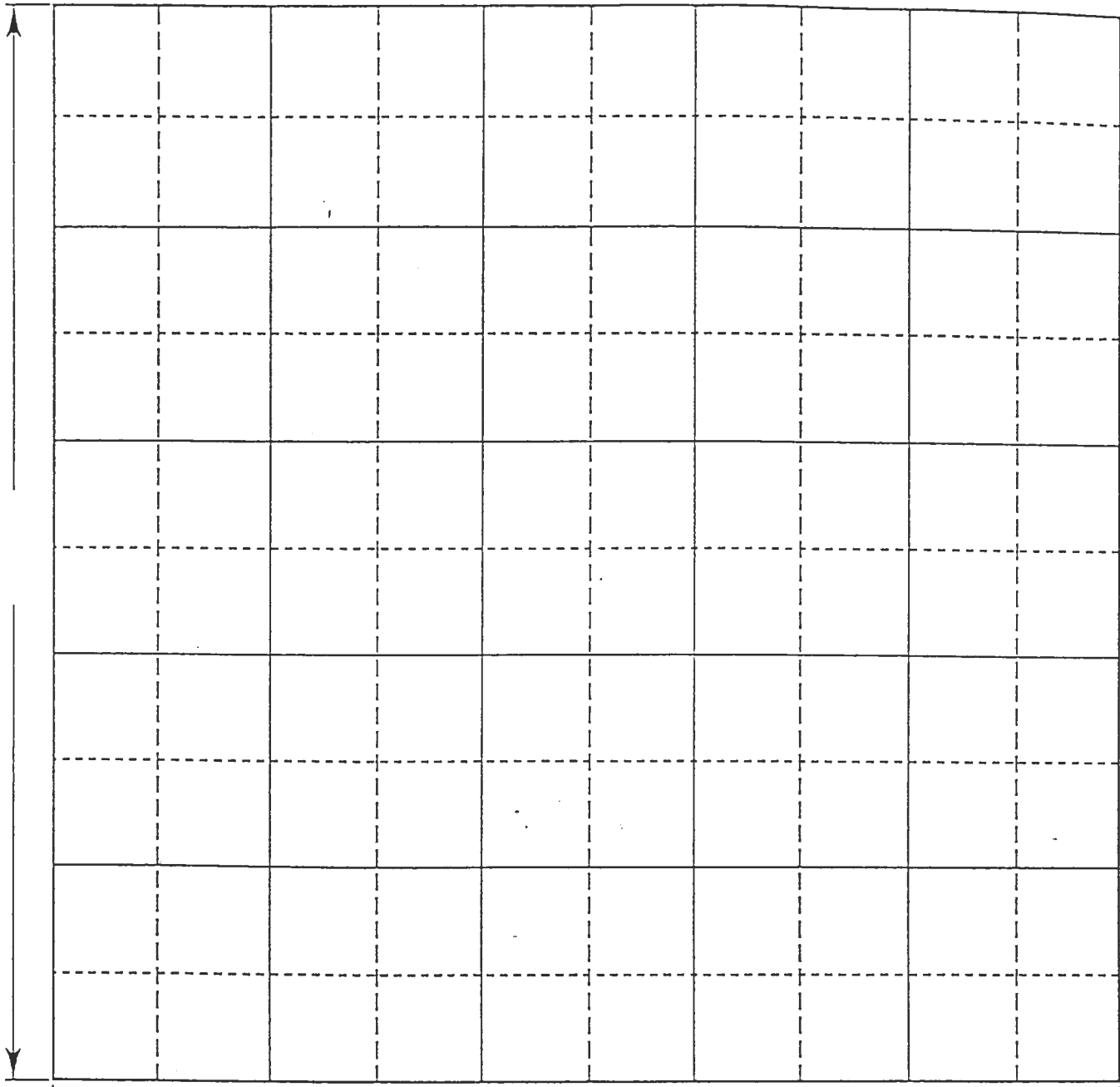
IV. REINSPECTION RESULTS (If required): _____		

V. SIGNATURES:		
_____	I acknowledge that I have been briefed on the results of this inspection and will take corrective actions (if necessary).	
Quality Control Specialist	Sr. UXO Supervisor / Project Manager	

EODT OE OPERATIONS GRID MAP
(To be used in conjunction with EODT Grid Summary Survey Log)

DATE: _____

GRID NO.: _____



NOTES: _____

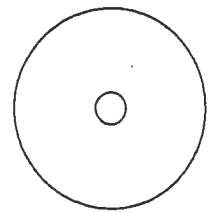
LEGEND

● Surface UXO/OE

△ Subsurface Anomalies

▲ Subsurface UXO/OE

— Restricted Area Boundary

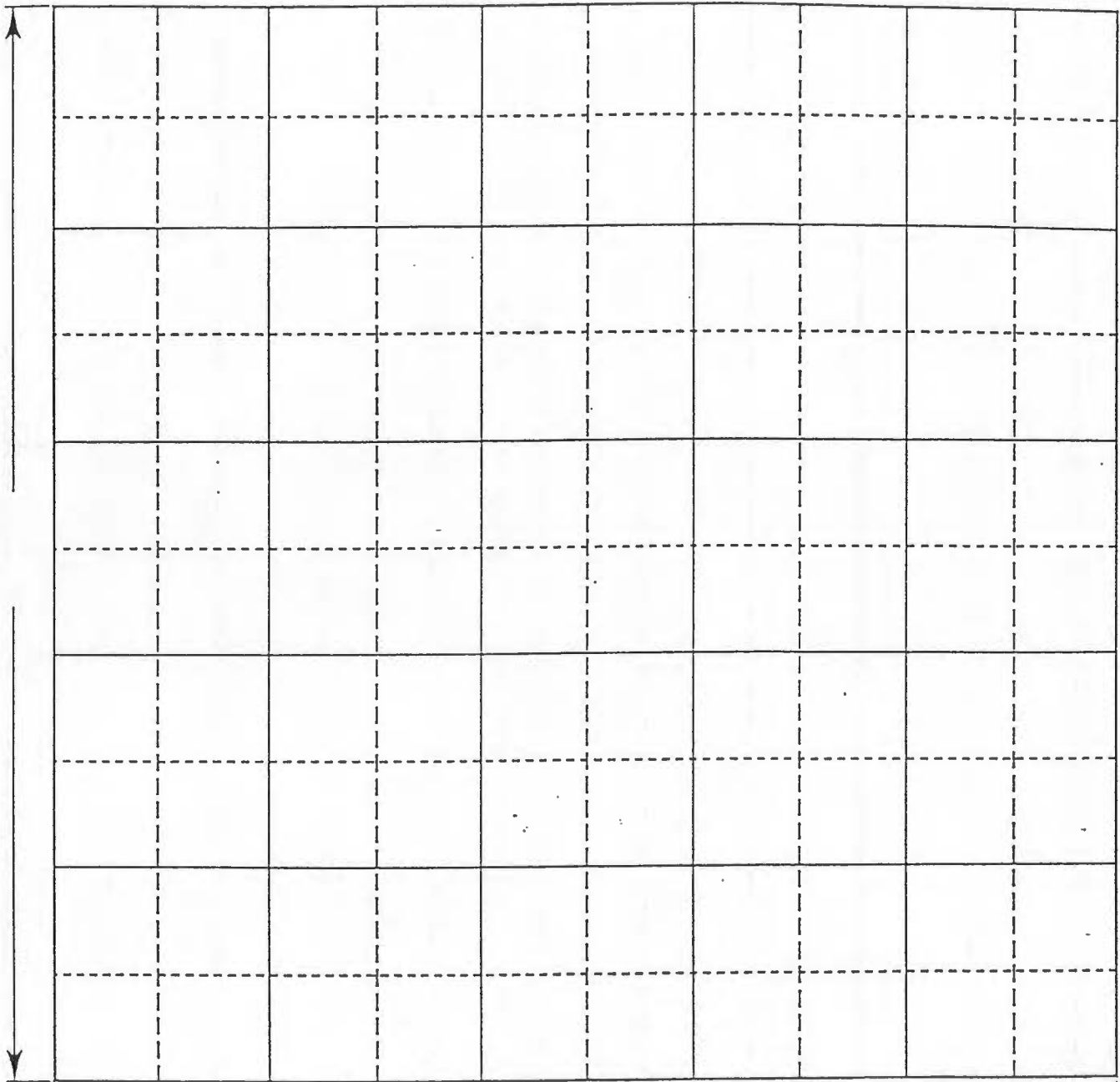


Map
Orientation

EODT QUALITY CONTROL GRID MAP
(To be used in conjunction with EODT Quality Control Inspection and Audit Log)

DATE: _____

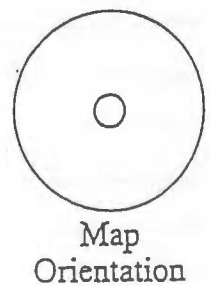
GRID NO: _____



NOTES:

LEGEND

- Surface UXO/OE
- △ Subsurface Anomalies
- ▲ Subsurface UXO/OE
- Restricted Area Boundary



Map
Orientation

EODT DEMOLITION SHOT RECORD

Site Name/Location:		Date:	
Shot Location (OB/OD Range or Grid No.):	Demolition Supervisor:	State License # (if applicable):	
Type of UXO/OE Destroyed, Vented or Burned:	Firing Method:	Time of Shot:	
Direction and Distance to Nearest Building, Road, Utility Line, etc.:	Temp: _____ Wind Dir./Speed: _____	Ceiling: _____ Clouds/% Sun: _____	
Type and Amount of Tamping Used:	Mat or Other Protection Used (list):		
Seismographic / Sound Level Meter Used: Yes <input type="checkbox"/> No <input type="checkbox"/>	Readings / Results:		
Demolition Materials Used			
Description	Amount	Description	Amount
Perforator		Time Fuze	
Det Cord		Squibs	
Electric Detonator		Black / Smokeless Powder	
Non-electric Detonator		Two Component	
Non-El Detonator		Other (list)	
Certification			
I certify that the explosives listed were used for their intended purpose, and that the UXO/OE listed were rendered inert/destroyed.			
Signature of Demolition Supervisor: _____		Date: _____	

Site Name/Location:		Date:	
Shot Location (OB/OD Range or Grid No.):	Demolition Supervisor:	State License # (if applicable):	
Type of UXO/OE Destroyed, Vented or Burned:	Firing Method:	Time of Shot: -	
Direction and Distance to Nearest Building, Road, Utility Line, etc.:	Temp: _____ Wind Dir./Speed: _____	Ceiling: _____ Clouds/% Sun: _____	
Type and Amount of Tamping Used:	Mat or Other Protection Used (list):		
Seismographic / Sound Level Meter Used: Yes <input type="checkbox"/> No <input type="checkbox"/>	Readings / Results:		
Demolition Materials Used			
Description	Amount	Description	Amount
Perforator		Time Fuze	
Det Cord		Squibs	
Electric Detonator		Black / Smokeless Powder	
Non-electric Detonator		Two Component	
Non-El Detonator		Other (list)	
Certification			
I certify that the explosives listed were used for their intended purpose, and that the UXO/OE listed were rendered inert/destroyed.			
Signature of Demolition Supervisor: _____		Date: _____	

EODT EQUIPMENT DATA AND PRICE QUOTE SHEET

Description of Item/Service: _____

Application/Justification: _____

Specifications: _____

Units Required:	Pricing Required:	Payment Required:	Availability:
-----------------	-------------------	-------------------	---------------

Vendor Information	Vendor	Vendor	Vendor
--------------------	--------	--------	--------

Name:			
-------	--	--	--

Address:			
----------	--	--	--

Telephone:			
------------	--	--	--

Facsimile:			
------------	--	--	--

Point of Contact:			
-------------------	--	--	--

Quoted Price:			
---------------	--	--	--

Terms/Conditions:			
-------------------	--	--	--

Remarks			
---------	--	--	--

(Attach Additional Sheets if Needed)

For Purchasing Use Only

Selected Vendor: _____ Pricing: _____

Justification: _____

EODT OUTGOING CORRESPONDENCE LOG

No.	Date	Brief Description of Title / Subject	Sent By	Sent To		Logged In By
				Name	Organizaiton	

EODT INCOMING CORRESPONDENCE LOG

Date	Brief Description of Title / Subject	Sent By		Sent To	Logged In By
		Name	Organizaiton		

EODT TELEPHONE CORRESPONDENCE RECORD

Site Name and Location:	Contract Number	Delivery Order Number:
-------------------------	-----------------	------------------------

Date	Time	Call From		Call To		Phone No.
		Name	Organization	Name	Organization	
Subject / Summary of Discussion: _____						
Actions to be Taken: _____						

Date	Time	Call From		Call To		Phone No.
		Name	Organization	Name	Organization	
Subject / Summary of Discussion: _____						
Actions to be Taken: _____						

Date	Time	Call From		Call To		Phone No.
		Name	Organization	Name	Organization	
Subject / Summary of Discussion: _____						
Actions to be Taken: _____						

Date	Time	Call From		Call To		Phone No.
		Name	Organization	Name	Organization	
Subject / Summary of Discussion: _____						
Actions to be Taken: _____						

EODT GOVERNMENT PROPERTY TRACKING LOG

Project Location:			Contract Number:			Delivery Order Number:	
Description	Model	Serial or ID Number	Quantity Received	Date Received	Unit Price	Owner/Supplier	Responsible Site Person(s)

EODT DOCUMENT CONTROL REGISTER

Document ID Number	Type of Document (log, disk, form)	Document Title	Custodian	Location	Remarks

EODT EXPLOSIVES PURCHASE/RECEIPT AUTHORIZATION LIST

Address and County: _____

Federal License #: _____ Expiration Date: _____

The following persons are agents, employees, or representatives of the undersigned, and are authorized to order or acquire explosive materials on behalf of EOD TECHNOLOGY, INC.:

Name and Home Address	Driver's License No.	Soc. Sec. Number	Place of Birth

The undersigned certifies the foregoing information to be true and correct to the best of his knowledge and belief, and that he will communicate any additions or deletions to the foregoing list to EOD Technology, Inc.

Corporate Officer

Date

EODT EQUIPMENT AND SUPPLY HAND RECEIPT TRACKING FORM

Location:				Contract No.:			Delivery Order No.:
Item	Serial No. (if applicable)	Issued To	Date Out	Quantity Out	Date In	Quantity In	Remarks

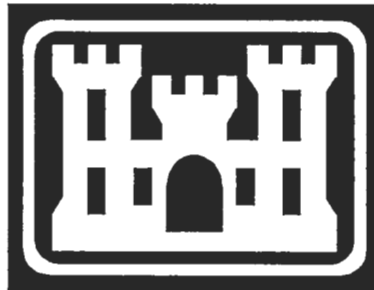
EODT EQUIPMENT CALIBRATION / RESPONSE CHECK LOG

Location:			Contract No.:					Delivery Order No.:					QCS:			
Equipment Nomenclature	Serial Number	Calibration / Response Check Test Date												Remarks		
		Initials of Person Conducting Calibration / Response Check														

APPENDIX F
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK
RESUMES

Contract Number: DACA87-97-D-0005
Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenior City, Tennessee 37932

March 1999

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES
DEPARTMENT OF CHEMISTRY

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TABLE OF CONTENTS

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2.0 RESUMES F-1

3.0 OSHA TRAINING F-1

4.0 MEDICAL SURVEILLANCE F-1



1.0 GENERAL

Upon receipt of the Notice to Proceed, and prior to mobilization, EODT will submit to the CEHNC for approval, the resumes for the additional UXO-qualified personnel which will be needed for the successful completion of this Task Order.

2.0 RESUMES

This appendix contains the resumes for the management and supervisory personnel listed below, which EODT proposes to use for the execution of the work associated with this Task Order.

- Jeffrey Bleke, Program Manager
- Doug Murray, Project Manager
- Andrew Bryson, CIH
- Michael Short, QC Manager
- Salvatore Molle, Senior UXO Supervisor

3.0 OSHA TRAINING

Prior to mobilization, EODT will ensure that all personnel assigned to this project will have received the training required by OSHA in 29 CFR 1910.120. EODT will further ensure that a copy of the 40-hour, and any applicable 8-hour refresher, certificates for all site personnel will be on file in the project field office.

4.0 MEDICAL SURVEILLANCE

Prior to mobilization, EODT will ensure that all EODT site personnel assigned to this project are enrolled in the medical surveillance program as required by the EODT Corporate Safety and Health Program and by OSHA in 29 CFR 1910.120. As proof of participation in the medical surveillance program, a copy of the physician's statement for each person assigned to the project will be on file at the field office.

JEFFREY P. BLEKE, P.E.
PROGRAM MANAGER

CITIZENSHIP	USA
B.S., CIVIL ENGINEERING	1980
REGISTERED PROFESSIONAL ENGINEER.....	1985
PROFESSIONAL EXPERIENCE	16 YEARS

EDUCATION/TRAINING

- B.S. Civil Engineering, Louisiana State University, 1980
- Registered Professional Engineer, 1985
- American Society of Civil Engineers
- Florida Engineering Society
- National Society of Professional Engineers

PAPERS

- *Characterization of Ordnance at Formerly Used Defense Sites*; American Defense Preparation Association (ADPA) 1994; J. Bleke, R. Young, B. Peterman, Dr. Ann Shortell

EXPERIENCE SUMMARY

Mr. Bleke, among the nation's most experienced Professional Engineers in the ordnance field, has over 16 years professional and practical experience in engineering, design, and management. Most recently Mr. Bleke managed the CPFF contract with CEHNC, which included both HTRW and ordnance projects. A registered Professional Civil Engineer, he also served as the Project Engineer (PE) in charge at 20 Formerly Used Defense Sites (FUDS) in the Continental United States (CONUS), the Virgin Islands, and Puerto Rico. Positions have included major roles in Project/Program Management, Remedial Construction, Office Management, Project Design, Incineration Design and Operations, RCRA Facility Investigations, Corrective Measure Studies, Ordnance Site Investigations, and Characterizations and Marketing.

Experienced managing multi-million dollar contracts for USACE.

PROFESSIONAL EXPERIENCE

1992-1996 **Program Director, U.S. Army Corps of Engineers (USACE) Programs, Environmental Science and Engineering, Inc. (ESE), Gainesville, FL**

Managed over \$50 million in contracts for several USACE districts, including Huntsville, Mobile, Jacksonville, Ft. Worth, Kansas City, Savannah, Omaha, Tulsa, and Sacramento. Contracts included Cost Plus Fixed Fee (CPFF), Firm fixed Price (FFP), and Cost Plus Award Fee (CPAF) types. Supervised over 100 Project Managers and support staff. Managed all subcontractors.

Specific projects include:

Project Director, *Site Sampling/Groundwater Monitoring to Amend Existing RI/FS Reports, DDRC Defense Logistics Agency Facility, Shelby County, TN - CEHNC*

- Provided analysis for existing monitoring wells and modified an existing RI/FS report in accordance with EPA QAMS 005/80 format.

Project Director/Project Manager, *Site Characterization and Remedial Designs, Engineering Evaluations and Cost Analyses (EE/CAs), Ordnance Removal at FUDS - CEHNC*

Sites included:

Camp Sibert	Camp Croft	Southwest Proving Grounds
Withalochoe Air Field	Ft. Segerra	Camp Green
Laurensburg-Maxo AFB	Culebra Island	Indian Rocks Beach
Brooksville Army Air Base	Camp Claiborne	Ft. Pierce

- Performed studies under CERCLA to determine areas contaminated or potentially contaminated with chemical agents or conventional ordnance. Estimated the nature and amount of contamination.
- Performed archive searches on the specific sites and used the data to follow-up with geophysical investigations at the FUDS.
- Submitted investigation data to the required agencies as detailed site characterization reports. Provided recommendations for the removal design or remedial actions for each location.
- Each project valued at an average of \$600,000
- Involved extensive coordination with subcontractors, regulatory agencies, several USACE districts, and the public.

Project Manager, *RCRA Facility Investigation (RFI), Redstone Arsenal, AL - CEHNC*

- Investigated potential contamination of soils and groundwater in and around six Solid Waste Management Units (SWMUs).
- Prepared work plan, performed soil gas surveying, prepared site, drilled and sampled monitoring wells, and wrote the RI report.

Project Director, *Water Treatment System Construction and Operation, USACE Sacramento District, Sharpe Army Depot - Lathrope, CA*

- Constructed a 350-gallon-per-minute carbon water treatment system that treated TCE-contaminated water.
- Estimated and staffed the \$2.7 million project.
- Constructed a bermed holding pond and connected over 3 miles of trenched 4- to 6-in.-diameter PVC pipe to existing extraction and injection wells. Constructed the treatment/equipment pad and drainage ditches.
- Supplied Operations and Maintenance (O&M) support for the plant for one year.

Project Manager, *Incinerator Specification and Design, Confidential Client*

- Wrote specifications for incineration and related equipment for a CERCLA remediation and incineration project, including baghouse, rotary kiln, rotary drier, materials handling system, ash quench system, secondary combustion chamber, and emergency backup system.

Project Director, *Corrective Action Management Plan (CAMP)*, Redstone Arsenal, AL - CEHNC

- Directed CAMP report activities to define and prioritize over 200 SWMUs.
- Used report as a basis for further action at the facility following RCRA guidelines.

Project Director, *Corrective Measures Study (CMS)*, Redstone Arsenal, AL - CEHNC

- Directed the CMS, which evaluated alternatives for cleaning up 10 SWMUs.
- Based recommendations on contamination type, available technologies, innovative technologies, and cost.
- Used report as a basis for further RCRA action at the site.

Assistant Project Manager, *RCRA Facilities Investigation*, PANTEX, Amarillo, TX - USACE Tulsa District

- Assisted the Project Manager in contract performance.
- Drilled and sampled 11 wells to characterize and delineate potential contamination from site activities.
- Assisted in subcontractor management and project budgeting.

1986-1992 **Senior Project Manager/Project Manager/Senior Engineer**, *IT Corporation*, Port Allen, LA

Project Manager for large remediation and remedial construction contracts. Recognized as one of the most senior construction managers in the corporation. Performed many projects under the Omaha Rapid Response contract and for other USACE agencies. Projects included:

Project Director, *Rinsewater Pond Phase II Surface Pond Closure*, New Orleans, LA - Martin Marietta Manned Space Systems, Inc.

- Managed all remediation aspects and closure for a surface pond.
- Wrote proposal, negotiated contract, and submitted certified cost data to client for project implementation.
- Assigned Project Manager and Site Manager for site engineering and remediation.
- Prepared detailed Work Plan (WP), Health & Safety Plan, and Construction Quality Assurance Plan (CQAP).
- Reviewed final report.

Project Manager, *Underground Storage Tank (UST) Closure*, Fort Riley, KS - USACE Omaha District

- Initiated action within 14 days of notification, as specified by this National Rapid Response contract.
- Implemented immediate removal and closure of USTs located on the base.
- Reviewed the WP, CQAP, and Health & Safety plans.
- Submitted and negotiated project cost.

- Wrote specific software formatted IAW USACE specifications to perform cost tracking.

Project Manager, *Site Assessment for Contaminated Wetlands*, Lake Charles, LA - Confidential Client

- Managed all assessment aspects for a large Chemical Manufacturer's accidental discharge of hazardous waste into a wetland area.
- Worked with Federal, state, and local authorities to develop a WP to contain, remove, and treat the contaminated soils.
- Represented the client in negotiations and oversaw all contractors.

Project Manager, *Environmental Consulting*, Port Hudson, LA - Confidential Client

- Managed human and material resources in implementing various engineering projects at a large pulp and paper mill.
- Directly oversaw all engineering design, landfill monitoring, UST closures, dewatering, waste minimization, permitting, and remediation activities for the facility.

Project Manager, *Site Cleanup*, New Orleans, LA - Martin Marietta Manned Space Systems, Inc.

- Managed demolition and cleanup of a parts treatment center.
- Completed asbestos removal and disposal of large volumes of hazardous and non-hazardous materials.
- Performed work in accordance with all applicable local, state, and Federal regulations.

Project Manager, *Rapid Response Cleanup and Closure*, Fort Buchanan, Puerto Rico - USACE Omaha District

- Managed cleanup of a facility contaminated with pesticides, asbestos, and polychlorinated biphenyls (PCBs).
- Coordinated with Federal and local authorities to safely remove contaminated materials.

Site Manager, *Landfill Construction and Remediation*, Carson, CA - Confidential Client

- Managed all aspects from proposal and contract negotiations to construction and completion of a 64-acre landfill site.
- Removed and placed asbestos-containing material (ACM) in an onsite landfill.
- Coordinated activities with local, state, and Federal authorities.
- Managed public relations with the local populace and news media.
- Contract valued at \$5 million.

Senior Project Engineer, *Engineering and Design, Hybrid Thermal Treatment System (HTTS)*, Knoxville, TN - IT Corporation

- Managed the design and specification of the HTTS transportable incineration system, which was later successfully used for the destruction of regulated hazardous materials, including TNT, RDX, and PCBs.
- Secured the project team for all associated equipment specifications, including feed system, rotary kiln, hot duck, secondary combustion chamber, quench, and scrubber system.

Project Engineer/Site Management, TNT-, UXO-, and RDX-Contaminated Sites, Cornhusker Army Ammunition Plant (CAAP), Grand Island, NE and Louisiana Army Ammunition Plant (LAAP), Minden, LA - USACE Omaha District

- Remediated 60,000³ yards of UXO-, TNT-, and RDX- contaminated soils from "Pink Water" lagoons. Removed the soils from the lagoons, de-watered them, and reduced their volume. Processed the water into the onsite carbonated treatment system. Examined and loaded the soils into a screening device and removed large (>6-in.-diameter) pieces.
- Transported the remaining soils to the subcontractor-supplied materials handling building for additional screening before being processed into the incineration system. Fed the materials into the incineration system. Sampled and placed materials in an onsite landfill (constructed as part of the contract).
- Designed a water collection system for the site.
- Incinerated TNT- and RDX-contaminated soils (less than 10% explosives by volume) and constructed landfills to contain the resulting ash.
- Managed a staff of professional, remediation, and maintenance personnel.
- Negotiated contract changes with the USACE Omaha and implemented engineering design changes including field changes.
- Interacted with Federal and state officials and provided public relations support.
- Increased plant operation efficiency—particularly soils recovery, wastewater treatment plant, and the feed and ash handling systems.
- Total contract value of \$30 million.
- Conducted these projects continuously over a three-year period, which required significant logistical support for the 60-man operation.

1984-1986 **Manager of Engineering/Project Manager, Shirco Infrared Systems - Dallas, TX**

Managed the engineering, design, and start-up of the world's largest mobile infrared incinerator. Designed the incinerator to thermally destruct PCBs and dioxins. Used the system to successfully destroy contaminated soils at a number of former steel plant locations throughout Florida. Conducted trial burns and obtained the necessary RCRA permits. Negotiated the contract with the client companies that purchased the system.

Startup Manager, Incineration, Superfund Site, Florida Steel Corporation - Indiantown, FL

- Remediated a Florida Superfund Site (NPL Site 238) contaminated with PCBs.
- Excavated PCB-contaminated soils, placed them in storage areas, and processed them through an RCRA-permitted infrared thermal system.
- Oversaw system start-up and commissioning.

1980-1984 **Plant Associate Civil Engineer, Armco Steel Corporation, Steel Division, Houston, TX**

Performed Civil Engineering duties for a large steel mill operation, including foundation design, plant surveying, structural design, air quality permitting, wastewater process plant design, furnace design and modifications, and environmental engineering.

Construction Engineer, Houston Works Plant Recuperation System

- Implemented a \$75 million re-fit of plant furnace equipment. Installed equipment and recuperated heated gasses for energy savings throughout the entire plant.

Design Engineer, Foundation Design, Sinter Plant Baghouse

- Designed foundation support for a large expansion project for the Houston Works.

Project Engineer, Air Quality Analysis, Houston Works

- Surveyed all stacks to define the emissions of solids into the atmosphere surrounding the facility.

<i>RFP Requirements: Program Manager</i>	<i>Mr. Bleke's Qualifications: Program Manager</i>
<ul style="list-style-type: none"> ● 3 Years in General Contract Project Management ● Experience should be on Programs Similar in Size and Complexity to the Effort Described in the SOW 	<ul style="list-style-type: none"> ● Over 16 years experience, including 12 years in project management. ● Managed multi-million dollar programs totalling \$50 million.

DOUGLAS L. MURRAY
PROJECT MANAGER

CITIZENSHIP	USA
GRADUATED FROM INDIAN HEAD	September 3, 1980
MILITARY EOD EXPERIENCE	13.0 YEARS
COMMERCIAL UXO EXPERIENCE	2.92 YEARS

EDUCATION/TRAINING

- First Aid/CPR (1998)
- HAZWOPER Annual Refresher Training Courses (1997/98)
- Hazardous Waste Site Operations and Emergency Response (HAZWOPER) Course, Roane State Community College, Oak Ridge, Tennessee (1996)
- Hazardous Materials Incident Response Operations Course, EPA Office of Emergency and Remedial Response, Washington, D.C. (1996)
- Numerous Hazardous Waste Management Courses, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio (1991-94)
- Basic EOD School, Indian Head, Maryland (1980)
- M.A., Psychology, University of Northern Colorado, Greeley, Colorado (1979)
- B.S., Chemistry, University of Maryland, College Park, Maryland (1977)

PROFESSIONAL EXPERIENCE

9/80-8/93 Explosive Ordnance Disposal Officer, United States Air Force

- TSDF Operations
 - Operations manager of the Air Force's largest OB/OD Treatment Storage and Disposal Facility (TSDF), treating more than 1.2 million pounds of waste munitions a year with 86 EOD technicians.
 - Wrote detailed treatment procedures and developed safety, training, and quality assurance programs. Also ensured worker compliance with OSHA.
 - Designed a replacement TSDF to treat munitions as diverse as rocket motors weighing over 100,000 pounds each, hard-cased bombs, and uncased explosives.
 - Developed a sampling and monitoring protocol for ash, air, and soil media.
- Munitions Demilitarization Operations
 - Supervised the demilitarization of chemical warfare munitions in the field.
 - Supervised the demilitarization of live explosive ordnance in preparation for shipment to reverse engineering and disassembly facilities.
- Site Remediation
 - Led numerous teams clearing explosive residue from bombing and gunnery targets on ranges

- in Arizona, Italy, New Mexico, and Utah. In Utah, he averaged over 5,000 acres annually. Operations included surface sweeps as well as *in situ* neutralization of buried UXO.
- Co-designed a one-of-a-kind plant to extract plutonium from contaminated soil at Johnston Atoll in the Pacific. Fully characterized extent of contamination and assisted in plant set up. Operations resulted in a 99.99% clean soil recovery rate.
 - Organized and executed restoration of two 500-acre sites contaminated with explosive and chemical ordnance residue. Conducted site surveys, oversaw writing of the EPA-required studies, obtained required resources, appeared before the media with concerned citizen's environmental groups, and directed site remediation.
 - Author of DoD standards on remediating explosively-contaminated property prior to turning over land to the public under the Base Realignment and Closure process.

5/96-10/98 UXO Project Manager, Munitions, Energetics and Demilitarization Team, Radian International, Oak Ridge, Tennessee

- Supporting DoD Bombing/Gunnery and OB/OD Ranges
 - Provided unexploded ordnance (UXO) avoidance services during intrusive activities at three Army, two Air Force, and one Marine Corps OB/OD facilities.
 - Identified and cataloged waste munitions residue remaining on Army gunnery ranges following training activities, determining which were already characterized under RCRA and which needed characterization in order to properly manage as solid or hazardous waste.
- Writing RCRA Subpart X Permits
 - Wrote Part B operating permit applications for Army and Air Force OB/OD ranges.
 - Authored an Explosive Safety Submission for a Navy bombing and gunnery range.
 - Wrote an analysis of munition emissions factors following OB/OD operations and devised groupings, or “families,” of explosives into which various munitions fell. This aided four DoD installations in obtaining required RCRA permits without limiting their operations to specific ordnance lists.
- Managing Unserviceable Munitions
 - Assisted the Headquarters, Department of the Army in writing implementing instructions for the EPA Munitions Rule.
 - Determined the safest and least expensive means to dispose of several Sea Lance missile motors held by the manufacturer after termination of the missile procurement program.
 - Conducted an analysis of DoD’s 127 RCRA permitted or interim status OB/OD TSDF units, evaluating each in terms of its capability and capacity, and making recommendations on their continuance or closure.
 - Wrote for the U.S. Army a “How-to Book,” designed for installation managers to determine the requirements for and effectiveness of their OB/OD units, including step-by-step instructions on how to terminate their permit application and close their unit, if required.
 - Authored the DoD’s first-ever regulatory audit protocol for unserviceable munitions.
 - Developed an in-depth waste munitions management plan, together with standard operating procedures, for an Air Force and an Army installation.

11/98-Present UXO Project Manager, EOD Technology, Inc., Lenoir City, Tennessee

- Provided simultaneous project management support for up to three Ordnance and Explosives (OE) removal operations in support of the Huntsville Center, Corps of Engineers.
 - This included all pricing, task sequencing, planning, personnel management, execution, and report writing activities.

EOD/UXO-RELATED ASSIGNMENTS

- 11/98-Present UXO Project Manager, EODT, Inc., Lenoir City, Tennessee.
- 5/96-10/98 UXO Project Manager, Munitions, Energetics and Demilitarization Team, Radian International, Oak Ridge, Tennessee.
- 7/91-8/93 Air Force EOD Program Manager, Office of the Civil Engineer, Headquarters Air Force, Pentagon, Washington. D.C.
- 7/88-7/91 Commander, 2701st EOD Squadron, Hill Air Force Base, Utah.
- 7/85-7/88 EOD Staff Officer, Defense Nuclear Agency, Kirtland Air Force Base, New Mexico.
- 7/83-7/85 EOD Program Manager, Headquarters United States Air Forces in Europe, Ramstein Air Base, Germany
- 9/80-7/83 Commander, 7004th EOD Flight, Aviano Air Base, Italy.

PROFESSIONAL REGISTRATIONS

- 1993 Registered Environmental Manager (Illinois)

PROFESSIONAL AFFILIATIONS

- International Association of Bomb Technicians and Investigators (IABTI), 1988-Present.
- Society of American Military Engineers (SAME), 1993-Present.
- The EOD Masterblasters, 1992-Present.

ANDREW L. BRYSON, JR.
PROGRAM SAFETY & TRAINING

CITIZENSHIP	USA
CERTIFIED INDUSTRIAL HYGIENIST	1993
MASTER OF PUBLIC HEALTH, OCCUPATIONAL & ENVIRONMENTAL HEALTH & SAFETY	1991

EDUCATION/TRAINING

- *Certified Industrial Hygienist, American Board of Industrial Hygiene (1993)*
- *OSHA 40 Hour Hazardous Waste Operations, Emergency Response Course and Annual Refresher (1991/92/93/94/95/96)*
- *OSHA 8 Hour Hazardous Waste and Emergency Response Supervisor Course (1991)*
- *First Aid/CPR with Annual CPR Refresher (1993/94/95)*
- *Master of Public Health, Occupational & Environmental Health and Safety, University of Tennessee (1991)*
- *NIOSH Sampling and Evaluating Airborne Asbestos Dust (1991)*
- *Supervision of Asbestos Abatement Projects (1989/90)*
- *Inspection of Buildings and Asbestos-Containing Materials (1990)*
- *Bachelor of Arts, Organismal and Systems Biology, University of Tennessee (1983)*

EXPERIENCE SUMMARY

A Certified Industrial Hygienist, Mr. Bryson has over seven years of experience in the multi-disciplinary field of Occupational Safety and Health. Mr. Bryson currently serves as the Occupational Safety and Health Manager for EOD Technology, Inc. where he develops and implements EODT's Corporate safety and health

He developed a generic SSHP for CWM-contaminated sites for use by all (USACE) contractors investigating and remediating wastes at known or potential CWM sites.

policies, procedures and programs. Mr. Bryson maintains, updates and implements the EODT Corporate Safety and Health Program (CSHP). Develops and presents OSHA required safety, health, hazardous waste and emergency response training courses. Provides occupational safety and health consultation to EODT management and on-site personnel who investigate and remediate sites contaminated with hazardous, toxic, and radiological waste (HTRW), unexploded ordnance (UXO), ordnance and explosive waste (OEW) and Chemical Warfare Material (CWM). Mr. Bryson has considerable experience researching and developing Site Safety and Health Plans (SSHPs) for HTRW, OEW and CWM sites. Conducts on-site occupational safety and health audits to ensure EODT's continued compliance with applicable Federal, state, and local safety and health regulations. His qualifications also include a thorough knowledge of the safety and health requirements mandated by OSHA, ANSI, EPA, DOE, and US Army standards and regulations.

Through his current and previous employment, Mr. Bryson has gained extensive experience providing industrial hygiene and industrial safety consultation and management services. This experience includes:

- *Developing and presenting OSHA required training programs;*
- *Conducting site and facility assessments involving the anticipation, recognition, evaluation, and control of process and work place safety and health hazards; and*
- *Utilizing direct-reading real-time instruments and integrated sampling to assess personnel exposed to chemical and physical hazards.*

PROFESSIONAL EXPERIENCE

Assistant Safety and Health Manager - UXO/OEW/CWM Project - Former American University, Washington D.C.

- *Provided health and safety consultation to the Site Safety and Health Officer and project management personnel, and acted as the EODT liaison with the Corps of Engineers, Huntsville Division health and safety staff.*
- *Integral in developing the project Safety, Health and Emergency Response Plan (SHERP).*
- *Developed and presented site specific training related to hazards associated with CWM, HTRW and operational hazards.*
- *Conducted periodic audits of the site facilities and operations and ensured the safe and healthful conduct of site operations and EODT's continued compliance with OSHA, USACE, and Army regulations.*
- *Identified and successfully applied cost effective, commercially available, real-time monitoring instruments capable of detecting various chemical warfare agents at levels significantly lower than instruments being used by the military at that time.*

Assistant Safety and Health Manager - Area 5 Former Raritan Arsenal, NJ

This site was a confirmed CWM burial and disposal site where EODT characterized and determined the type and extent of CWM contamination. Mr. Bryson:

- *Developed the site SHERP, which involved the integration and use of both government-provided and commercially available CWM monitoring to allow for the safe detection of CWM in both the work area and at the site perimeter.*
- *Provided safety and health consultation and periodic on-site support to the SSHO, and maintained frequent communication with the USACE safety and health staff personnel.*

Occupational Safety and Health Manager - Title I and II Services, Southeastern U.S.

This project involved the assessment, investigation and remediation of UXO/OEW contamination at over 17 sites throughout the Southeastern United States and Puerto Rico. While UXO/OEW has been the primary contaminant on these sites, several of the site have been identified by the USACE as being potential CWM sites as well. Developed the SSHPs for each site. Through site inspections and frequent communication with the SSHOs, Mr. Bryson implemented EODT, OSHA and USACE safety and health requirements during site operations.

Occupational Safety and Health Manager - Drum and Cylinder Sampling, Elmendorf AFB, Anchorage, AK

This project presented significant operational challenges. Drum and cylinder sampling involved collecting samples from 55-gallon steel drums, and five unlabeled high pressure gas cylinders. X-ray and physical examination of the drums revealed concrete-encapsulated storage containers inside the drums. Drums had a piece of plywood imbedded in the concrete labelled "DANGER CYANIDE". Mr. Bryson developed the SSHP and Site Sampling and Monitoring Plan involving the selection of work practice controls and personal protective equipment (PPE) to ensure the health and safety of both on- and off-site personnel.

Demonstration Project for Debris Separation, Open Burn Areas, Savanna Army Depot

EODT, under subcontract to an engineering firm, had a significant role in the performance of this demonstration project for the USACE Nashville District. This project's goal was to gain information to aid in the future remedial designs of other similarly contaminated sites.

- Used advanced sifting technology to remove UXO/OEW debris from over 15,700 cubic yards of soil contaminated with heavy metals and organic contaminants, with the potential for encountering CWM. EODT site personnel performed extensive site clearing, then constructed support facilities and an environmental enclosure for the sifting operations.*
- EODT personnel also conducted the set-up and testing of the sifters, and conducted excavation and sifting operations.*
- Developed the project SSHP, which involved the design and assignment of the engineering controls, work practice controls, PPE, real-time monitoring and integrated sampling which resulted in the successful protection of site personnel from the numerous site safety and health hazards.*
- Provided consultation and trouble-shooting to the EODT SSO and ensured implementation of all relevant safety and health regulations.*

RFP Requirements: Program Safety and Training	Mr. Bryson's Qualifications: Program Safety and Training
<ul style="list-style-type: none"> <i>• Bachelor degree in Safety, Health, or related field.</i> <i>• Board-Certified in Industrial Hygiene</i> <i>• 2 Years Experience</i> 	<ul style="list-style-type: none"> <i>• Master of Public Health, Occupational & Environmental Health and Safety</i> <i>• Certified Industrial Hygienist</i> <i>• 7 Years Professional Experience</i>

MICHAEL E. SHORT
QUALITY CONTROL MANAGER

CITIZENSHIP	USA
GRADUATED FROM INDIAN HEAD	1967
MILITARY EOD EXPERIENCE	8 YEARS
COMMERCIAL UXO EXPERIENCE	5 YEARS
RELATED EXPLOSIVE EXPERIENCE	30 YEARS

EDUCATION/TRAINING

- OSHA 8 Hour Refresher Hazardous Waste Site Workers Course (1992/93/94/95/96/97/98)
- OSHA 40 Hour Hazardous Waste Site Workers Course (1991)
- First Aid/CPR with Annual CPR Refresher (1991/92/93/94)
- OSHA 8 Hour Hazardous Site Workers Supervisors Course (1991)
- European Explosive Safety Course, Rouen, France (1989)
- Explosive Plant Operations School, IRECO, Salt Lake City, Utah (1979)
- Du Pont Explosive Safety School, Atlantic City, New Jersey (1978)
- QA/QC School, Milliken & Company, Spartanburg, South Carolina (1977)
- B.A., Business Management, Golden Gate University, San Francisco, California (1976)
- Ammunition Officers Course, Aberdeen Proving Ground, Maryland (1970)
- Army EOD Chemical/Biological Warfare School, Ft. McClellan, AL (1967)
- Basic and Advanced Naval EOD School, Indian Head, Maryland (1967/68)
- Demolition School, Ft. Leonard Wood, Missouri (1965)

CIVILIAN EOD/UXO ASSIGNMENTS:

- 10/91-Present EOD Technology, Inc., Knoxville, Tennessee, Vice President/Director of Operations/Program Manager & Project Manager
- 05/93-09/94 EOD Technology, Inc., Knoxville, Tennessee, Director of Engineering Services
- 10/91-01/92 Corporate Safety, QA/QC and Training Manager, EOD Technology, Inc.
- 07/91-09/91 Site Safety and Health Officer, EOD Technology, Inc., Macon, GA
- 04/91-07/91 Site Safety and Health Officer, EOD Technology, Inc., Biwabik, MN
- 06/87-12/89 Instructor, EIC Course, Oklahoma City, Oklahoma and Baton Rouge, Louisiana

MILITARY EOD/UXO ASSIGNMENTS:

- 08/72-08/74 Advisor Thai EOD and Ordnance Units, JUSMAG, Thailand.
- 07/68-09/71 Detachment Commander, 51st EOD, Fort Sheridan, Illinois.
- 09/67-07/68 Student and Instructor, U.S. Army Detachment, Naval EOD School, Indian Head, Maryland.
- 06/65-08/66 Company Commander and Ammo Depot Operations Officer, 821st Ordnance Company, Vietnam.

PROFESSIONAL AFFILIATIONS

- International Association of Bomb Technicians and Investigators (IABTI) (1972 - Present)
- Society of Explosive Engineers (SEE) (1978 - Present)
- Society of Mining Engineers (SME) (1987 - Present)
- Tactical Response Association, International (1989 - Present)
- Texas Tactical Officers Association (1989 - Present)

SALVATORE A. MOLLE
SENIOR UXO SUPERVISOR

CITIZENSHIP	USA
GRADUATED FROM INDIAN HEAD	1975
MILITARY EOD EXPERIENCE	12.83 YEARS/USN
COMMERCIAL UXO EXPERIENCE	3.75 YEARS

EDUCATION/TRAINING

- *U. S. Naval Explosive Ordnance School, Indian Head, MD (1975)*
- *Navy Underwater Swimmer School, Key West, Florida (1975)*
- *OSHA 40 Hour Hazardous Waste Site Workers Course (1993)*
- *OSHA 8 Hour Refresher Training Course (1994/95/96/97/98)*

MILITARY EOD/UXO ASSIGNMENTS

- 12/75-08/80 EOD Demo Range Officer. EOD Unit ONE, Barbers Point, Hawaii. OIC - Shipboard EOD teams. Demo OPS in Hawaii, Philippines, and Thailand.*
- 08/80-08/82 EOD OIC Det. Subic Bay, Republic of Philippines. AOIC of Det. Com U. S. Navy Philippines. Live fire range safety and EOD officer.*
- 08/82-12/84 OIC Det. Brunswick. EOD Group TWO, NAS Brunswick. NAS demo range officer.*
- 12/84-07/87 EOD Detachment West Pac, Subic Bay, Republic of Philippines. AOIC of Det. Com U. S. Navy Philippines. Live fire range safety and EOD officer.*
- 07/87-01/88 EOD Mobile Unit 5, Subic Bay, Republic of Philippines. AOIC of Det. Com U. S. Navy Philippines. Live fire range safety and EOD officer.*
- 01/88-08/89 EOD School, Indian Head, Maryland. Demo range officer for NAVSCOL EOD.*

CIVILIAN EOD/UXO ASSIGNMENTS

- 04/92-03/93 Team Member. EOD WSI, Kuwait. Performed disposal operations throughout Kuwait. QA member - 80 Indians, 4 EOD walking sweeps of sub-sectors.*
- 06/93-06/93 UXO Specialist. Former Raritan Arsenal, Edison, NJ. EODT's U. S. Army Corps of Engineers Huntsville Division's OEW Remediation East of the Mississippi Program.*
- 04/94-04/94 UXO Specialist. Former Raritan Arsenal, Edison, NJ. EODT's U. S. Army Corps of Engineers Huntsville Division's OEW Remediation East of the Mississippi Program.*

- 06/94-06/94 *UXO Supervisor. Former Raritan Arsenal, Edison, NJ. Roy F. Weston's U. S. Army Corps of Engineers Environmental Program.*
- 03/95-05/95 *Sr. UXO Supervisor/Field Operations Manager. Camp Green, Charlotte, NC. Environmental Science and Engineering EE/CA Program - CEHNC.*
- 11/95-12/95 *Senior UXO Supervisor/Field Operations Manager. Barry M. Goldwater Bombing Range, Gila Bend, AZ. Dame & Moore AFCEE Program.*
- 05/95-9/95 *Senior UXO Supervisor/Project Manager/UXO Site Manager, EOD Technology, Inc., Picatinny Arsenal, Dover, NJ - ICF Kaiser. Supervised and managed soil sampling and well installations, UXO and OEW identifications and avoidance.*
- 11/95-12/95 *Senior UXO Supervisor/Project Manager, EOD Technology, Inc., Barry M. Goldwater Bombing Range, Gila Bend, AZ. Dam & Moore AFCEE Program. Supervised and managed this OB/OD closure project with included sifting of soil using a shaker.*
- 01/96-04/96 *Senior UXO Supervisor/Project Manager/UXO Site Manager, EOD Technology, Inc., Picatinny Arsenal, Dover, NJ. ICF Kaiser. Supervised and managed soils sampling and monitoring well installation, UXO. OEW identification and avoidance.*
- 04/96-07/96 *Senior UXO Supervisor/Project Manager/UXO Site Manager, EOD Technology, Inc., Former Raritan Arsenal, Edison, NJ. Roy F. Weston. Supervised and managed well installation, trench excavation, brush removal and UXO/OEW identification and avoidance.*
- 08/96 *Senior UXO Supervisor/Project Manager/UXO Site Manager, EOD Technology, Inc., Picatinny Arsenal, Dover, NJ. ICF Kaiser. Waterborne UXO identification and avoidance in the taking of lake bottom soil samples.*
- 10/96 *Senior UXO Supervisor/Project Manager/UXO Site Manager, EOD Technology, Inc., TCAAP, New Brighton, MN. QA of OB/OD area to include a ferrous and non-ferrous geophysical survey and intrusive investigation.*
- 11/96 *Senior UXO Supervisor/Project Manger/UXO Site Manager, EOD Technology, Inc., Fort Knox, Ky. SAIC. Surveying in girds and conducting an EM-31 survey to identify burial pits. Surface clearance of OEW/UXO.*
- 11/96 *Senior UXO Supervisor/Project Manager/UXO Site Manager, EOD Technology, Inc., Picatinny Arsenal, Dover, NJ. ICF Kaiser. UXO/OEW identification and avoidance in support of soil sampling and well installation.*
- 03/97 *Senior UXO Supervisor, EOD Technology, Inc., Fort Knox, KY. Conducting UXO Survey utilizing EM-31.*
- 04/97-05/97 *Senior UXO Supervisor, Middlesex, NJ.*

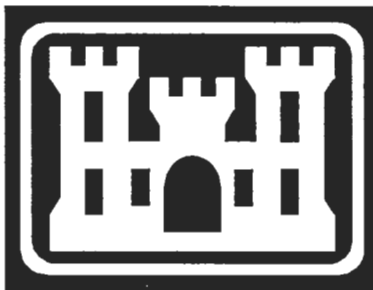
- 08/97 Senior UXO Supervisor, Vance International V.I.P. Rockville, MD.*
- 10/97 Senior UXO Supervisor, EOD Technology, Inc., Seneca, NY.*
- 11/97-12/97 Senior UXO Supervisor, EOD Technology, Inc., Jefferson Barracks, St. Louis, MO.*
- 01/98-06/98 Senior UXO Supervisor, EOD Technology, Inc., McGregor Range, Ft. Bliss, TX.*
- 06/98 SUXOS, EOD Technology, Inc., Raritan, Edison, NJ*
- 09/98-10/98 Senior UXO Supervisor; EOD Technology, Inc., Seneca Army Depot, Romulus, NY*
- 01/99 SUXOS, EOD Technology, Inc., Seneca Army Depot, Romulus, NY*
- 01/99-Present SUXOS, EOD Technology, Inc., Woodbine, GA*

APPENDIX G
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

STANDARD OPERATING PROCEDURES

Contract Number: DACA87-97-D-0005
Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenoir City, Tennessee 37932

March 1999



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U.S. ARMY CORPS OF ENGINEERS, HUNTSVILLE DIVISION (CEHND)
SAFETY CONCEPTS AND BASIC CONSIDERATIONS FOR
UNEXPLODED EXPLOSIVE ORDNANCE (UXO)

1.0 INTRODUCTION

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. Safety is the leading edge of quality.

2.0 REFERENCES

The following documents form a part of this document to the extent referenced.

- ATF 5400.7 Alcohol Tobacco and Firearms Explosives Laws and Regulations
- 27 CFR Part 55 Commerce in Explosives
- 29 CFR 1910 Occupational Safety and Health Standards
- 29 CFR 1926 Safety and Health Regulations for Construction
- 49 CFR 100-199 Transportation
- DoD 6055.9-STD DoD Ammunition and Explosives Safety Standards
- DA PAM 385+64 Ammunition and Explosives Safety Standards
- ETL 385-1-2 Genetic Scope of Work for Ordnance Avoidance Activities
- TM 9-1300200 Ammunition General
- TM 9-1300-214 Military Explosives
- TM 9-1375-213-12 Operator's and Organization Maintenance Manual (Including Repair Parts and Special Tools List); Demolition Materials

3.0 DEFINITIONS

3.1 Unexploded Ordnance (UXO)

An item of ordnance which has failed to function as designed, or has been abandoned or discarded, and is still capable of function and causing injury to personnel or damage to material.

3.2 UXO Procedures

UXO procedures include but are not limited to the following actions:

1. Gaining access to (manual excavation) and identifying subsurface anomalies, and assessing condition of buried UXO.
2. Identifying and assessing condition of surface UXO.
3. Recovery and final disposal of all UXO.

3.3 UXO Related procedures

UXO related procedures include but are not limited to the following:

1. Location and marking of subsurface anomalies.
2. Location and marking of suspected surface UXO.
3. Transportation and storage of recovered UXO.
4. Utilizing Earth Moving Machinery (EMM) to excavate soil no closer than approximately 12 inches to a subsurface anomaly.

3.4 UXO Qualified Personnel

UXO qualified personnel are US citizens who have graduated from the US Army Bomb Disposal School, Aberdeen, MD, or the US Naval Explosive Ordnance Disposal (EOD) School, Indian Head, MD. Graduates of the EOD assistant Course, Redstone Arsenal, AL, or Eglin AFB, FL with more than three years combined active duty military EOD and contractor UXO experience shall also be UXO qualified.

4.0 GENERAL SAFETY CONCERNS

4.1 UXO operations shall not be conducted until a complete plan for the operation involved is prepared and approved. Plans shall be based upon limiting exposure to a minimum number of personnel, for a minimum time, to the minimum amount of UXO, consistent with safe and efficient operations.

4.2 Only UXO qualified personnel shall be involved in UXO procedures. Non-UXO qualified personnel may be utilized to perform UXO related procedures when supervised by UXO qualified personnel. All personnel engaged in operations shall be thoroughly trained in explosive safety and be capable of recognizing hazardous explosive exposures.

4.3 The use of electroexplosive devices (EED) susceptible to electro magnetic (EMR) devices in the radio frequency (RF) range, that is, radio, radar, and television transmitters, has become almost universal.

4.4 Some ordnance is particularly susceptible to EMR (RF) emission. A knowledge of ordnance that is normally unsafe in the presence of EMR (RF) is important so preventive steps can be taken if the ordnance is encountered in a suspected EMR (RF) field.

4.4.1 The presence of antennas, communication and radar devices should be noted on initial site visits and/or preliminary assessments.

4.4.2 When EMR hazards exist, the site shall be electronically surveyed for EMR/RF emissions and appropriate actions will be taken. Minimum safe distances from EMR/FR sources are listed in Tables 2-2, 2-3 and 2-4 of TM 9-1375-213-12.

4.5 Do not wear outer or undergarments which have high static generating characteristics when working on UXOs. Materials of 100 percent polyester, nylon, silk or wool are highly static-producing. Any person handling a UXO suspected of containing EED will ground himself/herself prior to touching the UXO. Refer to DA PAM 385-64 for more information regarding non-static producing attire.

5.0 UXO SAFETY PRECAUTIONS FOR SITE CHARACTERIZATION

5.1 Make every effort to identify the UXO. Carefully examine the item for markings and other identifying features such as shape, size and external fittings. However, do not move the item to inspect it. If an unknown UXO is encountered, the US Army Engineering and Support Center, Huntsville (USAESCH) representative will be notified.

5.2 Foreign UXO were returned to the United States for exploitation and disposal. When a records search should indicate the possibility of foreign UXO being on the site, appropriate safety precautions and procedures will be incorporated into UXO operation plans.

5.3 Any time a suspected chemical munition is encountered, all personnel will withdraw up wind from the munition. A two person UXO team, located upwind, shall secure the munition until relieved by the Technical Escort Unit (TEU or Explosive Ordnance Disposal (EOD) personnel.

5.4 Ordnance items which penetrate the earth to a depth where the force of the explosion is not enough to rupture the earth's surface forms an underground cavity called a camouflet. Camouflets will be filled with the end product of the explosion, carbon monoxide gas. Camouflet detection and precautions must be considered if records search indicates the site was used as an impact area.

5.5 Avoid inhalation of, and skin contact with smoke, fumes, and vapors of explosives and related hazardous materials.

5.6 Consider UXO which has been exposed to fire and detonation as extremely hazardous. Chemical and physical changes may have occurred to the content which render it much more sensitive than it was in its original state.

5.7 Do not rely on the color coding of UXO for positive identification of contents. Munitions having none, incomplete, or improper color coding have been encountered.

5.8 Avoid the area forward of the nose of a munition until it can be determined that the item is not a shaped charge and High Explosive Anti-tank (HEAT) UXO. The explosive jet can be fatal to great distances forward of the longitudinal axis of the item. Assume any shaped charge munition to contain a piezoelectric (PZ) fuzing system until the fuzing is otherwise identified. A PZ fuze is extremely sensitive, can fire at the slightest physical change, and may remain hazardous for an indefinite period of time.

5.9 Examine a projectile for the presence or absence of an unfired tracer. Also examine the item for the presence or absence of a rotating band and its condition.

5.10 Approach an unfired rocket motor from the side. Ignition will create a missile hazard and hot exhaust.

5.10.1 Do not expose rocket motors to any EMR source.

5.10.2 If an unfired rocket motor must be transported, it shall be positioned in the direction which offers the least exposure to personnel in the event of the accidental ignition.

5.11 Consider an emplaced land mine armed until proven otherwise. It may not be possible to tell, or it may be intentionally rigged to deceive.

5.11.1 Many training mines contain firing indicator charges capable of inflicting serious injury.

5.11.2 Exercise care with wooden mines that have been buried for a long time. Because of soil conditions, the wood deteriorates and the slightest inadvertent pressure on top may initiate the fuze.

5.12 Assume a practice UXO contains a live charge until it can be determined otherwise. Expended pyrotechnic/practice devices may contain red/white phosphorus residue. Due to incomplete combustion, phosphorus may be present and reignite spontaneously if subjected to friction or if the crust is broken and exposed to air.

5.13 Do not approach a smoking white phosphorus (WP) UXO. Burning WP may detonate the burster or dispersal explosive charge at any time.

5.14 If the positive identification of suspect explosive materials is required, procedures in Chapter 13, TM 9-1300-214, "Military Explosives" or other approved explosives analysis shall be used to identify the explosives..

6.0 ORDNANCE RELATED HTRW ACTIVITIES

6.1 Investigation activities on potential ordnance contaminated sites will be accomplished using approved ordnance avoidance procedures.

6.2 HTRW ordnance avoidance procedures are detailed in Engineering Technical Letter 385-1-2. This ETL is available on the Internet, or through the Quality and Technology team at USAESCH.

7.0 RESTRICTED AREA/EXCLUSION OPERATIONS

7.1 On Ordnance and Explosives sites, the contractor's site safety personnel shall establish a restricted/exclusion area for each UXO team operating on the site. The purpose of the area is for the protection of the public and other personnel from the blast and fragmentation hazards of an accidental detonation. The area shall be established based on the following minimum factors:

7.1.1 Previous site use that caused the contamination: impact area, open burn/open detonation, burial, etc..

7.1.2 Project type: surface clearance, subsurface clearance, sifting operation, sampling, etc..

7.1.3 Known ordnance contamination, distances to public exposure, terrain, etc.

7.2 When multiple UXO teams are operating on a site, the restricted/exclusion area and team separation distances shall never be less than 200 feet.

7.3 During the time frame that UXO operations are being accomplished, only personnel necessary for the UXO operation shall be within the restricted/exclusion area. When non-essential personnel enter the restricted/exclusion area, all UXO operations will cease.

7.3.1 Plan for, provide, and know the measures to be taken in the event of an accident.

7.3.2 Provide a designated emergency vehicle in the area in case of an accident or other emergency.

7.3.3 Coordination with the appropriate airspace representative shall be conducted and the appropriate notification procedures arranged.

7.3.4 When non-essential personnel must enter the restricted/exclusion area, the following must be accomplished: 1) the individual must receive a safety briefing, 2) be escorted by a UXO qualified individual; and 3) All UXO operations must cease with the fragmentation radius of the largest item expected to be encountered within the area.

7.5 Before any movement of an UXO, the fuze condition must be ascertained. If the condition is questionable, consider the fuze armed. The fuze is considered the most hazardous component of an UXO, regardless of type or condition.

7.5.1 In general, the condition of a Base Detonating (BD) fuze is to be considered armed if the projectile has been fired..

7.5.2 Arming wires and pop-out pins on unarmed fuzes should be secured by taping in place prior to movement.

7.5.3 Do Not dismantle or strip any UXO>

7.5.4 Do not depress plungers, turn vanes, or rotate spindles, levers, setting rings, or other external fittings on the UXO. Such action may arm, actuate, or function the UXO.

7.5.5 Do Not subject mechanical time fuzes to any unnecessary movement.

7.5.6 Do not remove any fuzes from UXO's.

7.5.7 Some ordnance items do not contain any positive safety features. Positively identify and review all safety precautions prior to handling any ordnance.

7.6 Personnel working with explosives and explosive ordnance shall comply with the following.

7.6.1 Do not conduct operations without approved Standing Operating Procedures (SOP) and proper supervision.

7.6.2 Do not smoke, except in authorized areas.

7.6.3 Do not have fires for heating or cooking, except in authorized areas.

7.6.4 Do not conduct explosive operations during electrical, sand, dust or snow storms.

7.6.5 Explosive operations will be conducted during daylight only.

7.6.6 During magnetometer operations, UXO teams shall not wear safety shoes or other footwear which would cause the magnetometer to present a false indication.

7.7 Do not undertake the handling or disposal of liquid propellant fuels or oxidizers if not familiar with the characteristics of the material.

7.8 Civil War projectiles shall be treated as any other UXO.

7.9 If records search indicated WP munitions were fired or destroyed in the area, extra care shall be taken when uncovering a buried UXO, A buried WP munition may be damaged and when exposed to air, may start burning and detonate. An ample supply of water and mud shall be immediately available if excavation reveals a WP UXO. Appropriate protective equipment (leather gloves, face shield, and flame-retardant clothing) and first air shall also be immediately available.

8.0 STORAGE

8.1 During Ordnance and Explosives projects, storage of explosives and UXO fall into two categories.

1. On-DoD Installations.
2. Off-DoD Installations.

8.2 On-DoD Installation Storage

8.2.1 The Provisions of DoD 6055.9 STD shall be followed. Generally, an installation should have an explosive storage area that meets requirements in DoD 6055.9-STD. Permitting and compliance requirements for existing facilities are an installation responsibility. Compatibility of explosives found in Chapter 3, DoD 6055.9-STD shall be complied with. UXO awaiting disposal shall not be stored with other explosives.

8.2.2 If an installation does not have an existing storage facility, the provisions of below shall apply.

8.3 Off DoD Installation Storage.

8.3.1 Generally the contractor is responsible for construction of a temporary explosive storage area that meets all local, state, ATF requirements and as much of DoD 6055.9-STD that is practical to implement.

8.3.2 When establishing an explosive storage area, the following requirements must be met.

8.3.2.1 The area shall, if possible, meet the inhabited building and public traffic route distances specified in DoD 6055.9-STD. If the distances are less than required by DoD 6055.9-STD, then a

proposed barricading and berm plan to protect the public from accidental detonation must be submitted and approved.

8.3.2.2 Magazines must meet requirements of ATF Regulations, and each magazine must have an Net Explosive Weight established for the explosives to be stored.

8.3.2.3 Each magazine must have lightning protection IAW Chapter 7, DoD 6055.9-STD.

8.3.2.4 Magazines must meet intra magazine distances as defined in Chapter 9, DoD 6055.9-STD.

8.3.2.5 A physical security survey shall be conducted to determine if fencing or guards are required. Generally a fence around the magazines is needed, but the contractor is responsible to determine the degree of protection required to prevent the theft of explosives and UXO.

8.4 A fire plan for the storage of explosives shall be prepared and coordination with the nearby fire department shall be conducted. Placarding of magazines shall be in accordance with local, state, and federal requirements.

9.0 EXCAVATION OPERATIONS

9.1 The usual method for uncovering buried UXO is to excavate by hand. Hand excavation is the most reliable method for uncovering UXO, but unless the UXO is very near the surface, hand excavation exposes more people to the hazard of detonation for a longer period of time than any other method. Hand excavation will be accomplished only by UXO personnel.

9.2 Earth moving machinery (EMM) may be used to excavate for buried UXO, if the UXO is estimated to be deeper than 12 inches. EMM shall not be used to excavate within 12 inches of an UXO. When excavation get within 12 inches of an UXO, hand excavation shall be used to uncover the UXO. EMM may be operated by non-UXO personnel, under the direct supervision of UXO personnel.

9.2.1 If more than one EMM will be used on the same site, they will be separated the same separation distances required for multiple teams on that site.

9.2.2 During excavation operations, only those personnel absolutely necessary for the operation shall be within the restricted area/exclusion zone.

9.2.3 Excavation and trenching shall comply with the provisions of 29 CFR 1926 Subpart P.

10.0 DISPOSAL OPERATIONS

10.1 As a general rule, UXO will be detonated in place when the situation allows. All detonation-in-place should be conducted by electrical means to assure maximum control of the site, except in situations where static electricity or EMR hazards are present. Non-electrical means can be used when the situation dictates.

10.1.1 Do not allow one person to work alone in disposal operations. At least one person shall be available near the disposal site to give warning and assist in rescue activities in the event of an accident.

10.1.2 Loose initiating explosives include lead azide, mercury fulminate, lead styphnate, and tetracene. These explosives manifest extreme sensitivity to friction, heat, and impact. Extra precautions may be required when handling these types of explosives. Keep initiating explosives in a water-wet condition at all times until ready for final preparation for detonation, the sensitivity of these explosives is greatly increased when dry.

10.1.3 Only condition "Code A" or "Code C" explosive items shall be used as donor explosives for disposal operations.

10.1.4 Exercise extreme care in handling and preparing high explosives for detonation. They are sensitive to detonation by heat, shock, and friction.

10.1.5 Do not pack a bomb fuze well with explosives unless it can be positively confirmed that the fuze well does not contain any fuze components.

10.1.6 Photoflash bombs must be handled with the same care as black powder filled munitions..

10.1.7 WP UXO shall not be detonated into the ground. The UXO shall be counter-charged on the bottom-center-line.

10.2 The following Safety rules will be adhered to at all times:

10.2.1 Carry blasting caps in approved containers and keep them out of the direct rays of the sun, and located at least 25 feet from other explosives, until they are needed for priming.

10.2.2 Do not handle, use or remain near explosives during the approach or progress of an electrical storm. All persons should retire to a place of safety.

10.2.3 Do not use explosives or accessory equipment that are obviously deteriorated or damaged. They may detonate prematurely or fail completely.

10.2.4 Always point the explosive end of blasting caps, detonators, and explosive devices away from the body during handling. This will minimize injury should the item explode.

10.2.5 Use only standard blasting caps of at least the equivalent of a commercial No. 8 blasting cap.

10.2.6 Use electric blasting caps of the same manufacture for each demolition shot involving more than one cap.

10.2.7 Do not bury blasting caps. Use detonating cord to position blasting caps above the ground. Buried blasting caps are subject to unobserved pressures and movement which could lead to premature firing or misfires.

10.2.8 Test electric blasting caps for continuity at least 25 feet downwind from any explosives prior to connecting them to the firing circuit. Upon completion of testing, the lead wires will be short-circuited by twisting the bare ends of the wires together. The wires will remain shunted until ready to connect to the firing circuit.

10.3 When disposing of explosives by detonation, do not approach the disposal site for at least thirty minutes, after the expected detonation time, in the event of a misfire. When conducting non-electric procedures, the wait time shall be thirty minutes plus time fuse burn time.

10.4 A post-search of the detonation site shall be conducted to assure a complete disposal was accomplished.

10.5 If the situation dictate, protective measures to reduce shock, blast, and fragmentation damage shall be taken. Army Technical Manual (TM) 5-855-1, Fundamentals of Protective Design for Conventional Weapons and associated software program "CONWEP" contains data on blast effects, ground shock, cratering, ejection, and fragmentation. The following distances shall be used unless protective measures are implemented.

10.5.1 For non-fragmenting explosive materials, evacuation distance should be a minimum of 1250 feet.

10.5.2 For fragmenting explosive materials, evacuation distance should be a minimum of 2500 feet. For bombs and projectiles with caliber 5-inch or greater, use a minimum evacuation distance of 4000 feet.

10.5.3 Items with lugs and/or strongbacks and nose and/or tail plate sections should be oriented away from personnel locations as these items tend to travel further than normal fragmentation.

10.6 Consideration shall be given to tamping the UXO to control fragments, if the situation warrants. Fragments shall be minimized not only to protect personnel but property such as buildings, trees, etc.

10.7 Open burning of explosives and smokeless powder or chemical decomposition of explosives shall not be accomplished without prior approval of the contracting officer.

10.7.1 Do not inhale eye smoke or fumes of burning pyrotechnic or incendiary materials. The fumes and dust from many of these materials are irritating and/or toxic if inhaled.

10.7.2 Do not use water on incendiary fires. Water may induce a violent reaction or be completely ineffective, depending on the mixture.

10.7.3 Anticipate a high-order detonation when burning pyrotechnics or incendiary-loaded UXO. Safety measures for personnel and property must be based on this possibility.

10.8 Inert UXO will not be disposed of or sold for scrap until the internal fillers have been exposed and unconfined. Heat generated during a reclamation operation can cause the inert fillet, moisture and air to expand and burst sealed casings. Venting or exposure may be accomplished in any way necessary to preclude rupture due to confined pressure.

11.0 TRANSPORTATION

11.1 If UXO must be transported off-site for disposal, the provisions of 49 CFR 100-199, DA PAM 385-64 and state and local laws shall be followed.

11.2 Armed fuzes will only be transported when absolutely necessary and when all other avenues of "in place" have been exhausted. Transportation to an on-site disposal area for these items is preferred.

11.3 Do not transport a WP munition, unless it is immersed in water, mud or wet sand.

11.4 If loose pyrotechnic, tracer, flare, and similar mixtures are to be transported, they shall be placed in #10 mineral oil or equivalent to minimize fire and explosion hazard.

11.5 Incendiary loaded munitions should be placed on a bed of sand and covered with sand to help control the burn if a fire should start.

11.6 If an unfired rocket motor must be transported, it shall be positioned in the direction which offers the least exposure to personnel in the event of an accidental ignition.

11.7 If base-ejection type projectiles must be transported to a disposal area or collection point, the base shall be oriented to the rear of the vehicle and the projectile secured, in the event the ejection charge functions in route.

11.8 If an UXO, with exposed hazardous filler (HE, etc), has to be moved to a disposal area, the item shall be placed in an appropriate container with packing materials to prevent migration of the hazardous filler. padding should also be added to protect the exposed filler from heat, shock, and friction.

STANDARD OPERATING PROCEDURE 101

BIOLOGICAL HAZARDS

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving the exposure to biological hazards.

2.0 SCOPE

This SOP applies to all site personnel, including contractor and subcontractor personnel, and operations where exposure to biological hazards exists. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

At the present time, no OSHA standards are specifically directed at the evaluation and control of biological hazards associated with hazardous plants and animals which may be encountered during site activities. However, the OSHA standard listed below does contain information related to the control of hazards associated with the discovery and handling of biological and medical wastes. Also, the U.S. Army Corps of Engineers (USACE) requirements listed below directly apply to the conduct of operations affected by the presence of hazardous plants and animals.

- OSHA General Industry Standard 29 CFR 1910.1030;
- USACE EM 385-1-1, Section 6.D.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager (PM) shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for operations where the potential exists for personnel exposure to biological hazards. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in operations where exposure to biological hazards exist shall be familiar with the potential safety and health hazards associated with these hazards, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 HAZARDS AND OPERATIONAL CONTROL TECHNIQUES

Biological hazards which are usually found on site include insects, such as hazardous plants, snakes, ticks, bees, hornets and wasps, biting insects, scorpions and infectious waste. Employee awareness and the safe work practices outlined in the following paragraphs should reduce the risk associated with these hazards.

5.1.1 Hazardous Plants

During the conduct of site activities the number and variety of hazardous plants that may be encountered is large and extensive. The ailments associated with these plants range from mild hay fever to contact dermatitis, to carcinogenic affects. However the plants which present the greatest degree of risk to site personnel (i.e., potential for contact vs. effect produced) are those which produce tissue injury and skin reactions.

5.1.1.1 Plants Causing Skin and Tissue Injury

Contact with splinters, thorns and sharp leaf edges is of special concern to site personnel, as is the contact with the pointed surfaces found on branches, limbs and small trunks left by site clearing and grubbing crews. This concern stems from the fact that punctures, cuts and even minor scrapes caused by accidental contact may result in non-infectious skin lesions, and the introduction of fungi or bacteria through the skin or eye. This is especially important in light of the fact that the warm moist environment created inside impermeable protective clothing is ideal for the propagation of

fungal and bacterial infection. Personnel receiving any of the injuries listed above, even minor scrapes, should report immediately to the SSHO for initial and continued observation and care of the injury.

5.1.1.2 Plants Causing Skin Reactions

The poisonous plants of greatest concern are poison ivy, poison sumac, and poison oak. Poison ivy thrives in all types of light and usually grows in the form of a trailing vine, however, it can also grow as a bush and can attain heights of 10 feet or more. Poison ivy has shiny, pointed leaves that grow in clusters of three. Poison sumac is a tall shrub or slender tree that usually grows along swampy areas or ponds in wooded areas. Each poison sumac leaf stalk has 7 to 13 leaflets which have smooth edges. Poison oak is mostly found in the southeast and west. Poison oak resembles poison ivy, with one important difference. The poison oak leaves are more rounded rather than jagged like poison ivy and the underside of poison oak leaves are covered with hair.

The skin reaction associated with contacting these plants is caused by the body's allergic reaction to toxins contained in oils produced by the plant. Becoming contaminated with the oils does not require contact with just the leaves. Contamination can be achieved through contact with other parts of the plant such as the branches, stems or berries, or contact with contaminated items such as tools and clothing. The allergic reaction associated with exposure to these plants will generally cause the following signs and symptoms:

1. Blistering at the site of contact, usually occurring within 12 to 48 hours after contact;
2. Reddening, swelling, itching and burning at the site of contact;
3. Pain, if the reaction is severe; and
4. Conjunctivitis, asthma, and other allergic reactions if the person is extremely sensitive to the poisonous plant toxin.

If the rash is scratched, secondary infections can occur. The rash usually disappears in 1 to 2 weeks in cases of mild exposure and up to 3 weeks when exposure is severe. Preventative measures which can prove effective for most site personnel are:

1. Avoid contact with any poisonous plants on site, and keep a steady watch to identify, report and mark poisonous plants found on site;
2. Wash hands, face or other exposed areas at the beginning of each break period and at the end of each work day;
3. Avoid contact with, and wash on a daily basis, contaminated tools, equipment and clothing; and
4. Barrier creams, detoxification/wash solutions and orally administered desensitization may prove effective and should be tried to find the best preventative solution.

5.1.2 Snakes

When site activities are conducted in warm weather on sites that are located in wooded, grassy or rocky environments, the potential for contact with poisonous snakes becomes a very real danger. Normally, if a person is approaching a snake, the noise created by the person is usually sufficient to frighten the snake off. However, during the warm months, extreme caution must be exercised when conducting site operations around areas where snakes might be found (i.e., rocks, bushes, logs, or in holes, crevices, and abandoned pipes). If poisonous snakes are identified on site, EODT shall issue protective clothing, such as snake leggings, to site personnel. The rules to follow if someone is bitten by a snake are:

1. Do not cut "Xs" over the bite area as this will intensify the effect of the venom;
2. Do not apply suction to the wound since this has a minimal effect in removing venom;
3. Do not apply a tourniquet since this will concentrate the venom and increase the amount of tissue damage in the immediate area;
4. If possible, kill the snake, bag it and transport it with the victim or try to get a good look at it so it can be identified for proper selection of anti-venom;
5. Do not allow the victim to run for help since running increases the heart rate and will increase the spread of the venom throughout the body;
6. Keep the victim calm and immobile;
7. Have the victim hold the affected extremity lower than the body while waiting for medical assistance; and
8. Transport the victim to medical attention immediately.

5.1.3 Ticks

5.1.3.1 General Information

The Center for Disease Control (CDC) has noted the increase of Lyme Disease and Rocky Mountain Spotted Fever (RMSF) which are caused by bites from infected ticks that live in and near wooded areas, tall grass, and brush. Ticks are small, ranging from the size of a comma up to about one quarter inch. They are sometimes difficult to see. The tick season extends from spring through summer. When embedded in the skin, they may look like a freckle.

Lyme disease has occurred in 43 states, with the heaviest concentrations in the Northeast (Connecticut, Massachusetts, New Jersey, New York, Pennsylvania), the upper Midwest (Minnesota and Wisconsin), and along the northern California coast. It is caused by deer ticks and the lone star ticks which have become infected with spirochetes. Female deer ticks are about one quarter inch in size, and are black and brick red in color. Male deer ticks are smaller, and completely black. Lone star ticks are larger and chestnut brown in color.

RMSF has occurred in 36 states, with the heaviest concentrations in Oklahoma, North Carolina, South Carolina, and Virginia. It is caused by Rocky Mountain wood ticks, and dog ticks which have become infected with rickettsia. Both are black in color.

The first symptoms of either disease are flu like chills, fever, headache, dizziness, fatigue, stiff neck, and bone pain. If immediately treated by a physician, most individuals recover fully in a short period of time. If not treated, more serious symptoms can occur. If a site employee believes they have been bitten by a tick, or if any of the signs and symptoms noted above appear, the employee will contact the SSHO, who will authorize the employee to visit a physician for an examination and possible treatment.

5.1.3.2 Protective Measures

Standard field gear (work boots, socks and light-colored coveralls) provide good protection against tick bites, particularly if the joints are taped. However, even when wearing field gear, the following precautions should be taken when working in areas that might be infested with ticks:

1. When in the field, check yourself often for ticks, particularly on your lower legs, groin, arm pits and areas covered with hair;
2. Spray outer clothing, particularly your pant legs and socks, **BUT NOT YOUR SKIN**, with an insect repellent that contains permethrin or permethrin, or use a repellent with DEET, which can be applied to the skin;
3. When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible;
4. Tuck pant legs into boot tops or tape pants to boot tops to avoid ticks from crawling up the pant leg (this may not be an option at sites where extreme heat stress is anticipated);
5. If dressed in Level D or Modified Level D, and no other head protection is required, wear a hat to prevent ticks from getting into the hair (again, use caution as this may enhance heat stress);
6. If you find a tick, remove it by pulling on it gently with tweezers;
7. If the tick resists, cover the tick with salad oil for about 15 minutes to asphyxiate it, then remove it with tweezers;
8. Do not use matches, a lit cigarette, nail polish or any other type of chemical to "coax" the tick out;
9. Be sure and remove all parts of the tick's body, and disinfect the area with alcohol or a similar antiseptic after removal;
10. For several days to several weeks after removal of the tick, look for the signs of the onset of Lyme disease, such as a rash that looks like a bulls-eye or an expanding red circle surrounding a light area, frequently seen with a small welt in the center; and

11. Also look for the signs of the onset of RMSF, such as an inflammation which is visible in the form of a rash comprised of many red spots under the skin, which appears 3 to 10 days after the tick bite.

5.1.4 Bees, Hornets and Wasps

Contact with stinging insects like bees, hornets and wasps may result in site personnel experiencing adverse health affects that range from being mildly uncomfortable to being life threatening. Therefore, stinging insects present a serious hazard to site personnel, and extreme caution must be exercised whenever site and weather conditions increase the risk of encountering stinging insects. Some of the factors related to stinging insects that increase the degree of risk associated with accidental contact are as follows:

1. The nests for these insects are frequently found in the type of remote wooded, grassy areas where many waste sites are located;
2. The nests are difficult to see and can be situated in trees, rocks, bushes or in the ground;
3. Accidental contact with these insects is highly probable, especially during warm weather conditions when the insects are most active;
4. If a site worker accidentally disturbs a nest, the worker may be inflicted with multiple stings, causing extreme pain and swelling which can leave the worker incapacitated and in need of medical attention;
5. Some people are hypersensitive to the toxins injected by a sting, and when stung, experience a violent and immediate allergic reaction resulting in a life-threatening condition known as anaphylactic shock;
6. Anaphylactic shock manifests itself very rapidly and is characterized by extreme swelling of the body, eyes, face, mouth and respiratory passages; and
7. The hypersensitivity needed to cause anaphylactic shock, can in some people, accumulate over time and exposure; therefore, even if someone has been stung previously, and has not experienced an allergic reaction, there is no guarantee that they will not have an allergic reaction upon receipt of another sting.

With these things in mind and with the high probability of contact with stinging insects, all site personnel shall comply with the following safe work practices:

1. If a worker knows that he is hypersensitive to bee, wasp or hornet stings, they must inform the SSHO of this condition prior to participation in site activities;
2. All site personnel will be watchful for the presence of stinging insects and their nests, and shall advise the SSHO if a stinging insect nest is located or suspected in the area;
3. Any nests located on site shall be flagged off and site personnel shall be notified of its presence;
4. If stung, site personnel shall immediately report to the SSHO to obtain treatment and to allow the SSHO to observe them for signs of allergic reaction; and

5. Site personnel with a known hypersensitivity to stinging insects shall be required to obtain necessary emergency medications from their physician, such as epinephrine injectors, and will keep the medication on or near their person at all times.

5.1.5 Biting Insects

Many types of biting insects such as mosquitos, flies and fleas may be encountered on site. The use of insect repellents will be encouraged by the SSHO if deemed necessary. The biting insects of greatest concern are spiders, especially the black widow and the brown recluse. These are of special concern due to the significant adverse health effects that can be caused by their bite.

The black widow is a coal-black bulbous spider 3/4 to 1 1/2 inches in length, with a bright red hour-glass on the under side of the abdomen. The black widow is usually found in dark moist locations, especially under rocks, rotting logs and may even be found in outdoor toilets where they inhabit the underside of the seat. Victims of a black widow bite may exhibit the following signs or symptoms:

1. Sensation of pinprick or minor burning at the time of the bite;
2. Appearance of small punctures (but sometimes none are visible); and
3. After 15 to 60 minutes, intense pain is felt at the site of the bite which spreads quickly, and is followed by profuse sweating, rigid abdominal muscles, muscle spasms, breathing difficulty, slurred speech, poor coordination, dilated pupils and generalized swelling of face and extremities.

The brown recluse is brownish to tan in color, rather flat, 1/2 to 5/8 inches long with a dark brown "violin" shape on the underside. It may be found in trees, or in dark locations. Victims of a brown recluse bite may exhibit the following signs or symptoms:

1. Blistering at the site of the bite, followed by a local burning at the site 30 to 60 minutes after the bite;
2. Formation of a large, red, swollen, pustulating lesion with a bull's-eye appearance;
3. Systemic affects may include a generalized rash, joint pain, chills, fever, nausea and vomiting; and
4. Pain may become severe after 8 hours, with the onset of tissue necrosis.

There is no effective first aid treatment for either of these bites. Except for very young, very old or weak victims, these spider bites are not considered to be life threatening, however medical treatment must be sought to reduce the extent of damage caused by the injected toxins. If either of these spiders are suspected, or known to be on site, the SSHO shall brief site personnel as to the identification and avoidance of the spiders. Site personnel should report to the SSHO if they locate either of these spiders on site, or notice any type of bite while involved in site activities.

5.1.6 Scorpions

Scorpions are basically night animals and contact with humans is usually in the form of a person disturbing a scorpion in its day-time hiding place, which may include gloves or boots/shoes left unattended over night. Scorpions are most commonly observed in the gulf states and southwest, but are also seen in the south and southeast. In the United States the most commonly encountered scorpion is the "bark scorpion", referred to as such due to their preference for hiding under the loose bark of trees or in dead trees/logs. Scorpions are usually flat, straw to reddish brown in color, and range in size from 3/4 to 3 inches in length and are distinguishable by their long telson (tail), that ends in a curved stinger, and their pincher like claws. The scorpion venom of some species is capable of causing death in young or old people, and may cause severe adverse health affects in adults. The signs and symptoms typically associated with scorpion envenomation are highly variable depending upon the species involved, and may only involve localized pain/swelling. However, scorpion stings may cause any or all of the following:

1. Prickling sensation at the time of the sting, followed quickly by severe pain;
2. The victim may experience restlessness, breathing difficulty, convulsion, muscle cramps, nausea/vomiting, fever, headache, dizziness, abdominal pain, hypertension, rapid heart beat and profuse sweating; and
3. Generalized weakness for 24 hours or more following the sting.

There is no effective first aid treatment for scorpion stings, however, with very young and very old victims, or for severe envenomation, a polyvalent scorpion anti-venom may be given by an attending physician. Due to the variation in signs/symptoms which may result, any victim of a scorpion sting should be transported to a medical facility for observation and treatment. If possible capture the scorpion for later identification at the medical facility. If scorpions are suspected or known to be on site, the SSHO shall brief the site personnel as to the identification and avoidance of the scorpions. As with other stinging insects, site personnel should report to the SSHO if they locate scorpions or notice any type of bite while involved in site activities.

5.1.7 Ultraviolet Radiation From Sunlight

5.1.7.1 Skin Affects Resulting From Exposure

Personnel working outdoors in sunny environments risk exposure to ultraviolet (UV) radiation from sunlight. UV radiation produces chemical changes in the skin cells, which vary dependent upon the time of year, geographic location, hour of the day and personal susceptibility. Generally after initial exposure to sunlight, a reddening of the skin may occur, which normally does not appear for several hours after exposure. This reddening is associated with "sun burn" and may cause pain, discomfort and limit the capabilities of site personnel. If the exposure has been excessive, the reddening of the skin may be accompanied by blistering and peeling of the outer layer of the skin. Another hazard associated with skin exposure to UV radiation from the sun is the production of skin cancer.

Epidemiological studies have determined a positive association between excessive exposure to sunlight and skin cancer, with fair skinned people having the greatest risk.

5.1.7.2 Affects of Eye Exposure

Unprotected exposure to strong sunlight may cause photokeratitis (inflammation of the cornea), photoconjunctivitis (inflammation of the outer membrane of the eye), and in sensitive persons, the potential for cataracts increases and retinal damage may also occur. Unprotected exposure to bright sunlight may cause acute physiological affects such as partial to complete closure of the eye lids (squinting), watering/tearing of the eyes and visual discomfort. These acute affects may impair personnel from performing assigned duties in an efficient, effective and safe manner and may interfere with the ability of site personnel to safely observe site operations.

5.1.7.3 Protective Measures

Upon exposure to hazardous levels of sunlight, the skin's self defense mechanism is activated. This mechanism involves a pigment in the skin, called melanin, which, upon exposure to the sun, rises to the surface of the skin giving it a tan coloration (suntan), and new melanin is produced in the lower regions of the skin. As moderate exposure increases, or continues, this process also continues and the color of the tan will, in most people, increase in darkness. The melanin in the skin absorbs UV radiation and acts as a protective layer over the skin regions below. This tanning will begin to fade if occasional exposure to sunlight is not continued. To further decrease the potential of receiving harmful exposures from the sun, the work practices listed below should be implemented during site activities where personnel exposures to hazardous levels of sunlight may occur:

1. Skin exposure to strong sunlight should be minimized through the use of clothing and exposure periods gradually increased during initial annual exposure;
2. Sunscreen lotions with a skin protection factor (SPF) rating of at least 15 should be applied to exposed areas of the skin prior to initiation of daily operations, and re-applied periodically throughout the day since sweating may remove or dilute the lotion and reduce its effectiveness;
3. When feasible, work areas should be shaded through the use of tarpaulins or tents to protect workers from direct exposure to sunlight;
4. Hats made of a mesh material to allow cooling should be used to help shade and protect the eyes; and
5. For eye protection to bright sunlight, safety glasses with tinted lenses shall be used which meet the requirements of the American National Standards Institute (ANSI) Z80.3-1986 and Z87.1-1989 Standards.

5.1.8 Infectious Wastes

Due to the nature of typical hazardous waste sites, there exists the potential that medical and infectious waste could have been buried on site during past site operations. Current regulations

provide strict guidelines on the disposal of medical and infectious waste and require infectious waste to be disposed of in clearly marked, red bags or containers. However, this is a relatively new regulatory requirement and past disposal operations may not have involved these type of well marked containers. The hazards associated with medical and other infectious waste include:

1. Contact with contaminated sharps (needles, scalpels, etc.)
2. Exposure to blood or other body fluids contaminated with AIDS (HIV), Hepatitis B (HBV) or other bloodborne pathogens;
3. Exposure to virus and bacterially infected waste; and
4. Exposure to other types of biological hazards such as fungi, parasites, or experimental biological agents, etc.

To prevent possible exposure to infectious wastes, site personnel shall take the following precautions:

1. Site personnel shall remain constantly alert for signs that medical or infectious waste is present on site;
2. Site personnel shall, upon its discovery, report the presence of medical or biological waste to the SSHO immediately;
3. During excavations, an observer shall be positioned to observe the bucket and shall immediately notify the operator to halt excavation if suspect medical or biological waste is uncovered during the excavation;
4. If medical or biological waste is discovered, operations in the immediate area shall cease, site personnel shall evacuate the area, and the CO/COR shall be contacted to determine the course of action.

6.0 AUDIT CRITERIA

The following items related to operations will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Safety Training Attendance Log for the initial site hazard training;
3. The Safety Training Attendance Log for the Daily Tailgate Safety Briefings; and
4. The Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments are associated with this SOP.

STANDARD OPERATING PROCEDURE 102

COLD STRESS PREVENTION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving cold environments.

2.0 SCOPE

This SOP applies to all site personnel, including contractor and subcontractor personnel, and operations involving potential personnel exposure to cold stress. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following American Conference of Governmental Industrial Hygienist (ACGIH) and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with this SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- ACGIH Threshold Limit Values and Biological Exposure Indices, 1993-1994.
- USACE EM 385-1-1, Section 6.J

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for all operations involving potential personnel exposure to cold stress. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in site operations shall be familiar with the potential safety and health hazards associated with the conduct of operations in cold environments, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 INTRODUCTION

During activities conducted on UXO and waste sites, cold and/or windy environmental conditions can create serious safety and health threats to site workers. This SOP addresses the potential hazards associated with cold stress, and outlines the procedures for monitoring and controlling those hazards.

5.2 COLD STRESS HAZARDS

The affects experienced by site personnel when working in cold environments depend upon many environmental and personal factors, such as ambient air temperature, wind speed, duration of exposure, type of protective clothing and equipment worn, type of work conducted, level of physical effort, and health status of the worker. In cold environments, overexposure can cause significant stress on the body which can lead to serious, and potentially permanent injury. Cold may affect exposed body surfaces and extremities, or may affect the deeper body tissues and body core. Presented below is information about the most common cold stress disorders, their signs, symptoms, affects, and control techniques.

5.2.1 Cold Stress Disorders

5.2.1.1 Immersion Foot or Trench Foot

These two cold injuries occur as a result of exposure to cool or cold weather and persistent dampness or immersion in water. Immersion foot usually results from prolonged exposure when air temperatures are above freezing, whereas trench foot normally occurs from shorter exposure at temperatures near freezing. The symptoms for each disorder are similar and include tingling, itching, swelling, pain and/or numbness, lack of sweating, and blisters.

5.2.1.2 Frostbite

Frostbite occurs when there is actual freezing of the water contained in the body tissues. This usually occurs when temperatures are below freezing, but excessive wind can result in frostbite even

when ambient temperatures are above freezing. Frostbite can occur from several types of cold exposure, such as: exposure of bare skin to cold and wind; exposure to extremely cold ambient temperatures; skin contact with rapidly evaporative liquids (gasoline, alcohol or cleaning solvents) at temperatures below 39.2°F; or from skin contact with metallic objects whose temperatures are below freezing. The extremities are usually affected first since the body's initial response to cold stress is to decrease the heat loss from the blood by decreasing the blood flow to the extremities. The tissue damage caused by frostbite can be superficial, near the surface of the skin, or extend deep into body tissues which can cause severe tissue damage. During the initial stages of frostbite, the skin may have a prickly or tingling sensation and will later become numb with cold. The appearance of the affected skin may range from superficial redness, to white, hard, frozen-looking tissues.

5.2.1.3 Hypothermia

Hypothermia results when the body loses heat faster than it can be produced. When this occurs, the blood vessels in the skin and extremities constrict, reducing the flow of warm blood to those areas which have a high surface area to volume relation. This reduction in blood flow reduces heat loss and usually affects the peripheral extremities first. Ears, fingers and toes begin to experience chilling, pain and then numbness due to loss of both blood flow and heat. Shivering begins as the body's core temperature begins to drop, and the body uses the shivering to compensate and create metabolic heat. Shivering is often the first sign of hypothermia. The pain and numbness in the extremities is an indication that the heat loss is increasing, but when shivering becomes severe and uncontrollable, the heat loss in the body core has become extreme. Further heat loss produces speech difficulty, reduced mental alertness, forgetfulness, loss of manual dexterity, collapse, unconsciousness and finally death.

5.2.2 Treatment of Cold Stress Disorders

The intent of all cold stress treatment is to bring the deep body core temperature back to its normal temperature of about 98.6°F. Work performed in cold environments should be discontinued temporarily for any worker who exhibits the signs or symptoms associated with hypothermia or frost bite. Workers exhibiting cold stress symptoms should be brought to a warm area and allowed to rest and warm-up. If a worker's clothing becomes wet, which reduces its insulation affect, it should be removed and replaced by dry clothing, or allowed to dry before resuming work. Warm, sweet, non-alcohol, decaffeinated drinks (not coffee) or soup should be given to increase the body core temperature, and re-warming should be gradual.

For frostbite, the victim should be sheltered from the wind and cold and given warm drinks. If the frost bite is superficial, the frozen area(s) should be covered with extra clothing or blankets or warmed against the body. Do not use direct heat, and do not pour hot water over or rub the affected area. Warming should be gentle and gradual. Failure to do this could lead to bleeding in the tissues and increase the possibility of infection. If the frostbite is deep, (i.e. the affected area is frozen and

hard to the touch), immediate medical attention should be obtained. The safe thawing of deep frostbite is beyond the expertise and facilities found on site.

5.2.3 Prevention of Cold Stress Disorders

5.2.3.1 Cold Stress Monitoring

Guidance for the monitoring of cold stress is provided by the ACGIH in the Threshold Limit Values and Biological Exposure Indices booklet (latest edition). In order to comply with the cold stress TLV, the following monitoring schedule will be implemented:

1. A suitable thermometer for measuring ambient temperatures shall be available on sites when the air temperature is below 60.8°F;
2. Whenever the air temperature onsite falls below 30.2°F, the temperature shall be measured and recorded at least once every two hours, unless sudden drops in the temperature are expected or noted, then it will be recorded once each;
3. Whenever the air temperature on site falls below 30.2°F, the wind speed shall be measured and recorded together with the air temperature;
4. The equivalent wind chill temperature shall be obtained from Table 102-1, and recorded, in all cases when air speed measurements are required;
5. The SSHO shall utilize the applicable TLV limits listed in Table 102-2 to determine if elevated control measures must be implemented during site activities.

5.2.3.2 Controls Implemented by Site Personnel

During work in cold environments, the SSHO will use the tailgate safety briefing to inform site personnel of the temperature and wind conditions anticipated for the day's site activities. The SSHO will also advise site personnel of the general practices, listed below, which should be utilized in the prevention and control of cold stress.

1. Wearing adequate, appropriately layered clothing, including a water repellant outer layer if precipitation is forecasted;
2. Using layered clothing which should include, an inner most layer (such as cotton or silk) to trap heat and absorb perspiration, an insulating layer of wool or synthetic fiberfill (such as polypropylene), a layer of work weight clothing, and an outer protective layer designed to retain heat and be wind/water proof (such as nylon, or Gortex™);

Table 102-1. Equivalent Chill Temperature

Estimated Wind Speed (in mph)	ACTUAL TEMPERATURE READING (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
Equivalent Chill Temperature (°F)												
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
Wind speeds greater than 40 mph have little additional effect	LITTLE DANGER In < 1 hr with dry skin. Maximum danger of false sense of security				INCREASING DANGER Danger from freezing of exposed flesh within one minute				GREAT DANGER Flesh may freeze within 30 seconds			
	Trench foot and immersion foot may occur at any point on this chart.											

Table 102-2. ACGIH Cold Stress TLVs

TLV Temp.	Working Conditions or Task to be Performed	Required Control Measures
< 60.8°F	Any site or work condition	Thermometer required on site
	Fine work performed continuously for more than 10-20 min.	Special provisions for keeping the hands warm, i.e., radiant heaters, warm air jets, etc.
	Tasks with sedentary work load	Gloves are to be used by workers
< 39.2°F	Site with windy conditions	Reduce cooling effect of wind by using shields or an easily removable wind breaker
	Task where exposed areas of the body cannot be protected from cold or frostbite	Auxiliary heating units are to be supplied
	Tasks where clothing may become wet with either perspiration or water	Provisions shall be made to allow site personnel to change into dry clothes
	Workers handling evaporative liquids	Special precautions needed to ensure clothing does not become soaked with liquid
	Tasks with light work load	Gloves are to be used by workers
≤ 35.6°F	Workers who become emersed in water or whose clothing becomes wet	Treatment for hypothermia and immediate change of dry clothing provided
< 30.2°F	Any task	Air temperature and WindSpeed (if over 5 mph) recorded at least every 4 hours; cover metal handles with insulating material
< 19.4°F Air	Tasks with moderate work	Gloves to be used by workers
< 19.4°F ECT	Any task	Heated warming shelters with warm drinks will be made available for breaks Record ECT along with air temperature readings Warn personnel not to contact unprotected metal parts with bear skin
< 10.4°F ECT	Any task	Buddy system enforced, protect from wind to greatest extent possible, acclimatize workers, moderate workload to prevent perspiration, and conduct worker cold stress training
< -11.2°F or < 0°F with 5 mph wind	Personnel who routinely work at this temperature	Personnel are to be medically certified as suitable for this level of exposure
≤ -25.6°F ECT	Any level of work or type of task	No unprotected skin exposure

ECT - Equivalent Chill Temperature.

Air - Ambient air temperature

3. Wearing gloves, socks and a hat that are synthetic or wool insulated;
4. Removing outer layers of clothing during breaks in heated shelters to prevent inner layers from getting wet with perspiration;
5. Covering of all exposed skin and use of a wind breaker in windy, cold conditions;
6. Eating well-balanced meals and maintain adequate intake of non-alcoholic, de-caffeinated fluids;
7. Seeking shelter in a warm protected area when signs and symptoms of cold stress become evident;
8. Protecting clothing from getting wet with perspiration during site activities by monitoring and moderating the level of physical activity, and if necessary, removing excessive layers of clothing; and
9. If the potential exists for clothing to become wet during site operations, site personnel should report to work with an extra set of work and insulated clothing.

5.2.3.3 Controls To Be Implemented On Site

In addition to the personal control methods listed above, the following measures will be provided to assist site personnel in preventing and abating cold stress:

1. If the effective chill temperature (ECT) is expected to be less than 19.4°F, a heated shelter will be provided both in the SZ, and when permissible, in the EZ to allow personnel to take warming breaks IAW the specified work/rest schedule;
2. Warm drinks, such as hot cocoa, hot cider, hot herbal teas, warm broths or decaffeinated coffee or hot tea will be provided in the warming shelters;
3. If the ECT is less than 19.4°F or if the calm air temperature is less than 20°F, a minimum work/rest regiment of one 10 minute break every hour, with a 30 minute lunch break will be implemented; and
4. For temperatures above 20°F, calm air temperature or above the ECT of 19.4°F the normal work/rest schedule of one 15 minute break in the morning and afternoon, with a 30 minute lunch break will be used as the standard, but site personnel will still be encouraged to take more frequent breaks they begin to experience significant signs or symptoms of cold stress.

When permitted by site conditions and contamination levels, personnel utilizing shelters inside the EZ will under go an abbreviated decontamination prior to entry. Upon leaving the warming shelter, EZ personnel will re-don chemical resistant inner and outer gloves, IAW the PPE donning procedures listed in the SSHP. The abbreviated decontamination will include:

1. Soapy water wash and clean water rinse of outer chemical resistant gloves, boots, and if needed suits;
2. Removal of outer and inner chemical resistant gloves; and
3. Washing of exposed hands, face and neck, using handy/baby wipes.

5.2.3.4 Additional Work/Rest Cycles

To date, there are no Federally or USACE mandated regulations related to work/rest schedules for cold stress. The work/rest cycle outlined in paragraph 5.2.3.3 is a recommended routine, but may not be adequate for all cold weather conditions which may be encountered. The ACGIH has published a work/rest schedule, which is provided in Table 102-3 of this SOP. However, this table only applies to, and should be implemented for, temperatures below -4°F. Therefore, for temperatures above -4°F, workers shall be encouraged to utilize the work rest schedule listed above or to seek shelter in a warm area especially if they exhibit cold stress symptoms such as heavy shivering, frostnip, the feeling of excessive fatigue, drowsiness, irritability or euphoria.

5.2.4 Cold Stress Documentation

The SSHO shall be responsible for recording all cold stress related information. This will include training sessions, environmental conditions and environmental monitoring data. Training sessions shall be documented using the EODT Training Roster. Environmental conditions and monitoring data will be recorded in the Site Safety Log, and/or Site Monitoring Log.

6.0 AUDIT CRITERIA

The following items related to operations conducted in hot or cold environments will be audited to ensure compliance with this SOP:

1. The Daily Operational Log;
2. The Documentation of Training form for the initial site hazard training;
3. The Documentation of Training form for the Daily Tailgate Safety Briefings;
4. The Site Monitoring Log;
5. The Site Safety Log; and
6. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments are associated with this SOP.

Table 102-3. TLV Work/Rest Schedule for 4-Hour Work Shift *

Air Temp.	No Wind		5 MPH Wind		10 MPH Wind		15 MPH Wind		20 MPH Wind	
	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-4 to -8	Normal	1	Normal	1	Normal	1	Normal	1	Normal	1
-9 to -13	Normal	1	Normal	1	Normal	1	Normal	1	75 min.	2
-14 to -18	Normal	1	Normal	1	Normal	1	75 min.	2	55 min.	3
-15 to -19	Normal	1	Normal	1	75 min.	2	55 min.	3	40 min.	4
-20 to -24	Normal	1	75 min.	2	55 min.	3	40 min.	4	30 min.	5
-25 to -29	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-30 to -34	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-35 to -39	40 min.	4	30 min.	5	Non-emergency work should cease					
-40 to -44	30 min.	5	Non-emergency work should cease							
-45 & Below	Non-emergency work should cease									

- Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up cycle in a warm location and with an extended break in a warm location (e.g. lunch) at the end of the 4-hours. For light-to-moderate work: apply the schedule one step lower.
- The following is suggested as a guide for estimating wind velocity if other, more accurate means are not available: 5 mph - light flag moves; 10 mph - light flag fully extended; 15 mph - raises newspaper sheet; 20 mph - blowing and drifting snow.
- This table applies only to acclimatized workers with appropriate dry clothing for winter work.

* Adapted from the "1993-1994 Threshold Limit Values and biological Exposure Indices, American Conference of Governmental Industrial Hygienist, Cincinnati, OH.

STANDARD OPERATING PROCEDURE 109

FIRE PREVENTION AND PROTECTION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving fire prevention.

2.0 SCOPE

This SOP applies to all site operations requiring fire prevention and protection. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- Applicable parts of OSHA Construction Industry Standard 29 CFR Part 1926, Subpart F;
- Applicable parts of OSHA General Industry Standard 29 CFR Part 1910, Subpart L; and
- USACE EM 385-1-1, Section 9.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for operations where fire protection and prevention is needed. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in operations shall be familiar with the potential safety and health hazards associated with the conduct of this SOP, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 CAUSES OF FIRES AND EXPLOSIONS

Although fires and explosions may arise spontaneously, they are more commonly the result of carelessness during the conduct of site activities, such as moving drums, mixing/bulking of site chemicals and during refueling of heavy or hand held equipment. Some potential causes of explosions and fires include:

1. Mixing of incompatible chemicals, which cause reactions that spontaneously ignite due to the production of both flammable vapors and heat;
2. Ignition of explosive or flammable chemical gases or vapors by external ignition sources;
3. Ignition of materials due to oxygen enrichment;
4. Agitation of shock or friction-sensitive compounds;
5. Welding and cutting operations;
6. Hot surfaces and frictional heat sources;
7. Sparks, whether from static, electrical or mechanical sources;
7. Careless handling of matches, cigarettes and other lighted materials.

5.2 FIRE PREVENTION

Explosions and fires not only pose the obvious hazards of intense heat, open flames, smoke inhalation, and flying objects, but may also cause the release of toxic chemicals into the environment. Such releases can threaten both personnel onsite and members of the general public. Site personnel conducting operations involving flammable or combustible material shall follow the guidelines listed below to aid in the prevention of fires and explosions.

5.2.1 Ignition Sources

All sources of ignition will be prohibited within 50 feet of a potential fire or explosion hazard. Ignition sources which may be of concern are: smoking; small engines and their exhausts; heavy equipment engines and their exhaust; non-intrinsically safe electrical hand tools, lights, equipment,

etc.; steel hand tools capable of creating sparks; open flames; non-intrinsically safe monitoring instruments; and room/area heating devices.

5.2.2 Site Inspections

To ensure adequate fire protection, the SSHO will inspect the site daily to ensure that all flammable and combustible materials are being safely stored in appropriate containers in properly configured and segregated storage areas. The SSHO will also ensure that sources of ignition are removed a safe distance from storage areas.

5.2.3 Storage of Flammable and Combustible Materials

5.2.3.1 Approved Containers

Quantities of flammable liquids greater than one gallon, shall be stored or handled in OSHA approved safety cans only. These cans have a built-in flame arrestor and a tight-fitting self closing lid to reduce the possibility of vapors escaping from the can. For quantities of flammable liquids of one gallon or less, the original container or an OSHA approved safety can shall be used for handling or storage.

5.2.3.2 General Storage Requirements

Site personnel shall utilize the guidelines and procedures listed in this paragraph when storing flammable and combustible materials on site.

1. Flammable materials shall be stored in a segregated area located away from spark or ignition sources, with flagging, or other barrier materials, erected at a radius of fifty feet from the storage area, and "NO SMOKING MATCHES OR OPEN FLAME" signs posted at the fifty foot barrier line;
2. If, due to site configuration, a fifty foot radius barrier can not erected around the storage area, signs stating "NO SMOKING MATCHES OR OPEN FLAME WITHIN 50 FEET" will be posted at the storage location;
3. For storage inside a building, no more than 25 gallons of flammable materials may be stored outside of approved fire cabinet, and no more than 60 gallons of flammable or 120 gallons of combustible liquids may be stored in each cabinet;
4. For storage of containers (of not more than 60 gallons each) outside, no more than 1,100 gallons shall be stored in one designated area, with at least five feet separating storage areas;
5. Outdoor storage areas shall be at least 20 feet from the nearest building, and there shall be a 12 foot wide fire truck access lane within 200 feet of the storage area;
6. Storage areas outside shall be graded to allow collection of spilled material or provided with a 12 inch curbed or earthen dike containment system of sufficient volume to contain the contents stored in the area, and provisions shall be made for drainage or collection of accumulated rain water or spilled materials;

7. Metal drums used for storing flammable/combustible liquids shall be equipped with self-closing safety faucets, vent bung fittings, grounding cables and drip pans, and shall be stored outside buildings in an area approved by the SSHO;
8. The storage area shall be kept free of weeds, debris and other combustible materials not related to the storage; and
9. At least one fire extinguisher of 20B units or greater shall be located between 25 and 75 feet of outdoors storage areas.

5.2.4 Dispensing Flammable and Combustible Liquids

When dispensing flammable or Combustible liquids from one container to another, the following requirements shall apply:

1. Areas where flammable or combustible liquids are dispensed in quantities greater than five gallons shall be separated from other operations must be at least 25 feet;
2. Spill containment shall be provided in the dispensing area;
3. All tanks, hoses and containers of five gallons or less shall be kept in metallic contact during transfer operations;
4. Transfer of flammable liquids in containers in excess of five gallons shall be done only when the two containers are electrically bonded, and the container being dispensed from shall be grounded;
5. Natural or mechanical ventilation shall be provided to maintain flammable vapors below 10% of the lower explosive limit; and
6. Transfer of liquids by air pressure is not permitted and either a non-sparking hand pump or gravity feed shall be used;

5.2.5 Handling Liquids at Point of Final Use

When using flammable or combustible liquids at the point of final use, the following requirements shall apply:

1. Flammable liquids shall be kept in closed containers;
2. Leakage or spillage of flammable or combustible liquids shall be collected and disposed of quickly and properly; and
3. No open flames or other sources of ignition will be allowed within 50 feet of operations involving flammable or combustible liquids.

5.2.6 Service and Refueling Areas

The following requirements shall apply to service and refueling areas:

1. Only approved storage containers, trucks and hoses shall be used;
2. No smoking will be allowed within 50 feet of areas where fueling operations are being conducted, and conspicuous signs shall be posted prohibiting smoking in the area;;
3. The motors of all equipment being fueled shall be shut off during fueling; and

4. A fire extinguisher of at least 20B units or greater shall be located within 75 feet of fueling operations.

5.2.7 Handling and Dispensing

Site personnel shall utilize the guidelines and procedures listed in this paragraph when dispensing flammable and combustible materials.

5.3 FIRE PROTECTION

5.3.1 General Requirements

The general requirements listed below shall be followed to help provide effective fire protection and shall apply to all sites:

1. All areas where potentially explosive/flammable atmospheres may accumulate shall be monitored using a combustible gas indicator;
2. Prior to initiation of site activities involving explosive/flammable materials, all potential ignition sources shall be removed or extinguished;
3. Non-sparking and explosion-proof equipment shall be used whenever the potential for ignition of flammable/explosive gases/vapors/liquids exists; and
4. Dilution or induced ventilation may be used to decrease the airborne concentration of explosive/flammable atmospheres to below 10% of the lower explosive limit.

5.3.2 Training

All site personnel involved in operations where flammable or combustible liquids or materials are used, or may be encountered, shall be given training, as part of the initial mobilization training, which covers the anticipated hazards and the relevant control techniques. This training shall include fire extinguisher training which covers selection and use of fire extinguishers.

5.3.3 Fire Extinguishers

Portable fire extinguishers shall be selected and conspicuously located on site IAW the type of fire or explosion hazard anticipated. To determine the size and type of extinguishers required, consult the SSHP.

5.4 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

The following safety measures and personal protective equipment (PPE) shall be used in preventing or reducing exposures associated with fire prevention and protection operations. These requirements will be implemented unless superseded by site specific requirements stated in the Site Safety and Health Plan.

1. Personnel who may come in contact with flammable or combustible liquids shall be assigned appropriate PPE to avoid skin or eye contact with the material; and

2. In the event of an onsite fire, the SSHO will assess the situation, determine the potential hazards and if need be, assign levels of PPE to be worn during fire fighting.

6.0 AUDIT CRITERIA

The following items related to fire protection and prevention operations will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Documentation of Training form for the initial site hazard training;
3. The Documentation of Training form for the Daily Tailgate Safety Briefing;
4. The Daily Safety Inspection Checklists; and
5. The fire extinguisher inspection cards.

7.0 ATTACHMENTS

No attachments associated with this SOP.

STANDARD OPERATING PROCEDURE 110

HAZARD COMMUNICATION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving the use of products containing hazardous substances.

2.0 SCOPE

This SOP applies to all site personnel, to include contractor and subcontractor personnel, and operations involving in the use of products containing hazardous substances. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- OSHA Construction Industry Standard 29 CFR Part 1926.59;
- OSHA General Industry Standard 29 CFR Part 1910.1200; and
- USACE EM 385-1-1, Sections 6.A and 6.B.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for all operations involving the use of products containing hazardous substances. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence

of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in operations involving hazardous substances shall be familiar with the potential safety and health hazards associated with the conduct of those operations, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 MATERIAL SAFETY DATA SHEETS (MSDS)

5.1.1 MSDS Availability

An MSDS for each product containing a hazardous chemical to which employees are or may be exposed, will be obtained and made readily available to all site employees. MSDS's will be located at each project site. The SSHO will be responsible for obtaining and maintaining MSDS's. The SSHO will also be responsible for reviewing MSDS's for significant safety and health information, which will then be passed on to the affected employees during formal training sessions. MSDS's will also be reviewed by the SSHO for completeness. If an MSDS is missing or considered to be incomplete/insufficient, a new MSDS will be requested from the manufacturer.

MSDS's will be available for all employees in their work area for review during each work shift. If MSDS's are not available or a new chemical being used on site does not have a corresponding MSDS, the SSHO will obtain the MSDS from the manufacturer as soon as possible. An MSDS which does not specifically identify the hazardous chemicals contained in the project will be accepted if:

1. The information has been classified as a trade secret; and
2. The MSDS contains adequate information related to the physical and health hazards associated with the product.

5.2 CHEMICAL INVENTORY

A Site Specific Chemical Inventory will be maintained by the SSHO. This inventory will include all products containing hazardous chemicals. The Hazardous Chemical Inventory Form (See Figure 1 in Section 7.0) will be used to maintain the site specific chemical inventory.

5.3 LABELING

5.3.1 Container Labeling

No container of hazardous chemicals will be released for use until the following label information is verified:

1. Identification of the chemical;
2. Appropriate hazard warnings; and
3. Name and address of chemical manufacturer, or distributor (applies only to manufacturer's labels).

5.3.2 Secondary Container Labeling

To further ensure that employees are readily provided with information concerning chemicals in their work areas, the SSHO will ensure that all secondary containers are properly labeled with an appropriate hazard communication label. This label must communicate the identity of the hazardous chemicals contained in the product and their appropriate physical and health hazard warnings.

5.4 EMPLOYEE INFORMATION AND TRAINING

5.4.1 General

The SSHO will arrange for employee information and training at the time of initial assignment (for existing hazardous chemicals), whenever a new hazardous chemical is introduced into the work area or an employee changes job locations where new chemicals are encountered.

5.4.2 Required Information

Employees will be trained to recall, in simple language, the following basic information about each hazardous chemical:

1. The basic requirements of the OSHA Hazard Communication Standard, including employee rights under the regulation;
2. Operations/processes where the potential exists for exposure to hazardous chemicals;
3. Location of the written Hazard Communication (HAZCOM) Program, the Chemical Inventory and the MSDSs;
4. How chemicals may be detected/monitored (instrumentation, color, odor, state);
5. Physical hazards (i.e., flammability, reactivity);
6. Chemical hazards, including the effects a chemical has on the body (long and short term) through inhalation, ingestion or skin contact;
7. How workers can protect themselves from over exposure or emergency situations (engineering controls, work practices, PPE and emergency procedures);
8. Steps that have been taken to lessen or prevent exposure to hazardous chemicals through implementation of the HAZCOMP;
9. Spill response procedures for chemical emergencies;

10. Emergency and first aid procedures to follow if employees are over exposed to any hazardous chemicals; and
11. How to read labels and review MSDS's to obtain appropriate hazard information.

5.4.3 Documentation of Training

Hazardous Communication Training will be documented by the SSHO using the Employee Hazard Communication and Training Checklist (See Figure 2 in Section 7.0).

5.5 HAZARDS FROM NON-ROUTINE TASKS

Periodically, employees are required to perform potentially hazardous, non-routine tasks which may involve chemical or physical hazards. Prior to starting work on such tasks, the SSHO will give each affected employee information about the hazards to which they may be exposed. This training will be documented in the Site Training Log, and will include:

- 1. Specific hazards (chemical and physical);
- 2. Protective safety measures to be utilized; and
- 3. Measures that have been or will be taken to lessen the hazards, including ventilation, respirators, PPE, a standby person, and emergency procedures.

5.6 INFORMING CLIENTS/SUBCONTRACTORS

Each client/subcontractor will be instructed to inform the SSHO of any hazardous chemicals which they bring on site and will provide a copy of the MSDS for each specific chemical(s). The SSHO will ensure that outside clients/subcontractors are provided with the following information to allow them to work safely on site:

1. Hazardous chemicals to which they may be exposed while on the job site;
2. Precautions and protective measures the employees may take to avoid possible exposure; and
3. The rules and regulations regarding fire and ignition sources around flammable materials, and rules regarding smoking, welding, grinding, etc.

5.7 INDUSTRIAL HYGIENE SURVEY

Periodic surveys will be performed to evaluate the potential for employee exposure to chemicals on project sites. These surveys will be used to assess exposure levels and the effectiveness of engineering, work practice and personal protective equipment controls. These efforts will be coordinated by the SSHO and the SUXOS, and will include:

1. A walk-through evaluation of potential chemical exposures utilizing the chemical inventory, MSDS's, and, when required, air sampling equipment;
2. A review of occupational illness records for trends of hazard exposure;
3. A review of engineering controls and personal protective measures; and
4. Recommendations for future control methods.

5.7.3 Where a question exists concerning employee exposure to hazardous chemicals, engineering controls or PPE requirements, the CIH will be contacted immediately.

5.8 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

The following operational precautions personal protective equipment shall be used in preventing or reducing exposures associated with operations involving the use of products containing hazardous substances.

1. Operations where hazardous substances are used will be conducted in well ventilated areas, and where needed and available, direct reading instruments will be used to assess personnel exposure; and
2. All personnel will wear chemical protective gloves, clothing, etc., as specified by the MSDS.

6.0 AUDIT CRITERIA

The following items related to operations conducted under this SOP will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Site Specific Chemical Inventory Forms;
3. The Documentation of Training form for the initial site hazard training;
4. The Documentation of Training form for the Daily Tailgate Safety Briefing; and
5. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

Attachment 1 Site Specific Chemical Inventory Form
Attachment 2 Documentation of Hazard Communication Training Form

SITE SPECIFIC CHEMICAL INVENTORY FORM

Site Name/Location: _____

Site Safety Officer: _____

DATE	PRODUCT NAME	SUPPLIER'S NAME AND ADDRESS	HAZARDOUS CHEMICALS	MSDS AVAILABLE	CONTAINER SIZE/TYPE	LOCATION STORED

Attachment 1

DOCUMENTATION OF HAZARD COMMUNICATION TRAINING

SITE INFORMATION

Site Name:

Date:

Location:

Instructor:

TRAINING ELEMENTS COVERED

Initial	Topic	Initial	Topic
	Requirements of 29 CFR 1910.1200		Target organs affected
	Elements of HAZCOM Program		Physical hazards (fire, explosion, etc.)
	Local of Program, MSDS's & Inventory		Detection of and protection from exposure
	Hazardous substance operations/processes		Spill/emergency response
	Acute/chronic health hazards		Labeling requirements

HAZARDOUS SUBSTANCES/PRODUCTS AND MSDS's REVIEWED

Initial	Hazardous Substance/Product	Initial	Hazardous Substance/Product

TRAINING COURSE ATTENDANTS

My signature below indicates that I have received training in the above listed topics as they relate to the hazardous substances and products with which I work, and I am familiar with the requirements of the *EODT* Hazard Communication Program.

Name (printed)	Signature	Company/Organization

DOCUMENTATION OF HAZARD COMMUNICATION TRAINING

Location:

Date:

TRAINING COURSE ATTENDANTS (cont.)

My signature below indicates that I have received training in the above listed topics as they relate to the hazardous substances and products with which I work, and I am familiar with the requirements of the *EODT Hazard Communication Program*.

Name (printed)	Signature	Company/Organization

STANDARD OPERATING PROCEDURE 111

HEAT STRESS PREVENTION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving hot environmental conditions.

2.0 SCOPE

This SOP applies to all site personnel, including contractor and subcontractor personnel, and operations involving potential personnel exposure to heat stress. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following American Conference of Governmental Industrial Hygienist (ACGIH) and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with this SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- ACGIH Threshold Limit Values and Biological Exposure Indices, 1993-1994.
- USACE EM 385-1-1, Section 6.J

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for all operations involving potential personnel exposure to heat stress. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 TEAM LEADER/UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence

of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER (SSHO)

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in site operations shall be familiar with the potential safety and health hazards associated with the conduct of operations in hot environmental conditions, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 INTRODUCTION

During activities conducted on UXO and waste sites, hot environmental conditions can create serious safety and health threats to site workers. This SOP addresses the potential hazards associated with heat stress, and outlines the procedures for monitoring and controlling those hazards.

5.2 HEAT STRESS

Heat stress is one of the most common (and potentially serious) illnesses that can affect site personnel. The most common cause of heat stress during site activities is the affect that PPE has on the bodies natural cooling mechanism. Impermeable PPE interferes with the evaporation of perspiration and causes the body to retain metabolic and environmentally induced heat. Individuals will vary in their susceptibility and degree of response to heat stress. Factors which may predispose a worker to heat stress, or increase susceptibility, include: lack of physical fitness; lack of acclimatization to hot environments; degree of hydration; level of obesity; current health status (i.e., having an infection, chronic disease, diarrhea, etc.); alcohol or drug use; and the worker's age and sex. For the remainder of this SOP reference to "liquids" shall indicate water or an electrolyte replacement solution - not tea, coffee or soft drinks.

5.2.1 Heat Stress Disorders

5.2.1.1 Heat Rash

Heat rash is caused by continuous exposure to heat and humid air and is aggravated by wet chafing clothes. This condition can decrease a worker's ability to tolerate hot environments.

1. Symptoms: Mild red rash, especially in areas of the body which sweat heavily.

2. Treatment: Decrease amount of time in protective gear and provide powder such as corn starch or baby powder to help absorb moisture and decrease chafing. Maintain good personal hygiene standards and change into dry clothes if needed.

5.2.1.2 Heat Cramps

Heat cramps are caused by a rate of perspiration that is not balanced by adequate fluid and electrolyte intake. The occurrence of heat related cramps are often an indication that excessive water and electrolyte loss has occurred, which can further develop into heat exhaustion or heat stroke.

1. Symptoms: Acute, painful spasms of voluntary muscles such as the back, abdomen and extremities.
2. Treatment: Remove victim to a cool area and loosen restrictive clothing. Stretch and massage affected muscles to increase blood flow to the area. Have patient drink one to two cups of liquids immediately, and every twenty minutes thereafter. Consult with physician if condition does not improve. If available, an electrolyte replacement solution should be taken along with water. Consumption of soft drinks will not be adequate and may aggravate the condition.

5.2.1.3 Heat Exhaustion

Heat exhaustion is a state of very definite weakness or exhaustion caused by excessive loss of fluids from the body. This condition leads to inadequate blood supply and cardiac insufficiency. Heat exhaustion is less dangerous than heat stroke, but nonetheless must be treated. If allowed to go untreated, heat exhaustion can quickly develop into heat stroke.

1. Symptoms: Pale or flushed, clammy, moist skin, profuse perspiration, and extreme weakness. Body temperature is basically normal or slightly elevated, the pulse is weak and rapid, and breathing is shallow. The individual may have a headache, be dizzy or nauseated.
2. Treatment: Remove the individual to a cool, air-conditioned place, loosen clothing, elevate feet and allow individual to rest. Consult physician, especially in severe cases. Have patient drink one to two cups of liquids immediately, and every twenty minutes thereafter. Total liquid consumption should be about one to two gallons per day. If the signs and symptoms of heat exhaustion do not subside, or become more severe, immediate medical attention will be required.

5.2.1.4 Heat Stroke

Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of the heat regulating mechanisms of the body. The failure of the individual's temperature control mechanism causes the perspiration system to stop working correctly. When this occurs, the body core temperature rises very rapidly to a point (105+ °F) where brain damage and death will result if the person is not cooled quickly.

1. Symptoms: The victims skin is hot, and may or may not be red and dry, due to the fact that the individual may still be wet from having sweat while wearing protective clothing earlier; nausea; dizziness; confusion; extremely high body temperatures, rapid respiratory and pulse rate; delirium; convulsions; unconsciousness or coma.
2. Treatment: Cool the victim immediately. If the body temperature is not brought down quickly, permanent brain damage or death may result. Cool the victim by either sponging or immersing the victim in very cool water to reduce the core temperature to a safe level (<102° F). If conscious, give the victim cool liquids to drink. Observe the victim and obtain immediate medical help. Do not give the victim caffeine or alcoholic beverages.

5.2.2 Preventative Measures

5.2.2.1 Minimal Preventative Measures

In order to avoid heat related illnesses, proper preventative measures shall be implemented whenever environmental conditions dictate the need. The preventative measures listed in this paragraph represent the minimal steps to be taken and shall include the following procedures:

1. The SSHO shall examine each site worker prior to the start of daily operations in order to determine the individuals susceptibility to heat stress. Workers exhibiting factors which make them susceptible to heat stress will be closely monitored by the SSHO.
2. Site workers shall be trained to recognize and treat heat related illnesses. This training shall include the signs, symptoms and treatment of heat stress disorders as outlined in paragraph 5.2.1 of this SOP.
3. Workers will be encouraged to drink a minimum of sixteen ounces of liquids prior to start of work in the morning, after lunch and prior to leaving the site at the conclusion of the days activities. Disposable four to twelve ounce cups and liquids shall be provided onsite. Acceptable liquids will include water and an electrolyte replacement solution, with the intake of each being equally divided. Liquids containing caffeine are to be avoided.
4. When ambient conditions and site workload requirements dictate, as determined by the SSHO, workers will be encouraged to drink a minimum of sixteen (16) to thirty-two (32) ounces of liquids during each rest cycle.
5. A shelter or shaded rest area will be provided where workers may be protected from direct sunlight during rest periods.
6. Monitoring of ambient or physiological heat stress indices shall be conducted to allow prevention and/or early detection of heat induced stress. Monitoring shall be conducted IAW paragraph 5.2.3 of this SOP.
7. Site workers will be given time to acclimatize to working in hot environments. Acclimatization usually takes two to six days and allows the worker's body to become adjusted to working in hot environments. This process involves a gradual increase of the workload over the two to six day period. The recommended acclimatization schedule suggests starting workers at fifty percent of the anticipated work load and increasing each

day by ten percent. For fit or trained individuals, the acclimatization period may be shortened to two or three days.

5.2.2.2 Designated Sheltered Rest Areas

To allow site personnel to seek refuge from the radiant heat, EODT may provide one or more designated sheltered rest areas in both the EZ and the SZ. In addition, cool non-caffeinated liquids (i.e., water, electrolyte replacement solutions, fruit drinks, etc.) will be provided to the personnel utilizing these areas. Whenever possible, these areas will also be provided with fans to circulate the air under the shelter, thereby enhancing the cooling effect of perspiration.

Personnel inside the EZ who enter the sheltered EZ rest area and are wearing Modified Level D PPE, as defined in the SSHP, will undergo an abbreviated decontamination prior to entry. This abbreviated decontamination will include:

1. Soapy water wash and clean water rinse of outer chemical resistant gloves, boots, and if needed suits;
2. Removal of outer and inner chemical resistant gloves; and
3. Washing of exposed hands, face and neck, using handy/baby wipes.

Upon leaving the shelter, EZ personnel will re-don chemical resistant inner and outer gloves, IAW the PPE donning procedures listed in the SSHP.

5.2.3.3 Additional Preventative Measures

When possible and/or feasible, the following measures will also be implemented to aid in prevention or reduce the effects of heat induced stress:

1. Designated rest areas will be provided with ventilation to aid in reducing the air temperature, and if possible, or necessary, air conditioning devices will be used to maintain the rest area temperature between 72 and 76°F.
2. Cooling devices will be provided to aid in body heat exchange. Cooling devices may include cooling jackets, vests or suits and field showers or hose-down areas. Depending on the severity of the heat exposure some form of artificial cooling may be required to ensure protection of the workers.
3. Workers will be encouraged to achieve and maintain an optimum level of physical fitness. Increased physical fitness will allow workers to better tolerate and respond to hot environments and heavy work loads. In comparison to an unfit person, a fit person will have: less physiological strain; a lower heart rate and body temperature; and a more efficient sweating mechanism.

5.2.3 Physiological Heat Stress Monitoring

When site personnel are engaged in site activities involving the use of semi-permeable or impermeable clothing in ambient temperatures greater than 70°F, physiological monitoring shall be conducted. The goal of all heat stress monitoring is to ensure that the worker's body temperature does not exceed 100.4°F. The physiological monitoring methods listed below are to be implemented based upon the severity of the heat and work load. As a minimum, the SSHO shall monitor the worker's heart rate as an indication of potential heat stress. However, if monitoring with the heart rate method indicates the need for closer, more direct monitoring, the oral temperature method will be implemented. The need for monitoring body water loss will be determined by the SSHO, and will be based upon observation of the sweat loss experienced by site personnel during their work cycle. The frequency of physiological monitoring shall be determined using the information presented in Table 111-1.

5.2.3.1 Heart Rate Monitoring

The worker's baseline heart rate should be recorded prior to initiation of site activities by measuring the radial pulse rate for thirty seconds. After each work cycle, the heart rate should be measured by taking the pulse rate (PR) as early as possible into the resting period. Taking the radial (wrist) pulse rate is the preferred method, however the carotid (neck) pulse rate may be taken if a worker has difficulty finding the radial pulse. The PR at the beginning of the rest period should not exceed one hundred and ten (110) beats per minute (bpm). If the PR is higher than 110 bpm, the next work period should be shortened by thirty-three percent, while the length of the rest period stays the same. If the PR exceeds 110 bpm at the beginning of the next rest period, the work cycle should be further shortened by thirty-three percent. This procedure is continued until the PR at the beginning of the rest cycle is maintained below 110 bpm.

5.2.3.2 Oral Temperature Monitoring

If deemed necessary by the SSHO, oral temperature (OT) monitoring will be conducted. The worker's OT will be taken and recorded prior to initiation of site activities using a clinical thermometer placed under the tongue. The OT must be taken prior to consumption of cool liquids and will be done at the end of each work period or at a frequency determined by Table 111-1. Whenever the OT exceeds 99.6°F, the work cycle must be shortened by one third, without changing the length of the rest period. If a worker's OT has exceeded 99.6°F, test the OT again at the end of the rest cycle, and do not allow the worker to return to work until the OT drops below 99.6°F. If a worker's OT exceeds 100.4°F the worker shall not be allowed to work in impermeable or semi-permeable PPE for the remainder of that work day.

**Table 111-1. Suggested Frequency of Physiological Monitoring
for Fit and Acclimatized Workers ^{a, d}**

ADJUSTED TEMPERATURE ^a	NORMAL WORK ENSEMBLE ^c	IMPERMEABLE ENSEMBLE
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5° - 90°F (30.8° - 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5° - 87.5°F (28.1° - 28.1°C)	After each 90 minutes of work	After each 60 minutes of work
77.5° - 82.5°F (25.2° - 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5° - 77.5°F (22.5° - 25.2°C)	After each 150 minutes of work	After each 120 minutes of work

^a For work levels of 250 kilocalories/hour.

^b Calculate the adjusted air temperature ($t_{a\ adj}$) by using this equation: $t_{a\ adj} \text{ } ^\circ\text{F} = t_a \text{ } ^\circ\text{F} + (13 \times \% \text{ sunshine})$. Measure air temperature (t_a) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows. Use decimal expression of % sunshine)

^c A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

^d Source: NIOSH/OSHA/USCG/EPA. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. DHHS (NIOSH) 85-115. Cincinnati, OH.

5.2.3.3 Body Weight Loss

If expected site conditions and work requirements have the potential for causing excessive fluid loss, the SSHO shall monitor the workers fluid loss by weighing each worker prior to and again at the conclusion of each days site activities. This will be needed to ensure that proper hydration is being maintained and that the total amount of water weight loss through out the day does not exceed 1.5% of the employee's body weight. Body weights will be taken with the workers wearing undergarments only. If, as determined by the SSHO, site conditions and work requirements cause an extreme amount of fluid loss, body weights will also be taken prior to the lunch break. Calculation of the water weight loss, and assessing the effectiveness of hydration shall be conducted as follows:

1. Subtract the ending weight (W_{ending}) from the daily starting weight (W_{start}) to obtain the weight lost (W_{lost}) for a given work period: $(W_{start}) - (W_{ending}) = (W_{lost})$.
2. Multiply the starting weight by 1.5% to obtain permissible weight loss (W_{perm}):
 $(W_{start}) \times 0.015 = (W_{perm})$.
3. Compare (W_{lost}) to the (W_{perm}), if (W_{lost}) is less than or equal to (W_{perm}), then hydration during the measured period has been adequate, but if (W_{lost}) is greater than (W_{perm}), then hydration should be increased during the next work period.

5.2.4 Wet Bulb, Dry Globe Temperature (WBGT) Monitoring

For site conditions where personnel are working in Level D PPE, and the ambient temperature is greater than 75°F, the SSHO shall conduct WBGT monitoring to assist in controlling the potential for site workers experiencing heat related adverse health affects. The SSHO shall use a real-time direct reading WBGT monitor, and after estimating the work load, use the values expressed in Table 111-2, to determine the work/rest schedule to be implemented. The values outlined in this table are designed such that nearly all acclimatized, fully clothed workers with adequate salt and water intake will be able to function without the body temperature exceeding 100.4°F. If conditions and/or work loads warrant, the SSHO may also implement the OT and water weight loss monitoring outlined in paragraphs 5.2.3.2 and 5.2.3.3.

Table 111-2. Permissible WBGT Heat Exposure Threshold Limit Values °

Work - Rest Regimen	WORK LOAD *		
	Light	Moderate	Heavy
Continuous work	86 (30.0)	80 (26.7)	77 (25.0)
75% Work - 25% Rest, each hour	87 (30.6)	82 (28.0)	78 (25.5)
50% Work - 50% Rest, each hour	89 (31.4)	85 (29.4)	82 (27.9)
25% Work - 75% Rest, each hour	90 (32.2)	88 (31.1)	86 (30.0)

* Consult the ACGIH TLV booklet for definitions of Light, Moderate and Heavy work loads. Values are given in °F and (°C) WBGT, and are intended for workers wearing single layer summer type clothing. Use of semi or totally impermeable clothing require monitoring IAW the Physiological Heat Stress Monitoring found in paragraph 5.2.3 of this SOP. As workload increases, the heat stress impact on an unacclimatized worker is exacerbated. For unacclimatized workers performing a moderate level of work, the permissible heat exposure TLV should be reduced by approximately 2.5°C.

° Source: American Conference of Governmental Industrial Hygienist (ACGIH). 199-1994 Threshold Limit Values and Biological Exposure Indices. Cincinnati, OH.

5.2.5 Heat Stress Documentation

The SSHO shall be responsible for recording all heat stress related information. This will include training sessions, WBGT and physiological monitoring data. Training sessions shall be documented

using the EODT Documentation of Training Form. Pulse rate monitoring data will be recorded on the Heat Stress Monitoring Log (see Section 7.0, figure 5-1), with the environmental conditions, WBGT, OT and/or water loss calculations being recorded in the Site Safety Log, and/or Site Monitoring Log.

6.0 AUDIT CRITERIA

The following items related to operations conducted in hot or cold environments will be audited to ensure compliance with this SOP:

1. The Daily Operational Log;
2. The Site Safety and Monitoring Logs;
3. The Safety Meeting Attendance Log for the initial site hazard training;
4. The Safety Meeting Attendance Log for the Daily Tailgate Safety Briefings;
5. The Heat Stress Monitoring Log; and
6. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

The Heat Stress Monitoring Log (Figure 111-1) is attached to this SOP and will be used for documenting the results of pulse rates to assess the physiological affects of heat on exposed personnel.

FIGURE 5-1. HEAT STRESS MONITORING LOG

Date: _____ Site Name: _____ Conditions: _____											
SSHO: _____ Location: _____											
Name	Organization	Start Time	Pulse Rate	Time	Pulse Rate	Time	Pulse Rate	Time	Pulse Rate	Time	Pulse Rate
Remarks and Observations:											

Figure 111-1

STANDARD OPERATING PROCEDURE 112

HEAVY EQUIPMENT OPERATION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving the use of heavy equipment.

2.0 SCOPE

This SOP applies to all site personnel, to include contractor and subcontractor personnel, and operations involved in the conduct of heavy equipment operations. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- Applicable parts of OSHA Construction Industry Standard 29 CFR Part 1926, Subpart O;
- Applicable parts of OSHA General Industry Standard 29 CFR Part 1910, Subpart N; and
- USACE EM 385-1-1, Section 16.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for heavy equipment operations. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence

of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in heavy equipment operations shall be familiar with the potential safety and health hazards associated with the conduct of this operation, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 SAFETY HAZARDS AND OPERATIONAL CONTROL TECHNIQUES

The operational control techniques to be used during conduct of heavy equipment operations are discussed below:

1. The operation of heavy equipment shall be limited to authorized personnel specifically trained in its operation;
2. A competent person shall visually inspect heavy equipment daily prior to operation, and report any abnormalities/deficiencies to the SSHO;
3. The operator shall use the safety devices provided with the equipment, including seat belts, and backup warning indicators and horns shall be operable at all times;
4. While in operation, all personnel not directly required in the area shall keep a safe distance from the equipment;
5. The operator's cab shall be kept free of all non-essential items and all loose items shall be secured;
6. Personnel shall avoid moving into the path of operating equipment and areas blinded from the operator's vision shall be avoided;
7. Heavy equipment requiring an operator shall not be permitted to run unattended;
8. Except for equipment designed to be serviced while in operation, all equipment shall be shut down and positive means taken to prevent its operation while repair or servicing is being conducted;
9. All equipment shall be secured at the end of the day, or when not in operation, with the blades/buckets of earth moving equipment placed on the ground;
10. Equipment operated on the highway shall be equipped with turn signals visible from the front and rear;

11. Stationary machinery and equipment shall be placed on a firm foundation and secured before being operated;
12. All points requiring lubrication during operation shall have fittings so located or guarded to be accessible without hazardous exposure;
13. Mobile type equipment, operating within an off-highway job site not open to public traffic, shall have a service brake system and a parking brake system capable of stopping and holding the equipment fully loaded on the grade of operation;
14. Heavy equipment shall be shut down prior to and during fueling operations;
15. All equipment with windshields shall be equipped with powered wipers, and equipment that operates under conditions that cause fogging or frosting of windshields shall be equipped with operable defogging or defrosting devices;
16. Whenever the equipment is parked, the parking brake shall be set, and equipment parked on inclines shall have the wheels chocked or track mechanism blocked and the parking brake set;
17. Personnel shall not work or pass under the buckets or booms of loaders in operation;
18. Each bulldozer, scraper, drag-line, crane, motor grader, front-end loader, mechanical shovel, back hoe, dump truck, and other similar equipment shall be equipped with at least one dry chemical fire extinguisher, having a minimum UL rating of 5-B:C
19. When heavy equipment must negotiate in tight quarters, or if operators of earth moving equipment cannot see the bucket, a secondary person shall be stationed to guide the operator; and
20. Additional riders shall not be allowed on equipment unless it is specifically designed for that purpose (i.e., there is an additional seat with a seat belt).

5.2 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

The following safety measures and personal protective equipment shall be used in preventing or reducing exposures associated with heavy equipment operations. These requirements will be implemented unless superseded by site specific requirements stated in the Site Safety and Health Plan.

1. Heavy equipment operators will have received training which addresses the safe operation of the equipment to be used; and
2. Heavy equipment operators shall wear the level of personal protective equipment as specified in the Site-specific Safety and Health Plan.

6.0 AUDIT CRITERIA

The following items related to heavy equipment operations will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Documentation of Training form for the initial site hazard training;

3. The Documentation of Training form for the Daily Tailgate Safety Briefing; and
4. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments associated with this SOP.

STANDARD OPERATING PROCEDURE 113

CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving the lock out/tagout (LO/TO) of hazardous energy sources.

2.0 SCOPE

This SOP applies to all site personnel, including contractor and subcontractor personnel, and operations involved in the conduct of LO/TO procedures. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- OSHA Construction Industry Standard 29 CFR Part 1926.417;
- OSHA General Industry Standard 29 CFR Part 1910.147; and
- USACE EM 385-1-1, Section 12.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for all operations where personnel may be exposed to the hazards of stored or potential energy. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER (SSHO)

The SSHO will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in LO/TO operations shall be familiar with the potential safety and health hazards associated with the conduct of this operation, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 PREPARATION FOR SHUTDOWN

The following steps will be conducted prior to the shutdown or isolation of machines or equipment for servicing or maintenance:

1. Lockout and tagout procedures shall be implemented by an authorized personnel only;
2. Authorized personnel shall fully understand the type and magnitude of the energy to be controlled, the means necessary for energy isolation/control, and be able to recognize applicable hazardous energy sources;
3. Prior to maintenance or servicing, the authorized personnel will shut down equipment or machinery by the normal stopping procedure (close valve, open switch, etc.);
4. All sources of hazardous energy will be physically located and the equipment or machine will be deactivated so that the equipment or machine is completely isolated from all energy sources (electrical, hydraulic, pneumatic, etc.);
5. Locks/Tags shall be assigned to each authorized employee by the SSHO, and a LO/TO Device Issuance Log will be maintained by the SSHO (See Figure 1); and
6. The authorized personnel conducting the LO/TO will notify all affected personnel in the area that maintenance and servicing is required, and that the equipment or machine must be shut down and locked/tagged out to perform the maintenance or servicing.

5.2 APPLICATION OF LO/TO DEVICES

To ensure the complete control of hazardous energy, the following procedural steps will be followed whenever LO/TO must be conducted;

1. Once all energy sources have been identified, all authorized personnel who will be conducting servicing or maintenance shall affix their own assigned lock and/or tag to the energy controlling devices leading to the equipment or machine;
2. The locks and/or tags will be used to hold these energy controlling devices in a safe or off position;
3. Stored or residual energy must be dissipated or restrained, as with hydraulic systems, gas, steam, and water pressure, etc., by such methods as blocking and/or bleeding of the stored/residual energy;
4. When the configuration of the controlling device for equipment or machines cannot be secured with a lock, a tag will be used in place of the lock and additional measures will be taken (remove fuses, blocking lines, disconnecting power supply, etc.) to ensure that the status of equipment or machines is in the zero-energy state; and
5. When tagout devices are used instead of lockout devices, they must be applied in such a manner as to provide the same level of personnel protection as would be afforded by a lockout device.

5.3 VERIFICATION OF ISOLATION

All authorized personnel responsible for the LO/TO will witness or individually verify that the equipment or machine is completely de-energized to its full capacity by:

1. Checking to ensure that no employees are exposed;
2. Attempting to energize or activate the equipment of machine using the normal operational control; and
3. Testing to ensure the equipment or machine will not operate.

If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation will be conducted continually until servicing or maintenance has been completed, or the potential for accumulation no longer exists. After these steps have been accomplished, the authorized person(s) conducting the verification will return the operating controls to the "off" or "neutral" position. Only after these verification steps have been accomplished can the equipment or machinery be considered safe for servicing or maintenance.

5.4 RELEASE FROM OF LO/TO

In order to ensure the safe and effective removal of LO/TO devices, the following steps will be conducted to allow release from LO/TO:

1. The authorized person(s) who conducted the LO/TO will inspect the area in and around the equipment or machine to ensure non-essential items (tools, spare parts, etc.) and all affected employees have been safely positioned or removed;
2. The authorized person(s) will verify that the operating controls are in the "off" or "neutral" position;

3. The authorized person(s) will notify affected personnel in the area that the equipment or machine is to be re-energized;
4. The authorized person(s) who originally placed the LO/TO devices will remove the lock(s) and/or tag(s) from the energy controlling device(s), and re-energize the equipment or machine;
5. The authorized person will notify affected personnel in the area that the equipment or machine is ready for use; and
6. Lock(s) and/or tag(s) shall be returned to the SSHO when the maintenance/servicing task is complete.

5.5 ABSENCE OF THE AUTHORIZED PERSON(S) DURING REMOVAL

These procedures are to be followed whenever the authorized person(s) who placed the LO/TO devices is not on site (sick or vacation) at the time of removal. If the authorized employee is on site, LO/TO device(s) shall be removed only by the person(s) to it was assigned.

In the event that the authorized person(s) cannot be located on site, the SSHO will make all reasonable attempts to ensure that the authorized person(s) is in fact not on site at the time of removal. Once it has been established that the authorized person(s) is not on site, the LO/TO device(s) assigned may then be removed by the Energy Control Coordinator. When the authorized employee returns to the facility, he/she will be informed by the Energy Control Coordinator that the LO/TO devices were removed during his/her absence

5.6 GROUP LO/TO

When equipment or machine maintenance or servicing is performed by a group of individuals, group LO/TO will be utilized to provide for the safety of all affected individuals. Primary responsibility for the safe operation of group LO/TO will be vested in the SSHO, who will conduct the following:

1. Ascertain the exposure status of individual personnel with regard to the lockout or tagout of the equipment or machine; and
2. Will coordinate the affected work forces and ensure continuity of protection.

During operations which involve more than one authorized person, each authorized person will affix their personally assigned LO/TO device to the group lock, group lock box, or comparable mechanism. This will be accomplished when each person begins work and removal of these LO/TO devices shall occur only when work on the equipment or machine has been completed. Once each individual lock/tag has been affixed and the LO/TO has been verified by the authorized personnel, the normal LO/TO procedures, as outlined in Sections 5.1 thru 5.5, shall be followed.

5.7 SHIFT OR PERSONNEL CHANGE

Specific instruction shall be utilized during shift or personnel changes to ensure the continuity of LO/TO protection, including provision for the orderly transfer of locks or tags between off-going and on-coming employees. This shall be conducted to minimize personal exposure to hazards from the unexpected energizing or start-up of the equipment or machine, or the release of stored energy.

6.0 TRAINING AND COMMUNICATION

6.1 TRAINING OF AFFECTED PERSONNEL

Each person working in the area where LO/TO procedures must be implemented shall be instructed in the purpose and use of the LO/TO procedure, and about the prohibitions related to attempts to re-start or re-energize equipment or machinery which are locked or tagged out.

6.2 LOCKOUT TRAINING FOR AUTHORIZED LO/TO PERSONNEL

Each person who will be authorized to conduct LO/TO procedures shall receive training in the following areas prior to using this procedure:

1. The function and purpose of this SOP;
2. Recognition of hazardous energy sources;
3. Types and magnitude of the hazardous energy which may be encountered on site;
4. The means necessary for energy isolation and control;
5. Where tags may be used, training will include procedures for affixing tags and a discussion of the limitations of tagout; and
6. Hands-on practice training with locks and tags prior to implementing LO/TO activities.

6.3 TAGOUT TRAINING FOR AUTHORIZED EMPLOYEES

In the event that only tagout procedures and techniques are used on site, authorized personnel shall be trained in the following limitations of tags:

1. Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint on those devices that is provided by a lock;
2. When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated;
3. Tags must be legible and understandable by all authorized and affected personnel whose work operations are, or may be, in the area;
4. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use; and
5. The importance of the fact that tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered on site..

6.4 EMPLOYEE RETRAINING

Retraining of authorized and affected personnel shall be conducted at least annually to reestablish employee proficiency and to introduce new or revised control methods and procedures. Retraining will also be conducted whenever the periodic inspections, as outlined in Section 8.0 of this SOP reveal inadequacies in the authorized person's knowledge or use of this LO/TO SOP. Also, retraining may be necessary due to changes in job assignments, equipment, machinery, or processes that introduces a new hazard.

7.0 LOCKOUT/TAGOUT MATERIALS AND HARDWARE

All locks, tags, chains, key blocks, or other devices for isolating, securing, blocking, bleeding or isolating energy source shall be provided to the authorized personnel at no charge to these personnel. These devices shall be identified and used solely for the purpose of LO/TO.

7.1 LOCKOUT/TAGOUT DEVICE REQUIREMENTS

All LO/TO devices utilized for protection against unexpected energizing or start up of the equipment or machines, or release of stored energy shall meet the following requirements:

1. LO/TO devices shall be of durable construction capable of withstanding the environment for the maximum period of time these devices are exposed;
2. Tagout devices shall be constructed and printed so that exposure to weather conditions or corrosive environments will not cause the tag to deteriorate or become illegible.
3. LO/TO devices shall be standardized within the facility by color, shape, and/or size, and print and format of tagout devices shall be standardized.
4. Lockout devices will prevent removal without the use of excessive force or unusual techniques, such as bolt cutters or metal cutting tools.
5. Tagout devices, including their means of attachment, shall prevent inadvertent or accidental removal.
6. The material used to attach a tagout device shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, environment-tolerant nylon cable tie.
7. Tagout devices shall warn against hazardous conditions if the equipment or machine is energized and shall include a legend such as: **DO NOT START; DO NOT OPEN; DO NOT CLOSE; DO NOT ENERGIZE; DO NOT OPERATE**, etc.
8. Lockout and tagout devices shall indicate the identity of the employee applying the device(s).

7.2 OTHER PROTECTIVE MATERIALS

Authorized LO/TO personnel will be supplied all other protective materials such as blanks, blocks, chains, supports, etc., needed to ensure that all potentially hazardous energy is controlled.

8.0 PERIODIC INSPECTIONS

The SSHO shall conduct periodic inspections of the on site LO/TO procedures at least monthly to ensure that this SOP and its requirements are being followed.

9.0 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Site personnel shall wear and utilized the type and level of PPE outlined in the SSHP or specified by the SSHO when conducting LO/TO operations.

10.0 AUDIT CRITERIA

The following items related to LO/TO operations will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. Canceled tagout tags;
3. The Lockout/Tagout Issuance Log;
4. The Documentation of Training form for the initial site hazard training;
5. The Documentation of Training form for the Daily Tailgate Safety Briefing; and
6. The Daily Safety Inspection Checklist.

11.0 ATTACHMENTS

Figure 1 attached to this SOP is the Lockout/Tagout Issuance Log, which will be used to record the LO/TO equipment issued to each authorized person.

ISSUE LOG FOR LOCKOUT/TAGOUT DEVICES

LOCK/TAG #	NAME OF AUTHORIZED EMPLOYEE	DESCRIPTION/TYPE OF DEVICE ISSUED	ISSUED			RETURNED		
			DATE	TIME	BY	DATE	TIME	BY

Figure 113-1

SOP-113-8

STANDARD OPERATING PROCEDURE 114

MATERIAL HANDLING AND LIFTING

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving material handling.

2.0 SCOPE

This SOP applies to all site personnel, to include contractor and subcontractor personnel, and operations involved in the conduct of material handling. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- Applicable sections of OSHA Construction Industry Standard 29 CFR Part 1926, Subparts H and N ;
- Applicable sections of OSHA General Industry Standard 29 CFR Part 1910, Subpart H; and
- USACE EM 385-1-1, Section 14.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for operations involving material handling. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in material handling operations, shall be familiar with the potential safety and health hazards associated with the conduct of this operation, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 SAFE MATERIAL HANDLING AND LIFTING TECHNIQUES

The safety and health hazards and operational control techniques to be used during conduct of material handling operations are discussed below:

5.1.1 Engineering Controls

Whenever heavy or bulky material is to be moved, the size, shape, weight, distance and path of movement of the object must be considered, and the following hierarchy shall be followed in selecting a means for material handling:

1. Elimination of material handling need through engineering design;
2. Movement of the material by mechanical device (i.e., lift truck, crane etc.);
3. Movement by manual means using mechanical aid (i.e., dolly or cart); and
4. Movement by manual means with protective equipment (i.e., lifting belt or lifting monitor).

5.1.2 Safe Work Practices

The following fundamentals address the proper manual material lifting procedures:

1. A firm grip on the object is essential, therefore the hands and object shall be free of oil, grease and water, which might prevent a firm grip;

2. The hands, and especially the fingers shall be kept away from any points that cause them to be pinched or crushed, especially when setting the object down;
3. The item shall be inspected for metal slivers, jagged edges, burrs, rough or slippery surfaces and pinch points, and gloves shall be used, if necessary, to protect the hands;
4. The feet shall be placed far enough apart for good balance and stability;
5. Personnel shall ensure that solid footing is available prior to lifting the object;
6. When lifting, get as close to the load as possible, bend the legs at the knees, and keep the back as straight as possible;
7. To lift the object, the legs are straightened from their bending position;
8. Never carry a load that you cannot see over or around;
9. When placing an object down, the stance and position are identical to that for lifting, with the back kept straight and the legs bent at the knees, the object is lowered;
10. If needed, personnel shall be provided with back support devices to aid in preventing back injury during lifting activities;
11. Materials will not be moved over or suspended over personnel unless positive precautions have been made to protect personnel from falling objects; and
12. Where movement of materials may be hazardous to persons, taglines or other devices shall be used to control loads being handled by hoisting equipment.

5.1.3 Two Person Lifting When two or more people are required to handle an object, coordination is essential to ensure that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each person, if possible, shall face the direction in which the object is being carried.

5.2 MATERIAL STORAGE

To ensure the safety and health of site personnel, the general guidelines listed below shall be followed when materials are stored on site. For more detailed guidelines pertaining to the storage of specific items such as lumber, bricks, pipe, reinforcing steel, etc., consult the references listed in Section 3.0 of this SOP.

1. All materials shall be stored in orderly piles or stacks away from walkways and roadways, and access ways around stored material shall be kept clear;
2. All materials stored in tiers, whether in bags, containers or bundles, shall be stacked, blocked or interlocked and limited in height to ensure the material is stable and to prevent sliding or collapse;
3. Materials shall be stored at a height that is as low as practical and shall not be stored at a height greater than 20 feet;

4. Flammable and combustible materials shall be stored IAW the provisions outlined in SOP 109, Fire Protection and Prevention;
5. All personnel shall be in a safe position while materials are being loaded or unloaded from vehicles;
6. Non-compatible materials shall not be stored together;
7. Reusable lumber shall have all nails withdrawn before being stored;

5.3 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

The following safety measures and personal protective equipment shall be used in preventing or reducing accidents associated with material handling operations. These requirements will be implemented unless superseded by site specific requirements stated in the Site Safety and Health Plan.

1. When handling materials, proper gloves will be worn to prevent puncture, laceration or abrasion; and
2. Gloves will be selected according to the nature, material and condition of the item(s) to be lifted.

6.0 AUDIT CRITERIA

The following items related to material handling operations will be audited to ensure compliance with this SOP:

1. The Daily Operational Log;
2. The Documentation of Training form for the initial site hazard training;
3. The Documentation of Training form for the Daily Tailgate Safety Briefing; and
4. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments associated with this SOP.

STANDARD OPERATING PROCEDURE 115

HEARING CONSERVATION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving the personnel exposure to high noise levels.

2.0 SCOPE

This SOP applies to all site personnel, including contractor and subcontractor personnel, and operations involving noise exposure. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- OSHA Construction Industry Standard 29 CFR Part 1926.59;
- OSHA General Industry Standard 29 CFR Part 1910.95; and
- USACE EM 385-1-1, Section 5.C.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated into site specific plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for operations which involve personnel exposure to high noise sources. The (SUXOS) will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in high noise operations shall be familiar with the potential safety and health hazards associated with the conduct of this operation, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 SAFETY AND HEALTH HAZARDS

The safety and health hazards associated with the conduct of operations in high noise environments may include the following:

1. Physical trauma to the middle or inner ear, resulting in conductive hearing loss which may cause permanent damage, may heal naturally or may be repaired through surgical techniques;
2. Onset of sensorineural hearing loss caused by the destruction of sound sensing nerves in the inner ear;
3. Interference with voice communication and concentration;
4. Interference with site personnel's ability to detect emergency alarms; and
5. Increase in emotional and physiological stress.

5.2 NOISE EXPOSURE MONITORING

5.2.1 General Requirements

Noise exposure monitoring will be conducted to evaluate the potential for employee exposure to noise levels in excess of those outlined in Table 1. Employees will be given the opportunity to observe any noise measurements conducted and will be informed if they have been exposed to noise at or above the OSHA Action Level. The purpose of work place noise monitoring is to:

1. Collect data to identify noise areas where exposures exceed the OSHA Action Level;
2. Identify affected employees to be included in the Hearing Conservation Program (HCP);

3. Enable proper selection of hearing protection; and
4. Provide data that will assist in the designing of engineering and work practice controls;

5.2.2 Noise Monitoring Procedure

The objective of noise monitoring is to identify those operations which may cause personnel to receive an excessive exposure to noise. Typical site operations which have a real potential for causing over exposures are: drill rig operations; brush clearing operations, using gas powered weed eaters, chain saws or brush hogs; and soil excavation and moving operations, involving backhoe, front-end loaders and similar heavy equipment. Whenever sound level or noise dosimetry monitoring is conducted, the monitoring equipment will be used, calibrated and maintained IAW manufacturer's specifications. Sound level and noise dosimetry monitoring data will be recorded on the

Operations which have a potential for causing over exposures will be identified in the SSHP. When these operations are initiated, The SSHO will conduct sound level monitoring to determine if noise levels in the hearing zone meet or exceed 85 dBA. If an operation is identified which causes exposures greater than 85 dBA, the SSHO will conduct noise dosimetry monitoring of the personnel working in the area. Continuous noise dosimetry will be conducted for at least 85% of the work shift duration and the SSHO will provide a description of the noise exposure potential for any non-monitored periods during the work shift. The microphone for the noise dosimeter will be positioned in the hearing zone nearest the noise source.

5.2.3 Repeated Exposure Monitoring

Sound level and noise dosimetry monitoring shall be repeated whenever a change in operations, equipment, or protective measures increases noise exposure such that additional employees may be exposed at or above the 85 dBA action level. Monitoring will also be repeated if existing noise protective measures are rendered ineffective.

5.3 OPERATIONAL CONTROL TECHNIQUES

5.3.1 Engineering Controls

Whenever feasible, engineering controls will be utilized to reduce personnel exposure to high noise levels. Typical engineering controls include: reduction in the speed or energy input for vibrating sources; installation of dampening devices to absorb vibration; isolation of site personnel from the noise source, or isolation of the noise source from the work area; and construction of sound absorbing physical barriers between the noise source and the site personnel.

5.3.2 Work Practice Controls

Work practice controls can also be used to reduce personnel exposures and may involve the use of the following: routine maintenance of machinery/equipment; and increasing the distance between

personnel and the noise source. At no time is it acceptable to use worker rotation into and out of high noise areas as a method of reducing individual exposure.

5.3.3 Personal Protective Equipment

5.3.3.1 Use of Hearing Protection Devices

Hearing protectors shall be made available to all personnel working in areas where the where exposures to noise are, or may be, equal to or greater than the 85 dBA action level. Hearing protectors will be required, and will be worn by all personnel whose noise exposure exceeds the OSHA PELs listed in Table 115-1 of this SOP. Also, any employees who have experienced an standard threshold shift, as identified by audiogram testing, must use hearing protectors when exposures are at or above the 85 dBA action level.

5.3.3.2 Attenuation of Hearing Protection Devices

All hearing protection devices shall be evaluated by the SSHO for attenuation using the Noise Reduction Rating (NRR) which appears on equipment packaging. Attenuation of hearing protection devices will be calculated using the procedures found in Appendix B of 29 CFR 1910.95. Hearing protector attenuation shall be adequate to reduce exposure to an 8-hour TWA of 90 dBA or less.

5.4 EMPLOYEE TRAINING

Personnel who are exposed to noise levels at or above the 85 dBA action level shall receive initial and annual training. The training shall, at a minimum, include the following:

1. The contents of the OSHA Occupational Noise Exposure Standard and the HCP;
2. The effects of noise on hearing;
3. The purpose , advantages, disadvantages, and attenuation of various hearing protectors;
4. Instructions on selection, fitting, use, and care of hearing protectors; and
5. The purpose of audiometric testing, and an explanation of the test procedures.

TABLE 115-1. PERMISSIBLE NOISE EXPOSURE LEVELS

DURATION PER DAY (HRS)	SOUND LEVEL (dBA)
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ (or less)	115

6.0 AUDIT CRITERIA

The following items related to operations involving high noise exposure will be audited to ensure compliance with this SOP:

1. The Site Daily Operational, Safety and Monitoring Logs;
2. The Safety Meeting Attendance Log for the initial site hazard training;
3. The Safety Meeting Attendance Log for the Daily Tailgate Safety Briefings; and
4. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments are associated with this SOP.

STANDARD OPERATING PROCEDURE 117

SANITATION, HOUSEKEEPING AND ILLUMINATION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to site sanitation, house keeping and illumination practices.

2.0 SCOPE

This SOP applies to all site operations and personnel, to include subcontractor personnel. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with this SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- Applicable sections of OSHA Construction Industry Standard 29 CFR Part 1926;
- OSHA General Industry Standards 29 CFR Part 1910.120 and 141;
- USACE EM 385-1-1, Section 2.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources required to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is properly implemented, and for assuring safe and sanitary conditions are maintained during site activities. The SUXOS will also ensure that relevant sections of this SOP are discussed in the daily tailgate safety briefing and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefing. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

5.1 SAFETY HAZARDS AND OPERATIONAL CONTROL TECHNIQUES

All personnel, including subcontractor personnel, shall be familiar with the work practices and control techniques listed in this SOP which will be used to ensure proper site sanitation, house keeping and illumination.

5.1.1 Potable Water Supply

An adequate supply of potable (drinkable) water shall be provided onsite at all times, and shall be supplied IAW the following provisions:

1. Containers used for potable water shall be capable of being tightly closed, equipped with a tap and maintained in a clean sanitary condition;
2. A container used for distribution of drinking water shall be clearly labeled as to its contents and not used for any other purpose;
3. Water shall not be dipped from the container and use of a common cup shall not be allowed; and
4. Where single service cups are provided, separate sanitary containers shall be provided for the storage of the unused cups and for the disposal of the used cups.

5.1.2 Nonpotable Water

Outlets and storage containers for nonpotable water, such as water for fire fighting or decontamination shall be clearly labeled to indicate that the water is not suitable for drinking, washing or cooking. There shall at no time be a cross connection or open potential between a system furnishing potable water and a system furnishing nonpotable water.

5.1.3 Toilet Facilities

Temporary toilet facilities shall be located at the site, in the SZ. Chemical, recirculating, combustion or flush toilets may be used to fulfill this requirement. Each temporary toilet shall be in good repair, naturally lighted, ventilated, with tight fitting doors, lockable from the inside, and shall be serviced at least weekly. The minimum requirements for toilet facilities can be found in the OSHA standard 29 CFR 1910.120(n). However, to ensure sanitary and adequate facilities, portable toilet facilities will be provided on the basis of one toilet for every ten to fifteen workers assigned to the site

5.1.4 Washing Facilities

Hand and face washing facilities shall be set up in the support zone (SZ), and shall be utilized by all personnel exiting the CRZ. As a minimum, disposable handy wipes/baby wipes, and trash receptacles will be made available to allow site personnel to wash exposed skin surfaces after exiting the contamination reduction zone (CRZ).

5.1.5 Site Housekeeping

All work areas shall be maintained in a clean/neat fashion, free of loose debris and scrap. Any materials/equipment not being used shall be removed from the work area and stored or disposed of accordingly. All work areas shall be supplied with a waste receptacle with a tight fitting lid, the contents of which shall be emptied in such a manner as to avoid creating unsanitary conditions. Break rooms and other areas where food is served or consumed shall be supplied with a waste receptacle with a tight fitting lid, which shall be maintained in a sanitary conditions with the contents emptied on a daily basis. To allow for the daily maintenance and inspection of the machinery and heavy equipment on site, a self closing flammable/combustible waste can for oil/solvent soaked rags shall be maintained in areas where maintenance operations occur.

5.2 ILLUMINATION

As a general rule, site personnel will not be permitted to work during the period between thirty minutes before sundown to thirty minutes after sunrise. To ensure that site personnel have the minimum level of lighting needed, or if site operations must be conducted at night, illumination levels in Table 117-1 shall be the minimum allowed during the conduct of site related activities.

Table 117-1, Minimum Illumination Levels

Foot-candles	Area of Operation
5	General site area, and inside facilities, such as warehouses, hallways, and exit ways.
3	Excavation and waste areas, field maint., active storage and fueling areas.
10	General shops, storerooms, dressing and eating areas, maintenance areas.
30	First aid stations, infirmaries and offices.

5.3 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

The following safety measures and personal protective equipment shall be used in preventing or reducing hazards associated with improper sanitation, illumination and house keeping. These requirements will be implemented unless superseded by site specific requirements stated in the Site Safety and Health Plan.

1. Personnel disposing of medical/biological wastes will, as a minimum, use rubber gloves, and any other PPE deemed necessary by the SSHO;

2. Medical and biological wastes shall be disposed of in bags and containers which are designed and labeled specifically for disposal of such materials;
3. Personnel handling refuse from food handling areas will use rubber/latex gloves when cleaning trash receptacles; and
4. Personnel handling flammable/combustible wastes, shall wear the level and type of PPE prescribed by the SSHO.

6.0 AUDIT CRITERIA

The following items related to site sanitation, illumination and house keeping will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Safety Meeting Attendance Log for the initial site hazard training;
3. The Safety Meeting Attendance Log for the Daily Tailgate Safety Briefing; and
4. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments are associated with this SOP.

STANDARD OPERATING PROCEDURE 118

ACCIDENT PREVENTION SIGNS, TAGS AND LABELS

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving the need to post signs, tags or labels to inform personnel of site hazards.

2.0 SCOPE

This SOP applies to all site personnel, to include contractor and subcontractor personnel, and operations involving the need to post site hazards with signs, tags or labels. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- OSHA Construction Industry Standard 29 CFR Part 1926.200;
- OSHA General Industry Standard 29 CFR Part 1910.145; and
- USACE EM 385-1-1, Section 8.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for all operations where safety and health hazards require the posting of signs and labels. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence

of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

5.1 SAFETY HAZARDS AND OPERATIONAL CONTROL TECHNIQUES

5.1.1 General Requirements

An important element of site safety involves providing site personnel with information related to hazardous operations, areas and materials. To ensure effective, consistent communication of these hazards, the following areas and hazards shall be posted with appropriate signs or labels:

1. All site control zones where specific training, medical surveillance or personal protective equipment (PPE) is required for entry will be posted to restrict unauthorized or unqualified personnel from entering the area;
2. All areas where operations are conducted which create the potential for personnel exposure to chemical or physical hazards (i.e., noise, respiratory hazards, etc.) will be posted with signs indicating the type of hazard and the PPE to be worn in the area;
3. Signs, labels, or tags shall be visible at all times when the hazard or problem exists, and shall be removed or covered when the hazard or problem no longer exists;
4. Piping systems shall be identified with color-coded labels to ensure personnel are informed of the contents of the pipes;
5. In the event that radio frequencies present a hazard to personnel, appropriately colored and configured signs will be posted;
6. Containers of hazardous materials, which do not have adequate warning labels, will be labeled IAW the hazard communication requirements found in SOP 106;
7. All site personnel shall be informed as to the meaning of the various signs, tags and labels used throughout the site;
8. The location of first aid and fire protection equipment will be conspicuously posted; and
9. Signs, tags or labels will be used and conspicuously displayed when lock out/tag out procedures are used for the isolation of hazardous or stored energy.

5.1.2 Color Schemes

For all signs, labels and tags (except piping systems) the following color scheme will apply:

1. Red - Designates dangerous conditions, emergency stop controls, fire detection and suppression equipment and containers of flammable liquids;
2. Orange - Designates dangerous parts of machinery or energized equipment;
3. Yellow - Designates conditions requiring caution, marking dangerous chemicals, marking physical hazards, and markings for ionizing radiation;
4. Green - Designates safety equipment and operator devices, and location of first aid and safety equipment (other than fire fighting equipment); and
5. Blue - Designates information of a non-safety nature.

5.1.3 Selection of Sign, Labels and Tags

In addition to the requirements listed above, the following guidelines will be incorporated in the selection and display of signs, labels and tags:

1. Danger signs shall have the word "DANGER" in white on a black oval background and shall indicate a specific immediate danger, capable of causing irreversible damage or injury and indicates that specific precautions be taken to avoid the danger;
2. Caution signs shall have the word "CAUTION" in yellow on a black background and shall be used to call attention to a specific potential hazards, capable of causing severe but reversible damage or injury, against which proper precautions should be taken;
3. General safety signs shall have key words in white on a green background and shall indicate notices of general practice and rules related to health, first aid, medical equipment, sanitation, housekeeping and general safety; and
4. General information signs shall have the word "NOTICE" in white on a blue background and shall provide general information required to avoid confusion or misunderstanding;

5.2 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Site personnel will wear the type and level of PPE specified in the SSHP to prevent or reduce exposures associated with hazardous operations which must be posted with signs.

6.0 AUDIT CRITERIA

The following items related to the posting of signs, labels and tags will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Documentation of Training form for the initial site hazard training;
3. The Documentation of Training form for the Daily Tailgate Safety Briefing; and
4. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments associated with this SOP.

STANDARD OPERATING PROCEDURE 119

POWER AND HAND TOOL OPERATION

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving the use of power and hand tools.

2.0 SCOPE

This SOP applies to all site personnel, to include contractor and subcontractor personnel, involved in the conduct of operations involving power and hand tools. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with this SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- Applicable sections of OSHA Construction Industry Standard 29 CFR Part 1926, Subpart I;
- Applicable sections of OSHA General Industry Standard 29 CFR Part 1910, Subpart O; and
- USACE EM 385-1-1, Section 13.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for power and hand tool operations. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in power and hand tool operations shall be familiar with the potential safety and health hazards associated with the conduct of this operation, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 SAFETY AND HEALTH OPERATIONAL CONTROL TECHNIQUES

5.1.1 Power Tools

Power tools have great capability for inflicting serious injury upon personnel if they are not used and maintained properly. To control the hazards associated with power tool operation, the safe work practices listed below shall be observed when using power tools:

1. Operation of power tools shall be conducted by authorized personnel familiar with the tool, its operation, and safety precautions;
2. Power tools shall be inspected prior to use, and defective equipment shall be removed from service until repaired;
3. Power tools designed to accommodate guards shall have such guards properly in place;
4. Loose fitting clothing or long hair shall not be permitted around moving parts;
5. Hands, feet, etc., shall be kept away from all moving parts;
6. Maintenance and/or adjustments to equipment shall not be conducted while it is in operation or connected to a power source;
7. An adequate operating area shall be provided, allowing sufficient clearance for operation;
8. Electrical tools shall be operated IAW the specifications outlined in SOP 105; and
9. Good housekeeping practices shall be followed at all times.

5.1.2 Hand Tools

Use of improper or defective tools can contribute significantly to the occurrence of accidents onsite. Therefore, the work practices listed below shall be observed when using hand tools:

1. Hand tools shall be inspected for defects prior to each use;

2. Defective hand tools shall be removed from service and repaired or properly discarded;
3. Tools shall be selected and used in the manner for which they were designed;
4. Be sure of footing and grip before using any tool;
5. Do not use tools that have split handles, mushroom heads, worn jaws, or other defects;
6. Gloves shall be worn to increase gripping ability and/or if cut, laceration or puncture hazards exist during the use of the tool;
7. Safety glasses or a face shield shall be used if use of tools presents an eye/face hazard;
8. Do not use makeshift tools or other improper tools;
9. When working overhead, tools shall be secured to prevent them from falling;
10. Use non-sparking tools in the presence of explosive vapors, gases, or residue;
11. If hand tools become contaminated they must be properly decontaminated, bagged, marked and held for disposition by COE On-Site Coordinator; and
12. Tools used in the EZ which have porous surfaces, such as wooden or rubber coated handles, shall be discarded as contaminated upon termination of site activities, unless testing can prove the absence of contamination.

5.2 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

The following safety measures and personal protective equipment shall be used in preventing or reducing exposures associated with power and hand tool operations. These requirements will be implemented unless superseded by specific requirements stated in the Site Safety and Health Plan.

1. Hard hat and safety boots shall be worn when working with power or hand tools;
2. Safety glasses with side shields shall be worn at all times when operating, servicing or working around hand or power tools;
3. Hearing protection shall be worn if hand/power tool operation has the potential for noise exposures greater than 85 dBA TWA;
4. Leather, or other protective, gloves shall be worn when using hand/power tools; and
5. Protective face shields shall be worn for all operations which have the potential for generating flying fragments, objects, chips, particles, etc.

6.0 AUDIT CRITERIA

The following items related to power and hand tool operations will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Documentation of Training form for the initial site hazard training;
3. The Documentation of Training form for the Daily Tailgate Safety Briefing; and
4. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments are associated with this SOP.

STANDARD OPERATING PROCEDURE 120-D

UXO/OE OPERATIONS - DEMOLITION/DISPOSAL OPERATIONS

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum procedures and safety and health requirements applicable to the conduct of demolition/disposal operations on sites contaminated with unexploded ordnance (UXO) or ordnance and explosives (OE).

2.0 SCOPE

This SOP applies to all site personnel, including contractor and subcontractor personnel, involved in the conduct of UXO/OE demolition/disposal operations on a UXO contaminated site. This SOP is not intended to contain all of the requirements needed to ensure complete compliance, and should be used in conjunction with project plans and applicable Federal, state and local regulations. Consult the documents listed in section 3.0 of this SOP for additional compliance issues.

3.0 REGULATORY REFERENCES

Applicable sections and paragraphs in the documents listed below will be used as references for the conduct of UXO demolition/disposal operations:

- EODT Corporate Safety and Health Program;
- OSHA General Industry Standards, 29 CFR 1910;
- OSHA Construction Standards, 29 CFR 1926;
- CEHNC Safety Concepts and Basic Considerations for Unexploded Ordnance;
- USACE EM 385-1-1, Safety and Health Requirements Manual;
- DoD 4145.26-M, Contractor's Safety Manual for Ammunition and Explosives;
- DoD 4160.21-M, Defense Reutilization and Marketing Manual;
- DoD 6055.9-STD, DoD Ammunition and Explosives Safety Standards;
- AR 385-64, Ammunition and Explosive Safety;
- AR 385-10, Army Safety Program;
- DA PAM 385-64, Ammunition and Explosives Safety Standards;
- TM 9-1300-206, Ammunition and Explosive Standards;
- TM 9-1300-200, Ammunition General;
- TM 9-1300-214, Military Explosives;
- TM 60A-1-1-31, EOD Disposal Procedures;
- AR 190-11, Physical Security of Arms, Ammunition and Explosives;
- ATF 5400.7, Alcohol Tobacco and Firearms Explosives Laws and Regulations; and
- Applicable sections of DOT, 49 CFR Parts 100 to 199.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The EOD Technology, Inc. (EODT) Project Manager (PM) shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will be responsible for assuring that adequate safety measures and housekeeping are taken during all phases of site operation, to include demolition activities, and shall visit site demolition locations as deemed necessary to ensure that demolition operations are carried out in a safe, clean, efficient and economical manner.

4.3 DEMOLITION SUPERVISOR

Prior to initiation of demolition operations, the SUXOS shall designate an experienced and trained UXO Supervisor to act as the Demolition Supervisor (DS). The demolition activities shall then be conducted under the direct control of the DS, who will have the responsibility of supervising all demolition operations within the area. The DS shall be responsible for training all on-site UXO personnel regarding the nature of the materials handled, the hazards involved and the precautions necessary. The DS will also ensure that the Daily Operational Log, Ordnance Accountability Log, EODT Demolition Shot Records and inventory records are properly filled and accurately depict the demolition events and demolition material consumption for each day's operations. The DS shall be present during all demolition operations or designate a competent, qualified person to be in charge during any absences.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) for the site is responsible for ensuring that all demolition operations are being conducted in a safe and healthful manner, and is required to be present during all OE demolition operations. The only exception to this rule is when the project site has multiple sites conducting various types of UXO investigation and remediation operations being conducted concurrently with periods where there may be continuous demolition operations throughout the day. In that event a demolition team SSHO will be designated. This individual will report to the SSHO and assume the SSHO's responsibilities at the demolition range. In this situation, the SSHO will conduct periodic safety audits of the demolition team and assist the demolition team SSHO in the performance of his duties.

4.5 QUALITY CONTROL SPECIALIST

The Quality Control Specialist (QCS) is responsible for ensuring the completeness of demolition operations and for weekly inspecting the Ordnance Accountability Log, the Daily Operational Log, the EODT Demolition Shot Record and the inventory of OE and demolition material. The QCS,

assisted by demolition team personnel, will inspect each demolition pit and an area of up to 250 feet in radius after each demolition shot to ensure there are no kickouts, hazardous UXO/OE components or other hazardous items. In addition, the pit will be checked with a magnetometer and large metal fragments four inches or greater, and any hazardous debris will be removed on a per use basis. Any UXO/OE discovered during the QC check will be properly stored for destruction at a later date. Extreme caution must be exercised when handling UXO/OE which has been exposed to the forces of detonation.

5.0 GENERAL OPERATIONAL AND SAFETY PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in operations on UXO/OE contaminated sites shall be familiar with the potential safety and health hazards associated with the conduct of demolition/disposal operations, and with the work practices and control techniques used to reduce or eliminate these hazards. During demolition operations, general safety provisions listed below shall be followed by all demolition personnel, at all times. Non-compliance with the general safety provisions listed may result in positive discipline, to include termination of employment:

- All safety regulations applicable to demolition range activities and demolition and OE materials involved shall be complied with.
- Demolition of any kind is prohibited without the express permission from the client.
- The quantity of OE to be destroyed will be determined by the range limit.
- In the event of an electrical storm, or heavy snow or dust storms, immediate action will be taken to cease all demolition range operations and evacuate the area.
- In the event of a fire or unplanned explosion, if possible, put out the fire, if unable to do so, notify fire department and evacuate the area. If injuries are involved, remove victims from danger, administer first aid and seek medical attention.
- The DS is responsible for reporting all injuries and accidents which occur to the SSHO.
- Employees will not tamper with any safety devices or protective equipment.
- Any defect or unusual condition noted that is not covered by this attachment will be reported immediately to the DS or SSHO.
- Methods of demolition shall be conducted in accordance with this procedure and approved changes thereto.
- Adequate fire protection and first aid equipment shall be provided at all times.
- All personnel engaged in the destruction of OE shall wear under and outer garments made of natural fiber, close-weave clothes, such as cotton. Synthetic material such as nylon is not authorized unless treated with anti-static material.
- Care will be taken to minimize exposure to the smallest number of personnel, for the shortest time, to the least amount of hazard, consistent with safe and efficient operations.
- Work locations will be maintained in a neat and orderly condition.
- All hand tools shall be maintained in a good state of repair.
- Each heavy equipment and/or vehicle operator will have in his possession a valid operator's permit, i.e., state driver's license.
- Equipment and other lifting devices designed and used for lifting will have the load rating and date of next inspection marked on them. The load rating will not be exceeded and the equipment will not be used without a current inspection date.

- Leather or leather-palmed gloves will be worn when handling wooden boxes, munitions or UXO/OE.
- Lifting and carrying require care. Improper methods cause unnecessary strains. Observe the following preliminaries before attempting to lift or carry:
 - When lifting, keep your arms and back as straight as possible, bend your knees and lift with your leg muscles; and
 - Be sure you have good footing and hold, and lift with a smooth, even motion.
- The demolition range shall be provided with telephone and/or radio communication.
- Motor vehicles and material handling equipment (MHE) used for transporting OE or demolition materials must meet the following requirements:
 - Exhaust systems shall be kept in good mechanical repair at all times.
 - Lighting systems shall be an integral part of the vehicle.
 - One Class ABC rated, portable fire extinguisher shall, if possible, be mounted on the vehicle outside of the cab, on the driver's side, and one Class ABC fire extinguisher shall be mounted inside the cab.
 - Wheels of carriers must be chocked and brakes set during loading and unloading.
 - No demolition material or OE shall be loaded into or unloaded from, motor vehicles while their motors are running.
- Motor vehicles and MHE used to transport demolition material and OE shall be inspected prior to use to determine that:
 - Fire extinguishers are filled and in good working order.
 - Electrical wiring is in good condition and properly attached.
 - Fuel tank and piping are secure and not leaking.
 - Brakes, steering and safety equipment are in good condition.
 - The exhaust system is not exposed to accumulations of grease, oil, gasoline, or other fuels, and has ample clearance from fuel lines and other combustible materials.
- Employees are required to wear leather or rubber gloves when handling demolition materials. The type of glove worn is dependent on the type of demolition material.
- A red warning flag, such as a "Bravo Flag" or a wind sock, will be displayed at the entrance to the demolition range and, if applicable, the entrance gate shall be locked when demolition work is in process.
- Unless otherwise directed, all demolition shots will be tamped with a minimum of two feet of clean earth/dirt.
- An observer will be stationed at a location where there is a good view of the air and surface approaches to the demolition range before material is detonated. It shall be the responsibility of the observer to order the DS to suspend firing if any aircraft, vehicles or personnel are sighted approaching the general demolition area.
- Two-way radios shall not be operated on the demolition range while the pit is primed or during the priming process. The charts shown in Attachment 1 of this SOP, pages 120D-1-2 and 120D-1-3, shall be used for determining the safe distances from transmitter antennas.
- No Demolition operation will be left unattended during the active portion of the operation (i.e., during the burn or once any explosives or UXO/OE are brought to the range).
- A minimum area of 200 feet in diameter shall be cleared of dry grass, leaves and other extraneous combustible materials around the demolition pit area.
- No demolition activities will be conducted if there is less than a 2,000 foot ceiling or if wind velocity is in excess of 20 mph.

- Demolition shots must be fired during daylight hours (i.e., between 30 minutes after sunrise and 30 minutes before sunset).
- No more than two persons shall ride in a truck transporting demolition material or OE, and no person shall be allowed to ride in the trailer/bed.
- Vehicles shall not be refueled when carrying demolition material or OE, and must be 100 feet from magazines or trailers containing such items before refueling.
- All explosive vehicles will be cleaned of visible explosive and other contamination before releasing the vehicles for other tasks.
- Prior to conducting any other task, personnel shall wash their face and hands after handling demolition material or OE.
- Demolition pits shall be spaced at least 50 feet apart, with no more than 10 pits prepared for a series of shots at any one time.

6.0 SPECIAL REQUIREMENTS FOR DEMOLITION ACTIVITIES

The following safety and operational requirements shall be followed during demolition range operations. Any deviations from this procedure shall be allowed only after receipt of written approval from the EODT PM and the client. Failure to adhere to the requirements and procedures listed in the paragraphs below could result in serious injury or death, therefore complete compliance with these requirements and procedures will be strictly enforced.

6.1 GENERAL REQUIREMENTS

The general demolition range requirements listed below shall be followed at all times:

- Attachment 1 of this SOP, Explosive Hazards Tables, will be adhered to in all demolition operations.
- Material awaiting destruction shall be stored at not less than intra-line distance, based on the largest quantity involved, from adjacent explosive materials and from explosives being destroyed. The material shall be protected against accidental ignition or explosion from fragments, grass fires, burning embers or detonating impulses originating in materials being destroyed.
- OE or bulk explosives to be destroyed by detonation should be detonated in a pit not less than three feet deep and covered with earth which protrudes not less than two feet above existing ground level. The components should be placed on their sides or in a position to expose the largest area to the influence of the demolition material. The demolition material should be placed in intimate contact with the item to be detonated and held in place by tape or earth packed over the demolition materials. The total quantity to be destroyed below ground at one time shall not exceed the range limit.
- Detonations will be counted to ensure detonation of all pits. After each series of detonations, a search shall be made of the surrounding area for unexploded UXO and OE. Items such as lumps of explosives or unfuzed ammunition, may be picked up and prepared for the next shot. Fuzed ammunition or items which may have internally damaged components will be detonated in place, if possible.
- Prevailing weather condition information will be obtained from the U.S. Weather Service and the data logged in the Demolition Shot Log before each shot or round of shots.
- All shots shall be dual primed.
- A minimum of 30 seconds will be maintained between each detonation.

- After each detonation and at the end of each day's operations, surface exposed scrap metal, casings, fragments, and related items shall be recovered from the demolition range and disposed of in accordance with contracted procedures, as well as all applicable environmental regulations. All collected scrap metal will be 100% inspected for absence of explosive materials by demolition range personnel and certified by the SUXOS and the QCS.
- When operated in accordance with the conditions of this procedure the demolition range should not present a noise problem to the surrounding community. However, if a noise complaint is received, the name, address and phone number of the complainant should be recorded and reported to the SUXOS, who in turn, will report it to the client.
- Whenever possible, during excavation of the demolition pits, contour the ground so that runoff water is channeled away from the pits. If demolition operations are discontinued for more than two weeks, the pits should be back filled until operations resume.
- Upon completion of the project, all disturbed demolition areas will be thoroughly inspected for OE. Depending upon contract requirements, the site may have to be leveled, seeded and mulched to establish a permanent vegetative cover to inhibit erosion. If necessary, this will be coordinated with the contractor representative. At a minimum, the holes/pits will be filled in and contoured.
- Prior to and after each shot, the EODT Demolition Shot Record is to be filled out by the DS with all applicable information. This record will be kept with the Ordnance Accountability Log and reflect each shot.

6.2 ELECTRIC DETONATOR USE

The following requirements are necessary when using electric detonators and blasting circuits:

- Electric detonators and electric blasting circuits may be energized to dangerous levels from outside sources such as static electricity, induced electric currents and radio communication equipment. Safety precautions will be taken to reduce the possibility of a premature detonation of the electric detonator and explosive charges of which they form a part. Radios will not be operated while the pit is primed or during the priming process.
- The shunt shall not be removed from the leg wires of the detonator until the continuity check of the detonator.
- When uncoiling or straightening the detonator leg wires, keep the explosive end of the detonator pointing away from the body and away from other personnel. When straightening the leg wires, do not hold the detonator itself, rather hold the detonator leg wires approximately one inch from the detonator body. Straighten the leg wires by hand, do not throw or wave the wires through the air to loosen them.
- Prior to use, the detonators shall be tested for continuity. To conduct the test, place the detonators in a pre-bored hole in the ground or place them in a sand bag, and walk facing away from the detonators and stretch the wires to their full length, or to 25 feet, whichever is less, being sure to not pull the detonators from the hole or sand bag. With the leg wires stretched to their full length, test the continuity of the detonators one at a time by un-shunting the leg wires and attaching them to the galvanometer and checking for continuity. After the test, re-shunt the wires by twisting the two ends together. Repeat this process for each detonator until all detonators have been tested. This process shall be accomplished at least 25 feet from any OE or demolition materials and out of the demolition range personnel and vehicle traffic flow pattern. In addition, all personnel on the demolition range shall be alerted prior to the test being conducted.

NOTE: When testing the detonator, prior to connecting the detonator to the firing circuit, the leg wires of the detonator must be shunted by twisting the bare ends of the wires together immediately after testing. The wires shall remain short circuited until time to connect them to the firing line.

- At the power source end of the blasting circuit, the ends of the wires shall be shorted or twisted together (shunted) at all times, except when actually testing the circuit or firing the charge. The connection between the detonator and the circuit firing wires must not be made unless the power end of the firing wires are shorted and grounded or the firing panel is off and locked.
- The firing line will be checked using pre-arranged hand signals or through the use of two-way radios if the demolition pit is not visible from the firing point. If radios are used, communication shall be accomplished a minimum of 25 feet from the demolition pit and detonators. The firing line will be checked for electrical continuity in both the open and closed positions, and will be closed/shunted prior to connecting the detonator leg wires.
- OE to be detonated/vented shall be placed in the demolition pit and the demolition material placed/attached in such a manner as to ensure the total detonation/venting of the OE. Once the OE and demolition material are in place and the shot has been tamped, the detonators will be connected to the demolition material. Prior to handling any detonators that are connected to the firing line, personnel shall ensure that they are grounded. The detonators will then be carried to the demolition pit with the end of the detonators pointed away from the individual. The detonators are then connected to the detonation cord, Non-El, etc., ensuring that the detonator is not covered with tamping material to allow for ease of recovery/investigation in the event of a miss-fire.
- Prior to making connections to the blasting machine, the entire firing circuit shall be tested with a galvanometer for electrical continuity and ohmic resistance to ensure the blasting machine has the capacity to initiate the shot.
- The individual assigned to make the connections at the blasting machine or panel will not complete the circuit at the blasting machine or panel and will not give the signal for detonation until satisfied that all personnel in the vicinity have been evacuated to a safe distance. When in use, the blasting machine or its actuating device shall be in the blaster's possession at all times. When using the panel, the switch must be locked in the open position until ready to fire, and the single key must be in the blaster's possession.
- Prior to initiating a demolition shot(s), a warning will be given, the type and duration of such will be determined by the prevailing conditions at the demolition range. At a minimum, this should be an audible signal using a siren, air horn or megaphone which is sounded for a duration of one minute, five minutes prior to the shot and again one minute prior to the shot.

6.3 DETONATING CORD USE

The following procedures are required when using detonating cord (det cord):

- Det cord should be cut using approved crimpers and only the amount required should be removed from inventory.
- When cutting det cord, the task should be performed outside the magazine.
- For ease of inventory control, only remove det cord in one foot increments.
- Det cord should not be placed in clothing pockets or around the neck, arm or waist, and should be transported to the demolition location in either an approved "day box" or a cloth satchel, depending upon the magazine location and proximity to the demolition area.

- Det cord should be placed at least 25 feet away from detonators and demolition materials until ready for use. To ensure consistent safe handling, each classification of demolition material shall be separated by at least 25 feet until ready for use.
- When ready to "tie in" either the det cord to demolition materials, or det cord to detonator, the det cord will be connected to the demolition material and secured to the UXO/OE. The cord is then strung out of the hole and secured in place with soil, being sure to leave a one foot tail exposed outside the hole.
- Once the hole is filled, make a loop in the det cord large enough to accommodate the detonator, place the detonator in the loop and secure it with tape. The detonator's explosive end will face down the det cord toward the demolition material or parallel to the main line.
- In all cases, ensure there is sufficient det cord extending out of the hole to allow for ease of detonator attachment and detonator inspection/replacement should a misfire occur.
- If the det cord detonators are electric, they will be checked, tied in to the firing line and shunted prior to being taped to the loop. If the det cord detonators are non-electric, the time/safety fuse will be prepared with the igniter in place prior to taping the detonators to the det cord loop. If the det cord detonators are Non-El, simply tape the detonators into the loop as described above.
- In the event that a time/safety fuse is used, and an igniter is not available and a field expedient initiation system is used (i.e., matches), do not split the safety fuse until the detonator is taped into the det cord loop.

6.4 TIME/SAFETY FUSE USE

The following procedures are required when using a time/safety fuse:

- Prior to each daily use, the burn rate for the time/safety fuse must be tested to ensure the accurate determination of the length of time/safety fuse needed to achieve the minimum burn time of five minutes needed to conduct demolition operations.
- To ensure both ends of the time/safety fuse are moisture free, use approved crimpers to cut six inches off the end of the time/safety fuse roll and place the six inch piece in the time/safety fuse container.
- If quantity allows, accurately measure and cut off a six foot long piece of the time/safety fuse from the roll.
- Take the six foot section out of the magazine and attach a fuse igniter.
- In a safe location, removed from demolition materials and UXO/OE, ignite the time/safety fuse, measure the burn time from the point of initiation to the "spit" at the end, and record the burn time in the DS's Log
- To measure the burn time, use a watch with a second hand or chronograph.
- To calculate the burn rate in seconds per foot, divide the total burn time (in seconds) by the length (in feet) of the test fuse.
- Whenever using time/safety fuse, the minimum amount of fuse to be used for each shot will be the amount needed to permit a minimum burn time of five minutes.

6.5 PERFORATOR USE

The following procedures are required when using perforators:

- Only remove from inventory the number of perforators required to perform the task.
- Transport perforators in an approved "day box", cloth satchel or plastic container, depending upon magazine location and proximity to the demolition operations.

- Keep perforators stored at the demolition site at least 25 feet away from detonators and demolition materials until ready for use.
- When ready to use, place the det cord through the slot on the perforator and knot the det cord, ensuring the cord fits securely and has good continuity with the perforator.
- Once the det cord is secure, place the perforator in the desired location and secure it in place.
- Proceed from this point as described in para 6.3.

6.6 USE OF TWO-COMPONENT EXPLOSIVES

The following procedures are required when using two-component demolition materials:

- Only remove from inventory the amount of two-component required to perform the task.
- When transporting the solid and liquid, they need only be placed apart in the bed of a truck.
- Do not mix the solid and liquid components until certain that it will be used, since the resulting mixture is classified as a Class 1.1 explosive by Department of Transportation.
- When mixing the solid and liquids components, follow the manufacturer's instructions, while being sure to wear rubber gloves and goggles. Mix components in an area away from other demolition materials, the UXO/OE, and if possible, sheltered from the wind.
- Once the components have been mixed, it is essential that the lid to the solid bottle is put on securely as soon as possible after mixing to prevent evaporation of the liquid.
- Attach the det cord as recommended by the manufacturer, place the assembled unit in the desired location in the hole and secure the unit.
- Proceed from this point as described in para 6.3.

6.7 DEMOLITION RANGE INSPECTION SCHEDULE

The demolition range inspection schedule outlined in Table 120D-1 will be followed at all sites where demolition operations are being conducted. This inspection shall be conducted by the SSHO and will be documented in the Site Safety Log. If any deficiencies are noted, demolition operations shall be suspended and the deficiency reported to the SUXOS and DS. Once the deficiencies are corrected, demolition operations may be resumed.

Table 120D-1: Demolition Range Inspection Schedule

Check List Item	Inspection Schedule
Site and Explosive Carrier Vehicles	Weekly or Prior to Use
Range Access/Egress Route	Weekly or Prior to Use
Entrance Gate/Lock	Daily, Prior to Use and After Use
Storage Trailer/Magazine	Daily, Prior to Use and After Use
Fire Extinguishers	Monthly and Prior to Use
Personal Protective Equipment	Prior to Use
Circuit Testing Device	Prior to Use
Demolition Site	Prior to Use
Operating Equipment	Prior to Use
Hospital Route	Prior to Use

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Column 1	Column 2

7.0 METEOROLOGICAL CONDITIONS

In order to control the effects of demolition operations and to ensure the safety of site personnel, the following meteorological limitations and requirements shall apply to demolition operations:

- Demolition operations will not be conducted during electrical storms or thunderstorms.
- No demolition operations shall be conducted if the surface wind speed is greater than 20 miles per hour.
- Demolition operations will not be conducted during periods of visibility of less than one mile caused by, but not limited to, dense fog, blowing snow, rain, sand or dust storms.
- Demolition shall not be carried out on extremely cloudy days which are defined as: overcast (more than 80% cloud cover) with a ceiling of less than 2,000 feet.
- Demolition operations will not be conducted during any atmospheric inversion condition (low or high altitude).
- Demolition operations will not be conducted during periods of local air quality advisories.
- Demolition operations will not be initiated until 30 minutes after sunrise, and will be secured at least 30 minutes prior to sunset.

8.0 PRE-DEMOLITION/DISPOSAL PROCEDURES

8.1 PRE-DEMO/DISPOSAL OPERATIONAL BRIEFING

It is the belief of EODT that the success of any operation is dependent upon a thorough brief, covering all phases of the task, which is presented to all affected personnel. The DS will brief all personnel involved in range operations in the following areas:

- Type of OE being destroyed.
- Type, placement and quantity of demolition material being used.
- Method of initiation (electric, non-electric or Non-El).
- Means of transporting and packaging OE.
- Route to the disposal site.
- Equipment being used (i.e., galvanometer, blasting machine, firing wire, etc.).
- Misfire procedures.
- Post shot clean up of range.

8.2 PRE-DEMO/DISPOSAL SAFETY BRIEFING

The EODT SSHO will conduct a safety brief for all personnel involved in range operations in the following areas:

- Care and handling of explosive materials.
- Personal hygiene.
- Two man rule and approved exceptions.
- Potential trip/fall hazards.
- Horse play on the range.
- Stay alert for any explosive hazards on the range.
- Location of emergency shelter (if available).
- Parking area for vehicles (vehicles must be positioned for immediate departure, with the keys in the ignition).
- Location of range emergency vehicle (keep engine running).
- Wind direction (to assess potential toxic fumes).

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2. The second part of the document outlines the specific procedures for recording transactions. It details the steps from identifying a transaction to entering it into the accounting system, ensuring that all necessary details are captured.

3. The third part of the document discusses the role of the accounting department in monitoring and controlling the company's financial performance. It highlights the importance of regular reviews and the use of financial ratios to assess the company's position.

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- Location of first aid kit and fire extinguisher.
- Route to nearest hospital or emergency aid station.
- Type of communications in event of an emergency.
- Storage location of demolition materials and OE awaiting disposal.

8.3 TASK ASSIGNMENTS

Individuals with assigned tasks will report the completion of the task to the DS. The types of tasks which may be required are:

- Contact local Police, Fire personnel, USCG and FAA as required.
- Contact hospital/emergency response personnel if applicable.
- Secure all access roads to the range area.
- Visually check range for any unauthorized personnel.
- Check firing wire for continuity and shunt.
- Prepare designated pits as required.
- Check continuity of detonators.
- Check time/safety fuse and its burn rate.
- Designate a custodian of the blasting machine, fuse igniters or Non-EI initiator.
- Secure detonators in a safe location.
- Place UXO/OE in pit and place charge in desired location.

8.4 PREPARING EXPLOSIVE CHARGE FOR INITIATION

To prepare the explosive charge for initiation, the procedures listed below will be followed:

- Insure firing wire is shunted.
- Connect detonator to the firing wire.
- Isolate or insulate all connections.
- Prime the demolition charge.
- Place demolition charge on OE.
- Depart to firing point (if using non electric firing system, obtain head count, pull igniters and depart to designated safe area).
- Obtain a head count.
- Give one minute warning signal, using a bullhorn or siren, five minutes prior to detonation, and again at one minute prior to detonation.
- Check the firing circuit.
- Yell "**fire in the hole**" three times (or an equivalent warning) and take cover.
- If using electric firing system connect firing wires to blasting machine and initiate charge.
- Remove firing wires from blasting machine and shunt.
- Remain in designated safe area until DS announces "**All Clear**". This will occur after a post-shot waiting period of 5-minutes and the DS has and inspected the pit(s).

9.0 POST DEMOLITION/DISPOSAL PROCEDURES

Do not approach a smoking hole or allow personnel out of the designated safe area until cleared to do so, and follow the below listed procedures:

- After the "**All Clear**" signal, check pit for low orders or kick outs.
- Mag pit and remove any large fragmentation.

- Back fill hole as necessary.
- Police up all equipment.
- Notify police, fire, etc. that the operation is complete.

10.0 MISFIRE PROCEDURES

A thorough check of all equipment, firing wire and detonators will prevent most misfires. However, if a misfire does occur, the procedures outlined below shall be followed.

10.1 ELECTRIC MISFIRES

To prevent electric misfires, one technician will be responsible for all electrical wiring in the circuit. If a misfire does occur, it must be cleared with extreme caution, and the responsible technician will investigate and correct the situation, using the steps outlined below:

- Check firing line and blasting machine connections and make a second initiation attempt.
- If unsuccessful, disconnect and connect to another blasting machine (if available) and attempt to initiate charge.
- If unsuccessful, commence a 30 minute wait period.
- After the maximum delay predicted for any part of the shot has passed, the designated technician will proceed down range to inspect the firing system, and a safety observer must watch from a protected area.
- Disconnect and shunt the detonator wires, connect a new detonator to the firing circuit, check the replacement detonator for continuity, and prime the charge without disturbing the original detonator.
- Follow normal procedures for effecting initiation of the charge.

10.2 NON-ELECTRIC MISFIRES

Working on a non electric misfire is the most hazardous of all operations. Occasionally, despite all painstaking efforts, a misfire will occur. Investigation and corrective action should be undertaken only by the technician that placed the charge, using the following procedure:

- If charge fails to detonate at the determined time, initiate a 60 minute wait period plus the time of the safety fuse, i.e., 5 minute safety fuse plus 60 minutes for a total of 65 minutes.
- After the wait period has expired, a designated technician will proceed down range to inspect the firing system. A safety observer must watch from a protected area.
- Prime the shot with a new non electric firing system and install a new fuse igniter.
- Follow normal procedures for initiation of the charge.

10.3 NON-EL MISFIRE

The use of a shock tube for blast initiation can present misfires which require the following actions:

- If charge fails to detonate, it could be the result of the shock tube not firing. Visually inspect the shock tube, if it is not discolored (i.e., slightly black), it has not fired.
- If it has not fired, cut a one foot piece off the end of the tube, re-insert the tube in the firing device and attempt to fire again.
- If the device still does not fire, wait 30 minutes and proceed down range to replace the shock tube per instructions outlined below.

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- If the tube is slightly black, then a "Black Tube" misfire has occurred, and the shock tube will have to be replaced. When replacing the shock tube, be sure to remove the tube with the detonator in place. Without removing the detonator from the end of the tube, repackage the defective tube and return it to the supplier for credit.

10.4 DETONATING CORD MISFIRE

EODT uses det cord to tie in multiple demolition shots and to ensure that electric detonators are not buried. Since det cord initiation will be either electrical or non-electrical, the procedures presented in paragraphs 10.1, 10.2, or 10.3, as appropriate to the type of detonator used, will be used to clear a det cord misfire. In addition, the following will be conducted:

- If there is no problem with the initiating system, wait the prescribed amount of time and inspect the initiator to the cord connection to ensure it is properly connected. If it was a bad connection simply attach a new initiator and follow the appropriate procedures in para 6.0.
- If the initiator detonated and the cord did not, inspect the cord to ensure it is det cord and not time fuze. Also, check to ensure there is PETN in the cord at the connection to the initiator.
- It may be necessary to uncover the det cord and replace it. This must be accomplished carefully to ensure that the demolition charge and the OE item are not disturbed.

10.5 PERFORATOR MISFIRE

The use of perforators is considerably safer than the use of C-4 and many other demolition materials. If the perforator is not initiated properly, it could malfunction. Since the perforator is covered with tamping material, det cord is used as the initiator. Therefore, in the event of a misfire, the procedures presented in para 10.4 will be followed, along with the items presented below.

- If everything went but the perforator, one of four things has occurred:
 1. Det cord grain size was insufficient to initiate the perforator;
 2. The det cord was dislodged from the perforator when placing tamping materials;
 3. The perforator was defective;
 4. The perforator was moved during the placement of tamping materials.
- Check to ensure the grain size of the det cord is sufficient, with 80 grain size or greater being the recommended size.
- If the det cord connection to the perforator was the problem, ensure that the next connection is secure (use duct tape if necessary).
- If it is evident that the perforator was moved, ensure it is properly secured for the next shot.
- If cord size and connection are sufficient, replace the perforator, leaving the defective one on the shot

11.0 RECORD KEEPING REQUIREMENT

To document the demolition operations procedures and the completeness of the demolition of OE, the following record keeping requirements shall be met:

- The client or EODT (as directed) will obtain and maintain all required permits.
- The DS will ensure the accurate completion of the logs, and the SUXOS and QCS will monitor the entries in the log for completeness, accuracy and compliance with meteorological conditions.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It includes a detailed description of the experimental procedures and the tools used for data collection.

3. The third part of the document presents the results of the study, including a comparison of the different methods and techniques used. It discusses the strengths and weaknesses of each method and provides a summary of the findings.

4. The fourth part of the document discusses the implications of the study and provides recommendations for future research. It highlights the need for further investigation into the effectiveness of the different methods and techniques used.

5. The fifth part of the document provides a conclusion and summarizes the main findings of the study. It emphasizes the importance of maintaining accurate records and the need for transparency and accountability in financial reporting.

6. The sixth part of the document provides a list of references and sources used in the study. It includes a detailed list of the books, articles, and other sources consulted during the research process.

7. The seventh part of the document provides a list of appendices and supplementary materials. It includes a detailed list of the data, tables, and other materials used in the study.

8. The eighth part of the document provides a list of acknowledgments and thanks. It expresses gratitude to the individuals and organizations that provided support and assistance during the research process.

9. The ninth part of the document provides a list of contact information and a way to reach the author. It includes a detailed list of the author's name, address, and phone number.

- The DS shall enter the appropriate data on the Ordnance Accountability Log and the Demolition Shot Record, to reflect the OE destroyed, and shall complete the appropriate information on the Explosives Accountability Log (a.k.a. the Magazine Data Card) which indicates the demolition materials used to destroy the OE.
- The quantities of OE recovered must also be the quantities of OE destroyed or disposed of as scrap.
- EODT will retain a permanent file of all Demolition Records, including permits, Magazine Data Cards, training records, inspector reports, waste manifests if applicable, and operating logs.
- Copies of ATF License and any state or local permits must be on hand.

12.0 SAFETY AND PPE REQUIREMENTS

The following safety measures and personal protective equipment shall be used in preventing or reducing exposure to the hazards associated with UXO/OE demolition/disposal operations. These requirements will be implemented unless superseded by site specific requirements stated in the SSHP.

1. Steel-toed safety boots will not be worn by personnel conducting demolition/disposal operations, unless a toe crush hazard exists, in which case personnel will wear boots with plastic or fiber toed safety toes;
2. Unless a serious head, eye or face hazard exists, UXO personnel will not be required to wear hard hats, safety glasses or face shields when conducting operations involving the handling of demolition explosives or UXO/OE; and
3. In the event that a serious head, eye or face hazard does exist, UXO personnel will wear the required PPE, but positive means shall be required to secure the PPE and prevent it from falling and causing an accidental detonation.

13.0 AUDIT CRITERIA

The following items related to demolition/disposal operations on a UXO/OE contaminated site will be audited to ensure compliance with this SOP:

1. The EODT Demolition Shot Record
2. The Site Daily Operational and Safety Logs;
3. The OE Operations Daily/Weekly Report;
4. The Safety Training Attendance Forms, for the initial site hazard training;
5. The Safety Training Attendance Forms, for the Daily Tailgate Safety Briefings;
6. The Daily Safety Inspection and Audit Log.

14.0 ATTACHMENTS

The following attachment to this SOP will be reviewed by all UXO-qualified personnel participating in demolition/disposal activities.

Attachment 1 Explosive Hazards Tables

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The records should be kept up-to-date and should be accessible to all relevant parties.

2. The second part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The records should be kept up-to-date and should be accessible to all relevant parties.

3. The third part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The records should be kept up-to-date and should be accessible to all relevant parties.

4. The fourth part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The records should be kept up-to-date and should be accessible to all relevant parties.

5. The fifth part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The records should be kept up-to-date and should be accessible to all relevant parties.

6. The sixth part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The records should be kept up-to-date and should be accessible to all relevant parties.

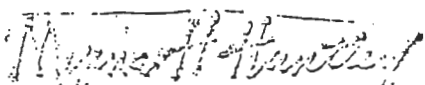
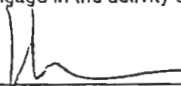
EODT ATF LICENSE



DEPARTMENT OF THE TREASURY—BUREAU OF ALCOHOL, TOBACCO AND FIREARMS

LICENSE/PERMIT (18 U.S.C. CHAPTER 40, EXPLOSIVES)

In accordance with the provision of Title XI, Organized Crime Control Act of 1970, and the regulations issued thereunder (27 CFR Part 55), you may engage in the activity specified in this license/permit within the limitation of Chapter 40, Title 18, United States Code and the regulations issued thereunder, until the expiration date shown. See "WARNING" and "NOTICE" on back.

DIRECT ATF CORRESPONDENCE TO	CHIEF, F & E LICENSING CENTER BATF, P.O. BOX 2994 ATLANTA, GA 30301-2994	LICENSE/ PERMIT NUMBER I-TN-001-33-OH-97374
		EXPIRATION DATE AUGUST 1, 2000
NAME	LICENSED PREMISES: EOD TECHNOLOGY, INC	10938 HARDIN VALLEY RD KNOXVILLE, TN 37932
TYPE OF LICENSE OR PERMIT	33 - USER OF HIGH EXPLOSIVES	
CHIEF, F & E LICENSING CENTER		
PURCHASING CERTIFICATION I certify that this is a true copy of a license/permit issued to me to engage in the activity specified		LICENSEE OR PERMITTEE'S MAILING ADDRESS
 (SIGNATURE OF LICENSEE/PERMITTEE)		EOD TECHNOLOGY, INC PO BOX 24173 KNOXVILLE, TN 37933-2173
The licensee/permittee named herein shall use a reproduction of this license/permit to assist a transferor of explosives to verify the identity and status of the licensee/permittee as provided in 27 CFR Part 55. The signature on each reproduction must be an ORIGINAL signature.		

ATF F 5400.14/5400.15, Part 1 (8/89)

MEMORANDUM FOR THE DIRECTOR, FBI
SUBJECT: [Illegible]

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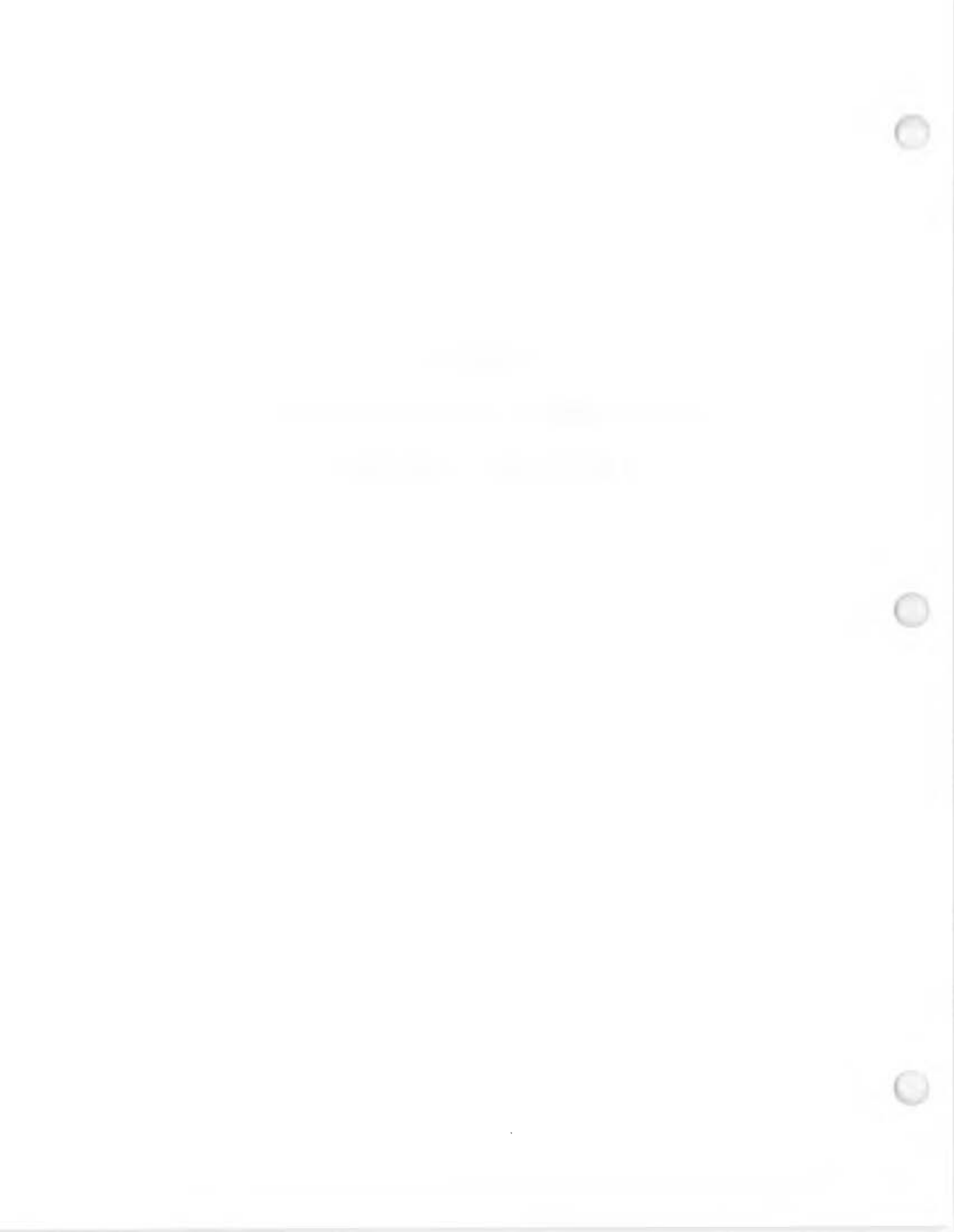
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ATTACHMENT 1

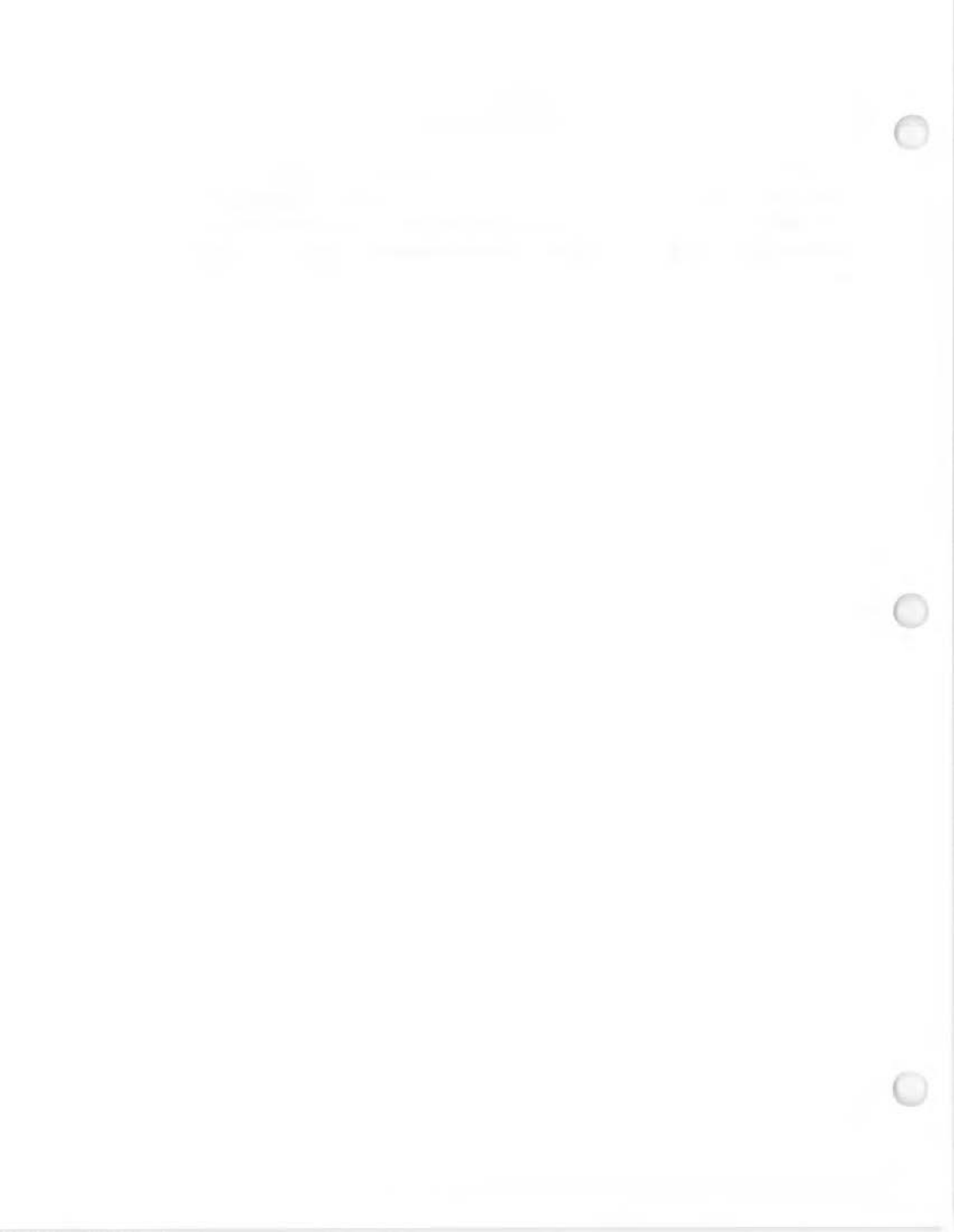
TO STANDARD OPERATING PROCEDURE 120D

EXPLOSIVE HAZARDS TABLES



INTRODUCTION

The following tables are to be used during demolition operations, and will be used to calculate minimum safe distances as they relate to mobile RF, television and FM broadcasting transmitters. Tables 120D-1-1 and 120D-1-2 are to be used for determining the minimum safe distances to be maintained from different types of radio and television transmitters when electric detonators are in use.



**TABLE 120D-1-1:
MINIMUM SAFE DISTANCE FROM TRANSMITTER ANTENNAS**

Average or Peak Transmitter Power in Watts	Minimum Distance to Transmitter in Meters / Feet
0 - 5	7.5 / 25
6 - 30	30 / 98.4
31 - 50	50 / 164.1
51 - 100	110 / 360
101 - 250	160 / 525
251 - 500	230 / 755
501 - 1,000	305 / 1,000
1,001 - 3,000	480 / 1,575
3,001 - 5,000	610 / 2,001
5,001 - 20,000	915 / 3,002
20,001 - 50,000	1,530 / 5,020
50,001 - 100,000	3,050 / 10,007
100,001 - 400,000	6,100 / 20,014
400,001 - 1,600,000	12,200 / 40,028
1,600,001 - 6,400,000	24,400 / 80,056
<p>Note: When the transmission is a pulsed or pulsed continuous wave type and its pulse width is less than 10 microseconds, the power column indicates average power. For all other transmissions, including those with pulse widths greater than 10 microseconds, the power column indicates peak power.</p>	

Source: Table 6-3

Year	Value
1970	1000
1971	1050
1972	1100
1973	1150
1974	1200
1975	1250
1976	1300
1977	1350
1978	1400
1979	1450
1980	1500
1981	1550
1982	1600
1983	1650
1984	1700
1985	1750
1986	1800
1987	1850
1988	1900
1989	1950
1990	2000
1991	2050
1992	2100
1993	2150
1994	2200
1995	2250
1996	2300
1997	2350
1998	2400
1999	2450
2000	2500
2001	2550
2002	2600
2003	2650
2004	2700
2005	2750
2006	2800
2007	2850
2008	2900
2009	2950
2010	3000
2011	3050
2012	3100
2013	3150
2014	3200
2015	3250
2016	3300
2017	3350
2018	3400
2019	3450
2020	3500

The following table shows the values for each year from 1970 to 2020. The values are listed in the right column of the table. The values are increasing over time, starting at 1000 in 1970 and reaching 3500 in 2020.

**TABLE 120D-1-2:
MINIMUM SAFE SEPARATION FORMULAS**

Unknown (Worst Case)	Without Metal Pack		With Metal Pack	
	Frequency	Formula	Frequency	Formula
Use Table 120D-1-1	≤2.3 KHz	$D = 0.093 \times (PG)^{0.5}$	≤73 KHz	$D = 0.093 \times (PG)^{0.5}$
	2.3 KHz - 0.45 MHz	$D = 39.7 \times F \times (PG)^{0.5}$	73 KHz - 0.45 MHz	$D = 126 \times F \times (PG)^{0.5}$
	0.45 MHz - 400 MHz	$D = 18 \times (PG)^{0.5}$	0.45 MHz - 400 MHz	$D = 0.6 \times (PG)^{0.5}$
	400 MHz - 75 GHz	$D = (7137 / F) \times (PG)^{0.5}$	400 MHz - 2.4 GHz	$D = (226 / F) \times (PG)^{0.5}$
	>75 GHz	$D = 0.093 \times (PG)^{0.5}$	>2.4 GHz	$D = 0.093 \times (PG)^{0.5}$

Where :

- D = Safe distance to the transmitter in feet (multiply feet by 0.305 to obtain meters)
- P = Output power of the transmitter in watts
- G = Numerical gain of transmitter antenna
- F = Frequency in MHz (divide KHz by 1,000 to obtain MHz, and multiply GHz by 1,000 to obtain MHz)

To properly use this table, the following assumptions are made:

1. The no-fire current of the EED is 10 mA.
2. At least 10 dB below the no-fire current in EED is considered to be safe.
3. The metal pack provides at least 30 dB of shielding.
4. Non-metal packs provide no shielding.
5. A 1 volt / meter field intensity is considered to be safe.
6. At no time should personnel or munitions be exposed to more than 200 volts / meter

Date		Description		Amount		Balance
Month	Day	Particulars	To	By		
2024	01	Opening Balance			100000	100000
2024	05	Deposit		50000		150000
2024	10	Withdrawal	20000			130000
2024	15	Deposit		30000		160000
2024	20	Withdrawal	10000			150000
2024	31	Closing Balance			150000	150000

The above is a summary of the transactions recorded in the account for the month of January 2024. The total amount deposited is 80,000 and the total amount withdrawn is 30,000. The closing balance as on 31st January 2024 is 150,000.

Accountant

(Signature)

STANDARD OPERATING PROCEDURE 120-E

UXO/OE OPERATIONS - EXPLOSIVES ACQUISITION, STORAGE, AND ACCOUNTABILITY

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum procedures and safety and health requirements applicable to the acquisition, storage, and accountability of explosives and unexploded ordnance (UXO) or ordnance and explosives (OE) waste.

2.0 SCOPE

This SOP applies to all site personnel, including contractor and subcontractor personnel, involved in the conduct of operations on a site with UXO contamination. This SOP is not intended to contain all requirements needed to ensure compliance. Consult the documents listed in section 3.0 of this SOP for additional compliance issues.

3.0 REGULATORY REFERENCES

Procedures and information contained in this document were obtained from the below listed references:

- CEHNC Safety Concepts and Basic Considerations for UXO;
- EODT Corporate Safety and Health Program (CSHP);
- OSHA, 29 Code of Federal Register (CFR) 1910, Industry Standards;
- OSHA, 29 CFR 1926, Construction Standards;
- ATF P 5400.7, ATF-Explosives Law and Regulations;
- USACE EM 385-1-1, Safety and Health Requirements Manual;
- DoD 4145.26-M, Contractors' Safety Manual for Ammunition and Explosives;
- DoD 6055.9-STD, DoD Ammunition and Explosives Safety Standards;
- DA PAM 385-64, Ammunition and Explosives Safety Standards;
- AR 385-64, Ammunition and Explosives Safety Standards;
- AR 385-10, The Army Safety Program;
- AR 385-16, System Safety Engineering and Management;
- AR 385-40 w/USACE Supplement, Accident Reporting and Records;
- TM 9-1300-200, Ammunition General;
- TM 9-1300-206, Military Explosives.

STATE OF CALIFORNIA
DEPARTMENT OF REVENUE
OFFICE OF THE ASSISTANT ATTORNEY GENERAL
SACRAMENTO, CALIFORNIA

October 19, 1964

Dear Mr. [Name]:
Reference is made to your letter of October 15, 1964, regarding the proposed amendments to the California Tax Code, Chapter 1000, Statutes of 1964, which relate to the taxation of gifts.

Very truly yours,
[Signature]

The proposed amendments are being reviewed by the Department of Revenue and the Office of the Attorney General. We will advise you of the results of our review as soon as possible.

Very truly yours,
[Signature]

Enclosed for you are two copies of the proposed amendments to the California Tax Code, Chapter 1000, Statutes of 1964.

- 1. Proposed amendments to Section 7080, California Tax Code.
- 2. Proposed amendments to Section 7081, California Tax Code.
- 3. Proposed amendments to Section 7082, California Tax Code.
- 4. Proposed amendments to Section 7083, California Tax Code.
- 5. Proposed amendments to Section 7084, California Tax Code.
- 6. Proposed amendments to Section 7085, California Tax Code.
- 7. Proposed amendments to Section 7086, California Tax Code.
- 8. Proposed amendments to Section 7087, California Tax Code.
- 9. Proposed amendments to Section 7088, California Tax Code.
- 10. Proposed amendments to Section 7089, California Tax Code.
- 11. Proposed amendments to Section 7090, California Tax Code.
- 12. Proposed amendments to Section 7091, California Tax Code.
- 13. Proposed amendments to Section 7092, California Tax Code.
- 14. Proposed amendments to Section 7093, California Tax Code.
- 15. Proposed amendments to Section 7094, California Tax Code.
- 16. Proposed amendments to Section 7095, California Tax Code.
- 17. Proposed amendments to Section 7096, California Tax Code.
- 18. Proposed amendments to Section 7097, California Tax Code.
- 19. Proposed amendments to Section 7098, California Tax Code.
- 20. Proposed amendments to Section 7099, California Tax Code.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager (PM), in conjunction with the Senior UXO Supervisor (SUXOS), is responsible for the initial quantity and type of demolition material ordered. The initial requisition should be of sufficient quantity to support the project for a 90-day period. In the event the project is scheduled to run for less than 90 days, only one requisition will be made, if possible.

4.2 SENIOR UXO SUPERVISOR

The SUXOS will be responsible for all subsequent requisitions for demolition materials. He will accomplish this by submitting a purchase order (PO) request through the PM, who approves it and forwards it to accounting for the preparation of a PO. Accounting then forwards the PO to the Program Administrator for action.

5.0 REQUISITION PROCEDURES

The requisition of explosives will be in accordance with EOD Technology, Inc. (EODT) policy, which requires that three quotes be obtained to ensure the best possible price for the task. Of paramount importance in this process is the determination of the location of the supplier(s). Generally, response time to requisitions is better for those suppliers closest to the site. Additionally, there is the possibility of leasing explosives magazines from the supplier.

6.0 LICENSE/PERMIT

6.1 FEDERAL LICENSE

In order to requisition explosives, EODT will have a valid Bureau of Alcohol Tobacco and Firearms (BATF) license/permit (see Figure 120E-1) on hand, to include an Explosives Purchase/Receipt Authorization List (See Figure 120E-2) for the receipt of explosives. These two documents must be on file at the EODT office, and each explosives supplier must also have a copy of each in order to sell to EODT. A copy of the BATF license and the authorization list for the project site will be maintained at the site.

6.2 STATE BLASTERS LICENSE

In this project, it will be necessary for EODT personnel to obtain a state blaster's license, as required by California-OSHA. This is accomplished by contacting the State Fire Marshall or Safety Office to determine the requirements and schedule for the test. Only those individuals licensed by the State may actually shoot the shot.

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6.3 STATE/COUNTY PERMITS

In some instances, it is necessary to obtain a state or county permit to conduct open burn/open detonation. This is accomplished by contacting the State Fire Marshall or County Fire Department for instructions.

7.0 EXPLOSIVES RECEIPT

Only those individuals named on the Authorization list may sign for explosives from the shipper. In order to ensure the quantity shipped is the same as the quantity listed on the shipping documents, two EODT personnel will inventory the shipment prior to signing for it.

7.1 SHIPPING DOCUMENTS

Explosive shipments generally are accompanied by the explosive suppliers Bill of Lading (B/L) (see Figure 120E-3) and the freight companies shipping document (see Figure 120E-4). The initial inventory will include reconciling the two documents with the actual shipment. Regardless of the outcome of the initial inventory, one copy of the B/L and the freight company shipping document will be attached to a copy of the PO request and the PO. One copy of each of the four documents will be kept on file on site and one complete copy forwarded to the corporate office.

7.2 RECEIPT DISCREPANCIES

In the event there is a discrepancy between the amount shipped and the amount received, the SUXOS will immediately contact the explosive supplier and inform him of the discrepancy. It then is the responsibility of the supplier and shipper to rectify the situation and inform EODT of the results. The supplier and/or shipper must then correct their documents and forward same to the site. In any event, only the amount received will be entered on the Explosives Accountability Record/Magazine Data Card (See Figure 120E-5).

8.0 EXPLOSIVES STORAGE

Demolition operations require the availability and storage of explosive demolition materials. To the maximum extent possible, local government or existing facilities will be used. Existing facilities are desirable due to their low cost and pre-approval, negating transport and set up. EODT will comply with local storage procedures when using Government facilities. When required to provide explosive storage, EODT will:

- Use approved ATF Type 2 outside storage structures or government furnished magazines;
- Locate, install, and maintain the magazines to comply with the magazine criteria and quantity distance requirements established in DoD 6055.9-STD, DoD Ammunition and Explosives Safety Standards;

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- Install a lightning arrestor system and have it checked by an electrician for specification conformance;
- Establish security, such as fencing and lighting, to prevent unauthorized access and theft.

8.1 MAGAZINES

Generally, Type 2 outdoor magazines will be used, which will consist of a box, trailer, semi-trailer or other mobile facility. It is bullet, fire, weather, theft-resistant and must be well ventilated. The ground around outdoor magazines must slope away for drainage or other adequate drainage provided. When unattended, vehicular magazines must have wheels removed or otherwise effectively be immobilized by using pin locking devices.

8.1.1 Exterior Construction

The exterior and doors are to be of not less than ¼ inch steel and lined with at least two inches of hardwood. Magazines with top openings will have lids with water-resistant seals or which overlap the sides by at least one inch when in a closed position.

8.1.2 Hinges and Hasps

Hinges and hasps will be attached to doors by welding, riveting or bolting (nuts on inside of door). Hinges and hasps will be installed so they cannot be removed when the doors are closed and locked.

8.1.3 Locks

Each door will be equipped with two padlocks fastened in separate hasps and staples. Padlocks must have at least five tumblers or five blades and a case-hardened shackle of at least 3/8-inch diameter. Padlocks will be protected with not less than ¼ inch steel hoods constructed so as to prevent sawing or lever action on the locks, hasps, and staples.

8.1.4 Signage/Placarding

The BATF and the Department of Defense (DoD) require that all magazines be appropriately posted for content hazard class, fire fighting hazard and an emergency notification list. Magazines will be placarded in accordance with DoD 4145.26M and TM9-1300-206. In most instances, this will require a Fire Division Class 1 for the recovered UXO magazines and a Fire Division Class 3 for the demolition material, excluding detonators, which are Fire Division Class 4. If in doubt and unable to obtain guidance from a reputable source, label the contents with the next highest hazard. In the event you have two fire division or hazard class items in the same magazine, use the higher hazard division/class placard.

8.1.5 Lightning Protection

Appropriate lightning protection will be installed in accordance with DoD 6055.9, Chapter 7, NFPA 78 and AR 385-64. Utilizing the Lightning Protection System software provided by the U.S. Army

1998

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Corps of Engineers Engineering and Support Center, Huntsville (CEHNC), the height of the lightning mast will be determined which will provide full lightning protection for the magazine. The mast will be secured with guide wires and attached to a grounding system, which will in turn be secured to the magazine.

8.1.6 Emergency Notification List

An emergency notification list containing the name, telephone number and local address of the individuals to be notified in the event of an emergency, will be posted on the outside and inside of the magazine door. These individuals should be the same individuals authorized to sign for explosives.

8.1.7 Compatibility

Explosive compatibility will be maintained in accordance with DoD 4145.26M and TM9-1300-206. Table No. 1 lists the various storage compatibility groups and Table No. 2 is the compatibility chart. In certain instances, it may be necessary to store incompatible items in the same magazine. If this should occur, then the incompatible items will be physically separated by a barricade, such as sandbags, within the magazine. This situation should be an interim occurrence and avoided if at all possible.

8.1.8 Key Control

Magazines will remain locked except when receipts and issues are being made. The two locks on the magazines will require two different keys to unlock. One key will be kept by the SUXOS and the second key by the Ordnance Accountability Officer (OAO). This procedure ensures that access to the magazines cannot be made without obtaining the two keys and no one individual can gain access to the magazines.

9.0 EXPLOSIVES ACCOUNTABILITY

Upon receipt and verification of explosive demolition material, the magazine data card is filled out as shown in Figure No. 5 and kept in the magazine on top of the listed item. A duplicate copy is maintained by the OAO, who is either the SSHO or the Quality Control Specialist.

9.1 USAGE INVENTORY

Following each occurrence of a receipt or issue of explosive material, the OAO will conduct a joint inventory in conjunction with the demo team leader, drawing out or returning the explosives. Only those items issued/returned will be inventoried. The OAO will appropriately annotate the two sets of magazine data cards.

9.2 WEEKLY INVENTORY

The last day of each work week, the SUXOS, the OAO and a third individual (who will be changed each week) will conduct an inventory and record results on the two sets of magazine data cards.

1. Introduction
The purpose of this study is to investigate the effects of...
The study was conducted in a laboratory setting...

2. Methodology
The study employed a controlled experiment design...
Participants were recruited from a local university...

3. Results
The results of the study indicate that...
There was a significant difference between the two groups...

4. Discussion
The findings of this study have important implications...
Further research is needed to explore these effects...

5. Conclusion
In conclusion, the study has shown that...
The results support the hypothesis that...

6. References
The following references were consulted during the study...
Smith, J. (2010). The effects of...
Johnson, A. (2012). A study on...

7. Appendix
Appendix A: Data collected during the experiment...
Appendix B: Questionnaire used for data collection...

9.3 DISCREPANCIES

In the event there is a discrepancy during any inventory, the item will be recounted a minimum of two additional times. If a discrepancy still exists, the EODT PM, the CEHNC Contracting Officer (or the Contracting Officer Representative) and the BATF will be notified. All actions from this point will be dictated by the BATF.

10.0 AUDIT CRITERIA

The following items related to explosives acquisition, storage, accountability and transport will be audited to ensure compliance with this SOP:

1. The EODT Demolition Shot Record
2. The Site Daily Operational and Safety Logs;
3. The OE Operations Daily/Weekly Report;
4. The Safety Training Attendance Forms, for the initial site hazard training;
5. The Safety Training Attendance Forms, for the Daily Tailgate Safety Briefings;
6. The Daily Safety Inspection and Audit Log; and
7. The EODT Explosives and Accountability Log.

11.0 ATTACHMENTS

EODT Form 120E/F-1 Emergency Response Information Form

EODT Form 120E/F-2 Authorization List

Figure 120E-3 BATF License/Permit

Figure 120E-4 Bill of Lading

Figure 120E-5 Example Freight Company Shipping Document

Figure 120E-6 Explosives Accountability Record / Magazine Data Card

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5800 S. DICKINSON DRIVE
CHICAGO, ILLINOIS 60637

RECEIVED
JAN 15 1964
FROM: [illegible]
TO: [illegible]
SUBJECT: [illegible]

RE: [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

TABLE 120E-1

STORAGE COMPATIBILITY GROUPS FOR EXPLOSIVES AND AMMUNITION	
GROUP A	
Cyclonite (RDX), dry	Mercury fulminate, wet
HMX, dry	PETN, dry
Lead azide, wet	RDX (cyclonite), dry
Lead styphnate, wet	Tetracene, wet
GROUP B	
Fuses (except chemically-actuated fuses containing ampules which may initiate, directly or indirectly, explosives and explosives-loaded components which are assembled in the conventional manner to form the finished explosive fuse).	Detonators
	Mines, practice, AP, M17
	Percussion elements
	Primer detonators
GROUP C	
Ammunition, blank and saluting, cannon	Cartridge, 90mm, canister, AP
Ammunition, .50 caliber, except API/incendiary	Cartridges, practice, over 40mm
Ammunition, 20mm, practice and high pressure test	Catapults, aircraft ejection seat, M3A1, M4A1, M5
Ammunition, 25mm, with inert projectile	Charge, propelling, not assembled to projectiles EC powder
Ammunition, 27mm, caseless	Detonating cord (primacord)
Ammunition, 30mm, ball and high pressure test	Nitrocellulose
Ammunition, 30mm, practice and training	Fuel (solid), emergency power unit
Ammunition, 37mm and 40mm, TP and AP	Propellant
Ammunition, 40mm, practice, M407A1, M382, and M385	Rockets, practice, 3.5-inch
Benite	Rocket motors, M3, M5, M6, M10, M13, M26, M30, M37, M42, M53, M66; Pershing 1st and 2nd stages; Spartan 1st, 2nd, and 3rd stages
Baron potassium nitrate	
GROUP D	
Adapter booster	Explosive D
Ammonium nitrate, except in original shipping container or equivalent	Explosives, cratering

STATE OF TEXAS COUNTY OF DALLAS

Name of Plaintiff	Name of Defendant
John Doe	Jane Smith
John Doe	Jane Smith
John Doe	Jane Smith
John Doe	Jane Smith
John Doe	Jane Smith
John Doe	Jane Smith
John Doe	Jane Smith
John Doe	Jane Smith
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John Doe	Jane Smith
John Doe	Jane Smith
John Doe	Jane Smith
John Doe	Jane Smith

TABLE 120E-1 (continued)

STORAGE COMPATIBILITY GROUPS FOR EXPLOSIVES AND AMMUNITION	
Ammonium perchlorate, except when particle size is over 15 microns and in original shipping container or equivalent	Grenades, rifle, AT (except pentolite loaded)
Ammonium picrate (Explosive D)	HMX, wet
Bangalore torpedoes	Mine, APERS, MN, M14 (w/integral fuse)
Baratol	Mines, antipersonnel (bounding type)
Black powder, bulk	Mines, antipersonnel (cast iron block)
Bombs, demolition	Mines, HEAT Nitrocellulose wet 8-30% water exposed to detonation hazards at less than intra line distance
Bombs, fragmentation	Nitroguanidine
Bombs, general purpose	Nitrostarch Octol
Boosters	PBX
Boosters, auxiliary	pentolite
Bursters	PETN, wet
Charge, demolition, snake	Picratol
Charge, springing earth rod, blast driven	Picric acid
Charge, supplementary, HE	Projectiles, HE, fuzed or unfused
Compositions A, A-2, A-3, A-4, B, B-3, C, C-2, C-3, and C-4	RDX (Cyclonite), wet
Cutter, cable M1	Rocket heads, HE and HEAT (except pentolite loaded) w/o motors
Cyclonite (RDX), wet	Shaped charges
Cyclotol	Tetranitrocarbazole (TNC)
Demolition Blocks	Tetryl
Destructor, HE, M10	Tetrytol
Detonating cord (primacord) exposed to detonation hazard at less than intra line distance	TNT
Dynamite	Tritonal
Ednatol	Torpex

STATE OF ARIZONA - DEPARTMENT OF REVENUE

PROPERTY TAX - 2018

Parcel ID	Owner	Address	Assessed Value	Exemptions	Taxable Value	Rate	Tax
123-45-6789	John Doe	123 Main St	100,000	None	100,000	0.005	500
987-65-4321	Jane Smith	456 Elm St	200,000	None	200,000	0.005	1,000
567-89-0123	Bob Johnson	789 Oak St	150,000	None	150,000	0.005	750
345-67-8901	Alice Brown	012 Pine St	300,000	None	300,000	0.005	1,500
234-56-7890	Charlie White	345 Cedar St	180,000	None	180,000	0.005	900
012-34-5678	Diana Green	678 Birch St	250,000	None	250,000	0.005	1,250
890-12-3456	Frank Black	901 Spruce St	120,000	None	120,000	0.005	600
678-90-1234	Grace King	234 Fir St	350,000	None	350,000	0.005	1,750
456-78-9012	Henry Lee	567 Willow St	160,000	None	160,000	0.005	800
234-56-7890	Ivy Scott	890 Poplar St	220,000	None	220,000	0.005	1,100
012-34-5678	Jack Adams	123 Sycamore St	190,000	None	190,000	0.005	950
890-12-3456	Karen Baker	456 Chestnut St	280,000	None	280,000	0.005	1,400
678-90-1234	Liam Clark	789 Walnut St	140,000	None	140,000	0.005	700
456-78-9012	Mia Evans	012 Hickory St	320,000	None	320,000	0.005	1,600
234-56-7890	Noah Foster	345 Maple St	170,000	None	170,000	0.005	850
012-34-5678	Olivia Grant	678 Ash St	260,000	None	260,000	0.005	1,300
890-12-3456	Peter Harris	901 Juniper St	130,000	None	130,000	0.005	650
678-90-1234	Quinn King	234 Cypress St	310,000	None	310,000	0.005	1,550
456-78-9012	Rachel Lee	567 Dogwood St	155,000	None	155,000	0.005	775
234-56-7890	Samuel Miller	890 Magnolia St	240,000	None	240,000	0.005	1,200
012-34-5678	Tina Nelson	123 Redwood St	185,000	None	185,000	0.005	925
890-12-3456	Uma Owen	456 Sequoia St	290,000	None	290,000	0.005	1,450
678-90-1234	Victor Parker	789 Tulip St	145,000	None	145,000	0.005	725
456-78-9012	Wendy Quinn	012 Yucca St	330,000	None	330,000	0.005	1,650
234-56-7890	Xavier Reed	345 Zinnia St	165,000	None	165,000	0.005	825
012-34-5678	Yara Scott	678 Aster St	270,000	None	270,000	0.005	1,350
890-12-3456	Zoe Taylor	901 Begonia St	135,000	None	135,000	0.005	675
678-90-1234	Adam White	234 Camellia St	300,000	None	300,000	0.005	1,500
456-78-9012	Bella Black	567 Dandelion St	150,000	None	150,000	0.005	750
234-56-7890	Charlie Green	890 Forsythia St	250,000	None	250,000	0.005	1,250
012-34-5678	Diana King	123 Geranium St	175,000	None	175,000	0.005	875
890-12-3456	Frank Lee	456 Hibiscus St	280,000	None	280,000	0.005	1,400
678-90-1234	Grace Miller	789 Iris St	140,000	None	140,000	0.005	700
456-78-9012	Henry Nelson	012 Jasmine St	340,000	None	340,000	0.005	1,700
234-56-7890	Ivy Owen	345 Lavender St	160,000	None	160,000	0.005	800
012-34-5678	Jack Parker	678 Marigold St	260,000	None	260,000	0.005	1,300
890-12-3456	Karen Quinn	901 Petunia St	130,000	None	130,000	0.005	650
678-90-1234	Liam Reed	234 Rose St	310,000	None	310,000	0.005	1,550
456-78-9012	Mia Scott	567 Sunflower St	155,000	None	155,000	0.005	775
234-56-7890	Noah Taylor	890 Verbena St	240,000	None	240,000	0.005	1,200
012-34-5678	Olivia White	123 Zinnia St	185,000	None	185,000	0.005	925

TABLE 120E-1 (continued)

STORAGE COMPATIBILITY GROUPS FOR EXPLOSIVES AND AMMUNITION	
GROUP E	
Ammunition, HEP	Ammunition, fixed and semifixed, 90mm through 106mm, loaded with ammonal, amatol, Explosive D, composition B or TNT
Ammunition, 20mm, HE, HEI and functional packs containing HE and HEI	Cartridge, heavy mortar, over 81mm (including 81mm M56), except chemical loaded
Ammunition, 30mm, HEDP	Cartridge, light mortar, 81mm or less (excluding 81mm M56), except chemical loaded
Ammunition, 37mm, HE	Redeye guided missiles, packaged 3 complete rounds w/launcher
Ammunition, 40mm, HE, RDX loaded	
Ammunition, 40mm, HE, M406, M386, M441, and M463	Rockets, HEAT, 3.5-inch, complete round
Ammunition, 57mm through 81mm, except WP smoke, HEP and blank	Rockets, HE, 2.75-inch (in LAU-3/A rocket launcher)
GROUP F	
Grenades, hand offensive	Grenades, fragmentation
GROUP G	
Ammunition, .50 caliber API and incendiary	Grenades, hand, CN1, ABC, M25A1, w/fuse C12
Ammunition, 20mm, API	Grenades, hand, CM1, ABC, M25A2, w/fuse C12
Ammunition, 20mm, incendiary and functional packs containing incendiary, except those containing HE or HEI	Grenades, illuminating and incendiary
Ammunition, 40mm, riot control and pyrotechnic loaded, except WP smoke	Grenades, practice, w/spotting charge
Bombs, photoflash	Grenades, rifle, smoke, XM48E1 and M22 and M23
Cartridge, igniter, M2	Grenades, smoke (except WP and PWP)
Cartridge, illuminating	Grenades, riot control, CS1, M25A2
Cartridge, photoflash	Igniter, spotting charge
Cartridge cases, primer (w/o propellant)	Igniters for rocket motors (e.g., M12, M18, M20 and M29)
Charge, igniter assembly, for practice hand grenades	Ignition cartridge for trench mortar ammunition

Date	Description
1970-01-01	Initial balance
1970-01-15	Deposit of \$100.00
1970-01-31	Withdrawal of \$50.00
1970-02-15	Deposit of \$200.00
1970-02-28	Withdrawal of \$75.00
1970-03-15	Deposit of \$150.00
1970-03-31	Withdrawal of \$100.00
1970-04-15	Deposit of \$300.00
1970-04-30	Withdrawal of \$120.00
1970-05-15	Deposit of \$180.00
1970-05-31	Withdrawal of \$90.00
1970-06-15	Deposit of \$250.00
1970-06-30	Withdrawal of \$110.00
1970-07-15	Deposit of \$170.00
1970-07-31	Withdrawal of \$80.00
1970-08-15	Deposit of \$220.00
1970-08-31	Withdrawal of \$105.00
1970-09-15	Deposit of \$190.00
1970-09-30	Withdrawal of \$95.00
1970-10-15	Deposit of \$270.00
1970-10-31	Withdrawal of \$115.00
1970-11-15	Deposit of \$160.00
1970-11-30	Withdrawal of \$85.00
1970-12-15	Deposit of \$240.00
1970-12-31	Withdrawal of \$125.00

TABLE 120E-1 (continued)

STORAGE COMPATIBILITY GROUPS FOR EXPLOSIVES AND AMMUNITION	
Charge, spotting, APR practice, M8	Illuminating compositions (consolidated in final press operations)
Chemical ammunition, Group B, tear or smoke producing, w/explosive components, over 40mm	Mines, practice, w/spotting charge and/or fuse
Chemical ammunition, Group B, tear or smoke producing, w/o explosive components	Nuclear fire marker device 11-F2
Chemical ammunition, Group D, containing flammable solids, except for TEA or TPA, w/o explosive components	Photoflash powder
Chemical ammunition, Group D, fixed or semi-fixed rounds, containing flammable solids, except for TEA or TPA	Primers, artillery and cannon, percussion and electric
Clusters, incendiary bomb, M31 and M32 (w/o fuzing components)	Projectiles, illuminating
Destroyer, file, M4	Rocket, riot control agent, CS, 2.75-inch FFAR, MX99
Detonation, simulator, explosive M80	Simulators, M110, M115, M116, M117, M118, M119 and XM142
Grenade, hand, smoke, HC, M8	Smoke pots
Grenades, hand, CN, M7A1, w/fuse M201A1	Spotting charges (cartridge for miniature practice bombs)
Grenades, hand, CS, M7A3, w/fuse M210A1	
GROUP H	
Chemical ammunition, Group C	Grenade rifle, WP, M19
Grenades, WP	
GROUP J	
Chemical ammunition, Group D, containing flammable liquids or gels, with or w/o explosive components	Chemical ammunition, Group D, fixed and semifixed rounds, containing flammable liquids or gels with or without explosive components
GROUP K	
Chemical ammunition, Group A, with or without explosive components	Chemical ammunition, Group B, with or without explosive components, designed for toxic or incapacitating effects greater than lachrymation
Rockets, toxic chemical agents, complete rounds	

TEST 1

Question	Answer
1. What is the definition of a function?	A function is a set of ordered pairs (x, y) such that no two pairs have the same first element.
2. How do you determine the domain of a function?	The domain is the set of all possible input values (x) for which the function is defined.
3. What is the range of a function?	The range is the set of all possible output values (y) that the function can produce.
4. How do you find the inverse of a function?	To find the inverse, swap the x and y variables and solve for y.
5. What is the vertical line test?	A graph passes the vertical line test if and only if it represents a function.
6. How do you graph a linear function?	Use the slope-intercept form y = mx + b, where m is the slope and b is the y-intercept.
7. What is the slope of a line?	The slope is the ratio of the vertical change (rise) to the horizontal change (run).
8. How do you find the equation of a line given two points?	Find the slope using the two points, then use the point-slope form to write the equation.
9. What is the slope of a horizontal line?	The slope of a horizontal line is 0.
10. What is the slope of a vertical line?	The slope of a vertical line is undefined.
11. How do you find the distance between two points?	Use the distance formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$.
12. What is the midpoint of a line segment?	The midpoint is the average of the x-coordinates and the average of the y-coordinates.
13. How do you find the area of a triangle?	Use the formula: $A = \frac{1}{2} \times \text{base} \times \text{height}$.
14. What is the perimeter of a rectangle?	The perimeter is the sum of all four sides: $P = 2l + 2w$.
15. What is the area of a square?	The area is the side length squared: $A = s^2$.

TABLE 120E-1 (continued)

STORAGE COMPATIBILITY GROUPS FOR EXPLOSIVES AND AMMUNITION	
GROUP L	
Aluminum powder	Fuzes, chemically-actuated, containing ampoules which may initiate directly or indirectly, explosives and explosives loaded components which are assembled in the conventional manner to form the finished explosive fuse
Ammonium nitrate	Magnesium powder
Ammonium perchlorate	Grenades, rifle, AT (pentolite loaded)
Ammunition, pentolite loaded	Nitrates (inorganic), except ammonium nitrate (in original shipping container or equivalent)
Chemical Ammunition, Group A, without explosive components	Perchlorates
Chemical ammunition, Group B, without explosive components, designed for toxic or incapacitating effects more severe than lachrymation	Peroxides, solid
Chemical ammunition, Group D, TEA or TPA components	Rocket heads, pentolite loaded, w/o motors
Chlorates	Zirconium (types I and II, spec. FED 1665)
DNT	
GROUP S	
Ammunition, 40mm, canister and multiple projectile	Fuse lighters
Ammunition, small arms, less than .50 caliber	Fuse safety
Explosive bellows	Squibs commercial
Firing devices	

TABLE 1

CHARACTERISTICS OF THE STUDY POPULATION

Source: Author's calculations from the data.

	Sample	Total	Male	Female
Sample size (n)	Number of observations	2,870	1,410	1,460
	Number of observations with complete data	2,870	1,410	1,460
	Number of observations with missing data	0	0	0
Age (years)	Mean	21.5	21.6	21.4
	Standard deviation	1.2	1.2	1.2
Gender	Male	1,410	1,410	0
	Female	1,460	0	1,460
Marital status	Single	2,870	1,410	1,460
	Married	0	0	0
Race	White	1,410	1,410	0
	Black	0	0	0
Religion	Protestant	1,410	1,410	0
	Catholic	0	0	0
Ethnicity	White	1,410	1,410	0
	Black	0	0	0
Education level	High school	1,410	1,410	0
	College	0	0	0
Income level	Low	1,410	1,410	0
	High	0	0	0
Health status	Good	1,410	1,410	0
	Poor	0	0	0
Employment status	Employed	1,410	1,410	0
	Unemployed	0	0	0
Political affiliation	Democrat	1,410	1,410	0
	Republican	0	0	0
Social media use	Yes	1,410	1,410	0
	No	0	0	0
Anxiety level	Low	1,410	1,410	0
	High	0	0	0
Depression level	Low	1,410	1,410	0
	High	0	0	0
Stress level	Low	1,410	1,410	0
	High	0	0	0
Life satisfaction	High	1,410	1,410	0
	Low	0	0	0
Self-esteem level	High	1,410	1,410	0
	Low	0	0	0
Resilience level	High	1,410	1,410	0
	Low	0	0	0
Coping strategy	Positive	1,410	1,410	0
	Negative	0	0	0
Social support	High	1,410	1,410	0
	Low	0	0	0
Loneliness level	Low	1,410	1,410	0
	High	0	0	0
Trust level	High	1,410	1,410	0
	Low	0	0	0
Empathy level	High	1,410	1,410	0
	Low	0	0	0
Communication skill	High	1,410	1,410	0
	Low	0	0	0
Problem-solving skill	High	1,410	1,410	0
	Low	0	0	0
Emotional stability	High	1,410	1,410	0
	Low	0	0	0
Mood level	High	1,410	1,410	0
	Low	0	0	0
Energy level	High	1,410	1,410	0
	Low	0	0	0
Focus level	High	1,410	1,410	0
	Low	0	0	0
Memory level	High	1,410	1,410	0
	Low	0	0	0
Attention level	High	1,410	1,410	0
	Low	0	0	0
Reaction time	Fast	1,410	1,410	0
	Slow	0	0	0
Cognitive function	High	1,410	1,410	0
	Low	0	0	0
Emotional regulation	High	1,410	1,410	0
	Low	0	0	0
Stress management	High	1,410	1,410	0
	Low	0	0	0
Anxiety management	High	1,410	1,410	0
	Low	0	0	0
Depression management	High	1,410	1,410	0
	Low	0	0	0
Stress management	High	1,410	1,410	0
	Low	0	0	0
Anxiety management	High	1,410	1,410	0
	Low	0	0	0
Depression management	High	1,410	1,410	0
	Low	0	0	0
Stress management	High	1,410	1,410	0
	Low	0	0	0
Anxiety management	High	1,410	1,410	0
	Low	0	0	0
Depression management	High	1,410	1,410	0
	Low	0	0	0

TABLE 120E-2: STORAGE COMPATIBILITY CHART

GROUPS	A	B	C	D	E	F	G	H	J	K	L	S
A	X	Z										Z
B	Z	X										X
C			X	Z	Z		Z					X
D			Z	X	X							X
E			Z	X	X							X
F						X						X
G			Z				X					X
H								X				X
J									X			X
K										X	U	
L										U		
S	Z	X	X	X	X	X	X	X	X			X

- Notes:
1. The marking "X" at an intersection of the above chart indicates that these groups may be combined in storage. Otherwise, mixing is either prohibited or restricted per Note 2 below.
 2. The marking "Z" at an intersection of the above chart indicates that, when warranted by operational considerations or magazine non-availability, and when safety is not sacrificed, these groups may be combined in storage.
 3. Equal numbers of separately packaged components of complete rounds of any single type of ammunition may be stored together. When so stored, compatibility is that of the assembled rounds; i.e., WP Filler in Group H, HE Filler in Groups D, E, or F, as appropriate.
 4. Group K required not only separate storage from other groups, but also requires that munitions having different toxic chemical agent fillers be stored separately from each other.
 5. The marking "U" on above chart indicates that leaking toxic chemical munitions of one agent type, i.e., GB, with or without explosive components, may be stored together in one magazine specifically designated for storage of leakers of that agent type.
 6. Ammunition designated "PRACTICE" by NSN and nomenclature may be stored with the fully loaded ammunition it simulates.

Date		Description		Amount	
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This page is intentionally left blank for your use. It is designed to provide a space for you to record your observations, calculations, or any other relevant information during your experiment or study. The grid lines are provided to help you organize your data in a structured manner.

If you have any questions or need further assistance, please do not hesitate to contact your instructor or the support staff. We are here to help you succeed in your academic journey.

Thank you for your attention and cooperation.

SHIPPING PAPER AND EMERGENCY RESPONSE INFORMATION FOR HAZARDOUS MATERIALS

THIS VEHICLE IS TRANSPORTING HAZARDOUS MATERIALS

Date Prepared:	Date of Travel:	Page _____ of _____
----------------	-----------------	---------------------

Proper Shipping Name	Hazard	ID No.	PG	Qty/Units	Weight

Emergency notification. In all cases of accident, incident, breakdown or fire, prompt notification must be given.
FOR EMERGENCY RESPONSE INFORMATION, SEE BACK OF THIS FORM

Remarks:

Certification:
 This is to certify that the above named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Signature of Shipper Representative:	Signature of Vehicle Operator(s):
--------------------------------------	-----------------------------------

24-Hour Emergency Assistance Telephone Numbers:	Work Hours Emergency Phone Numbers:
---	-------------------------------------

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The second part of the document outlines the various methods used to collect and analyze data, including interviews, surveys, and focus groups. The final part of the document provides a summary of the findings and conclusions drawn from the research.

Year	Q1	Q2	Q3	Q4	Total
2018	120	150	180	200	650
2019	130	160	190	210	690
2020	140	170	200	220	730
2021	150	180	210	230	770
2022	160	190	220	240	810

The data shows a consistent upward trend in the number of transactions over the five-year period, with a total increase of 160 transactions from 2018 to 2022. This growth is primarily driven by an increase in the number of transactions in the fourth quarter of each year.

The following table provides a more detailed breakdown of the data, showing the number of transactions for each quarter and the total for each year. The data is presented in a clear and concise manner, making it easy to understand and interpret. The table is organized into columns for each quarter and a total column, with rows for each year from 2018 to 2022. The data shows a steady increase in the number of transactions over time, with the total number of transactions reaching 810 in 2022. This growth is primarily due to an increase in the number of transactions in the fourth quarter of each year, which consistently shows the highest volume of activity.

EMERGENCY RESPONSE INFORMATION

Guide Number 46 and 50 from the U.S. Department of Transportation Emergency Response Guide Book P 5800.6 are reproduced hereon. These guides are applicable to Hazard Class 1 Materials (Explosives).

Mark an X in the appropriate box:

USE GUIDE 46 FOR EXPLOSIVES

USE GUIDE 50 FOR EXPLOSIVES

For all other hazardous materials or substances, annotate appropriate Emergency Response Guide Book Guide Number in the block below, and attach a copy of the guide number page or pages.

Guide Numbers:

GUIDE 46 (ERG 93)

POTENTIAL HAZARDS

FIRE OR EXPLOSION:

May explode and throw fragments 1 mile or more if fire reaches cargo.

HEALTH HAZARDS:

Fire May produce irritating or poisonous gases.

EMERGENCY ACTION

If fire reaches cargo, do not fight fire.

If you know or suspect that heavily-encased explosives, such as bombs or artillery projectiles are involved, stop all traffic and begin to evacuate all persons, including emergency responders, from the area in all directions for 5000 feet (1 mile) for rail car or 4000 feet (3/4 mile) for tractor/trailer.

When heavily-encased explosives are not involved, evacuate the area for 2500 feet (1/2 mile) in all directions.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.

CALL Emergency Response Telephone Number on Shipping paper FIRST. If Shipping Paper NOT AVAILABLE or NO ANSWER, CALL CHEMTREC AT 1-800-424-9300.

FIRE

Cargo Fires: DO NOT FIGHT FIRE WHEN IT REACHES CARGO. Withdraw from area and let fire burn.

Truck and Equipment Fires: Try to prevent fire from reaching the explosive cargo compartment. Flood with water; if no water is available use Halon, dry chemical or earth.

Promptly isolate the scene by removing ALL PERSONS from the vicinity of the incident if there is a fire. First, move people out of line-of-sight of the scene and away from windows. Then, obtain more information and specific guidance from competent authorities listed on the shipping papers.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area. Do not touch or walk through spilled material.

FIRST AID

Call emergency medical care.

Use first aid treatment according to the nature of the injury.

GUIDE 50 (ERG 93)

POTENTIAL HAZARDS

FIRE OR EXPLOSION:

May explode and throw fragments 1/3 mile or more if fire reaches cargo.

HEALTH HAZARDS:

Fire May produce irritating or poisonous gases.

EMERGENCY ACTION

If fire reaches cargo, do not fight fire.

Stop all traffic and begin to evacuate all persons, including emergency responders, from the area for 1500 feet (1/3 mile) in all directions.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.

CALL Emergency Response Telephone Number on Shipping paper FIRST. If Shipping Paper NOT AVAILABLE or NO ANSWER, CALL CHEMTREC AT 1-800-424-9300.

FIRE

Cargo Fires: DO NOT FIGHT FIRE WHEN IT REACHES CARGO. Withdraw from area and let fire burn.

Truck and Equipment Fires: Try to prevent fire from reaching the explosive cargo compartment. Flood with water; if no water is available use Halon, dry chemical or earth.

Promptly isolate the scene by removing ALL PERSONS from the vicinity of the incident if there is a fire. First, move people out of line-of-sight of the scene and away from windows. Then, obtain more information and specific guidance from competent authorities listed on the shipping papers.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area. Do not touch or walk through spilled material.

FIRST AID

Call emergency medical care.

Use first aid treatment according to the nature of the injury.

SUPPLEMENTAL INFORMATION

Packages bearing the 1.4S label contain explosive substances or articles that are designed or packaged in such a manner that when involved in a fire, may burn vigorously with localized detonations and projection of fragments; effects are usually confined to immediate vicinity of packages.

If fire threatens cargo area containing packages bearing the 1.4S label, consider initial isolation of at least 50 feet in all directions. Fight fire with normal precaution from a reasonable distance.

Handwritten notes at the top of the page, including a date and some illegible text.

Date	Description
1941-12-15	Received from [illegible] \$100.00
1941-12-16	Paid for [illegible] \$50.00
1941-12-17	Received from [illegible] \$200.00
1941-12-18	Paid for [illegible] \$75.00
1941-12-19	Received from [illegible] \$150.00
1941-12-20	Paid for [illegible] \$30.00

Handwritten notes at the bottom of the page, including a total and some illegible text.

EODT EXPLOSIVES PURCHASE/RECEIPT/TRANSPORTATION AUTHORIZATION LIST

Address and County: (Home Office)

Address and County: (Field Office)

Federal License #:

Expiration Date:

The following persons are agents, employees, or representatives of the undersigned, and are authorized to order or acquire explosive materials on behalf of EOD TECHNOLOGY, INC.:

Name and Home Address	Driver's License No.	Soc. Sec. Number	Place of Birth

The undersigned certifies the foregoing information to be true and correct to the best of his knowledge and belief, and that he will communicate any additions or deletions to the foregoing list to EOD Technology, Inc.

Corporate Officer

Date

1. Introduction

Year	Q1	Q2	Q3	Q4	Total
2018	100	120	150	180	550
2019	110	130	160	190	590
2020	120	140	170	200	630
2021	130	150	180	210	670
2022	140	160	190	220	710
2023	150	170	200	230	750
2024	160	180	210	240	790
2025	170	190	220	250	830
2026	180	200	230	260	870
2027	190	210	240	270	910
2028	200	220	250	280	950
2029	210	230	260	290	990
2030	220	240	270	300	1030

2. Conclusion

3. Summary

FIGURE 120E-3: BATF LICENSE/PERMIT



DEPARTMENT OF THE TREASURY—BUREAU OF ALCOHOL, TOBACCO AND FIREARMS

LICENSE/PERMIT (18 U.S.C. CHAPTER 40, EXPLOSIVES)

In accordance with the provision of Title XI, Organized Crime Control Act of 1970, and the regulations issued thereunder (27 CFR Part 55), you may engage in the activity specified in this license/permit within the limitation of Chapter 40, Title 18, United States Code and the regulations issued thereunder, until the expiration date shown. See "WARNING" and "NOTICE" on back.

DIRECT ATF CORRESPONDENCE TO	CHIEF, F & E LICENSING CENTER BATF, P.O. BOX 2994 ATLANTA, GA 30301-2994	LICENSE/ PERMIT NUMBER	1-TN-001-33-0H-97374
		EXPIRATION DATE	AUGUST 1, 2000
NAME	LICENSED PREMISES: EOD TECHNOLOGY, INC	10938 HARDIN VELLEY RD KNOXVILLE, TN 37932	
TYPE OF LICENSE OR PERMIT	33 - USER OF HIGH EXPLOSIVES		
CHIEF, F & E LICENSING CENTER	<i>Thomas H. Hunter</i>		
PURCHASING CERTIFICATION I certify that this is a true copy of a license/permit issued to me to engage in the activity specified		LICENSEE OR PERMITTEE'S MAILING ADDRESS	
<div style="text-align: center;"> _____ (SIGNATURE OF LICENSEE/PERMITTEE) </div>		EOD TECHNOLOGY, INC PO BOX 24173 KNOXVILLE, TN 37933-2173	
The licensee/permittee named herein shall use a reproduction of this license/permit to assist a transferor of explosives to verify the identity and status of the licensee/permittee as provided in 27 CFR Part 55. The signature on each reproduction must be an ORIGINAL signature.			

Supplemental Report of the Director

1. The first part of the report deals with the general situation of the country and the progress of the work during the year. It is divided into two main sections, the first of which deals with the general situation and the second with the progress of the work.

2. The general situation of the country is described in the first section. It is found that the country is in a state of general prosperity and that the progress of the work during the year has been satisfactory.

3. The progress of the work during the year is described in the second section. It is found that the work has been carried out in accordance with the plan and that the results have been satisfactory.

4. The results of the work during the year are described in the third section. It is found that the work has been carried out in accordance with the plan and that the results have been satisfactory.

5. The work during the year has been carried out in accordance with the plan and the results have been satisfactory. It is found that the country is in a state of general prosperity and that the progress of the work during the year has been satisfactory.



DEPARTMENT OF THE TREASURY
BUREAU OF ALCOHOL, TOBACCO AND FIREARMS
FIREARMS AND EXPLOSIVES LICENSING CENTER
ATLANTA, GEORGIA 30301-2994

August 12, 1997

E:RE:FL:wg
5340

EOD Technology, Inc.
10938 Hardin Valley Rd.
Knoxville TN 37932

1 TN 001 33 7H 97374

Dear Explosives Licensee/Permittee:

We have received your application for renewal of your explosives license/permit, but we will not be able to renew the license/permit at this time. As provided by 5 U.S.C. 558(C), you are authorized to continue operations under your current User of High Explosives license, 1 TN 001 33 7H 97374, until final action is taken on your application for renewal.

A copy of this letter may be supplied to other licensees/permittees for the next 6 months as evidence of your licensed status.

Your file will be reviewed before 6 months have passed and you will be sent another letter if your renewal application is still pending and you are still entitled to continue operations under your current license.

If you have any questions regarding this letter please contact the Firearms and Explosives Licensing Center at (404) 679-5040.

Sincerely yours,

Myrna H. Huntley, Chief
Firearms & Explosives Licensing Center



Faint header text, possibly a title or address.

2011

January

Dear Sir,
I am writing to you regarding...

The first part of the report...

The second part of the report...
The third part of the report...

The fourth part of the report...

The fifth part of the report...

The sixth part of the report...

Yours faithfully,
[Signature]
[Name]
[Title]

FIGURE 120E-4: BILL OF LADING

IN CASE OF EMERGENCY INVOLVING THIS SHIPMENT, CONTACT CHEMTREC AT 1-800-424-9300 FOR ASSISTANCE.

In case of emergency call:
Telephone 316-597-2552

UNIFORM BILL OF LADING
- NOT NEGOTIABLE -

SHIPPER No 920886

Shipping Location KG-Hallowell, Ks.

SLURRY EXPLOSIVE CORPORATION
P.O. BOX 348

COLUMBUS, KANSAS 66725
Telephone (316) 597-2552

ATF No: 545011707000219

Date 11-26-91

S NAME <u>FINN Technology, Inc. INC</u> O ADDRESS <u>111 Robertsville Road</u> D CITY <u>Oak Ridge</u> T STATE <u>Tennessee 37031</u>	S NAME <u>PT Corp. 12007</u> II ADDRESS <u>Attn: Lapyan Chan</u> I COUNTY <u>165 Fieldcrest Avenue</u> P CITY & STATE <u>Paterson NJ 07627</u>
--	---

CUSTOMER PHONE: <u>201-225-2000</u>	CUST. P.O. NO.	DATE SHIPPED <u>11-26-91</u>	Received By:
--	----------------	---------------------------------	--------------

FOB: <u>hallowell</u>	TRUCK Round Trip Mileage	TRAILER # TRUCK #	CUSTOMER ATF NO: <u>N/A</u>	OUTSIDE CARRIER <u>ANF</u>
--------------------------	--------------------------	----------------------	--------------------------------	-------------------------------

Total Quantity Weight	No. and Type of Packages	H.M.	PROPER SHIPPING MEMO - HAZARD CLASS	UN or NA	PLACARDS APPLIED
			High Explosive - Class A Explosive	✓	EXPLOSIVES A DANGEROUS BLASTING AGENTS OXIDIZER FLAMMABLE CORROSIVE LIQUID DOT EXEMPTION <input type="checkbox"/> 4453 <input type="checkbox"/> 5206 <input type="checkbox"/> 8674
			Ammonium Nitrate - Fuel / Oil Mixture - Blasting Agent	✓	
			Ammonium Nitrate (no organic coating) - Oxidizer	UN1942	
			Ammonium Nitrate Mixed Fertilizer - Oxidizer	UN2069	
			Blasting Agent, n.o.s. - Blasting Agent	✓	
			Fuse Salem - Class C Explosive	✓	
			Fuel Oil - Combustible Liquid	UN1993	
			Detonators, Class A Explosives	✓	
			Detonators, Class C Explosives	✓	
			Card, Detonating Flexible - Class A Explosive	✓	
			Card, Detonating Flexible - Class C Explosive	✓	
			Oxidizer, Corrosive Liquid, n.o.s. - Oxidizer	NA9193	
			Oxidizer, n.o.s. - Oxidizer	UN1475	
			Nitromethane - Lid On - Flammable Liquid	UN1261	
			Ammonium Nitrate (No Organic Coating Lid, Qty.1) - Oxidizer	UN1942	

LBS / UNITS	DATE CODE	PRODUCT CODE	ITEM	UNIT PRICE	IMPOST	TOTAL AMOUNT
<u>000</u>						
<u>125/5 cs</u>	<u>112490</u>	<u>0074200</u>	<u>T-100 Yellow Solid</u>			
<u>375/15 cs</u>	<u>111790</u>	<u>0074200</u>	<u>" "</u>			
<u>220/20 cs</u>	<u>110191</u>	<u>0074100</u>	<u>T-100 Yellow Liquid Liter</u>			
		<u>K</u>	<u>Hfr Ins Surcharge</u>			
			<u>Freight Charges</u>			

This sale is expressly made conditional on assent to all of the terms and conditions stated herein, including those stated on the reverse side hereof. CERTIFICATE THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED, AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION, ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION. BY <u>Wm. Terry Wright, Operations Manager</u> Plant / Warehouse	HT	HT	SUB TOTAL	
	SALES TAX	STATE	%	
		LOCAL	%	
	TOTAL DUE			

SPECIAL INSTRUCTIONS: MSDS Enclosed

1. Introduction
2. Objectives
3. Methodology
4. Results
5. Discussion
6. Conclusion

Year	Q1	Q2	Q3	Q4	Total
2018	100	120	150	180	550
2019	110	130	160	190	590
2020	120	140	170	200	630
2021	130	150	180	210	670
2022	140	160	190	220	710

7. Appendix
8. References
9. Acknowledgements
10. Contact Information

FIGURE 120E-5: EXAMPLE FREIGHT COMPANY SHIPPING DOCUMENT



ABF FREIGHT SYSTEM, INC.
(ABFS) CONSIGNEE COPY



TERMINAL 908-862-4466

DUNS 00-690-2977

SHIPPER'S NO. N/S

PICK UP DATE 11/27/91	CODE TO 352D	P.O. NO. N/S	NO. OF P.O.'S - 1	ROUTING JCR-LIN	FREIGHT BILL NO. 02307680
SHIPPER SLURRY EXPLOSIVE CORP SPORTSMAN PIT RD HALLOWELL			CONSIGNEE IT CORP/EDIT ATTN LAYAN CHAN 165 FIELDCREST AVE EDISON	000000-0000 NJ 08837	

PIECES	DESCRIPTION	WEIGHT (LBS.)	RATE	CHARGES
1 SKO	EMERGENCY PHONE (800-424-7300) EMER			
X	20 CS AMMONIUM NITRATE (ORGANIC COATING) OXIDIZER NA. 1942 LTD QTY ITEM 043020-00P	500		
X	20 CS NITROMETHANE FLAMMABLE LIQUID UN 1261 LTD QTY ITEM 043940-02P	220		
TOTALS FREIGHT BILL NO		720	PREPAID	

TO SLURRY EXPLOSIVE CORP PO BOX 148 OLUNGENS	SHIP TO KS 66725	CONSIGNEE IT CORP/EDIT ATTN LAYAN CHAN 165 FIELDCREST AVE EDISON	PAY THIS AMOUNT
---	---------------------	--	-----------------

DELIVERY DATE FRI 12/06	DRIVER	COPIES 5	CUSTOMER SIGNATURE <i>John Wilson</i> X FRADT
----------------------------	--------	-------------	---



EODT Explosive Accountability Record
(Magazine Data Card)

Product Code/FSN:		Nonmenclature:		Location:		
Date Code/Lot NR:		Qty Per Case:		Qty of Cases:		
Date	Bill of Lading/ Voucher NR	Received From/ Issued To	Qty Received	Qty Issued	Balance	Intials

**FIGURE 120E-6: EXPLOSIVES ACCOUNTABILITY
RECORD/MAGAZINE DATA CARD**

Time / s	Volume of oxygen / cm ³
0	0
10	10
20	20
30	30
40	40
50	50
60	60
70	70
80	80
90	90
100	100

(Total for Question 1 = 10 marks)

STANDARD OPERATING PROCEDURE 120-F

UXO/OE OPERATIONS - EXPLOSIVES AND OE TRANSPORTATION

1.0 PURPOSE

The purpose of this Standard Operating procedure (SOP) is to provide the procedures applicable to the transport of explosives to include demolition material and unexploded ordnance (UXO).

2.0 SCOPE

This SOP applies to all site personnel involved in the transport of explosives. This SOP is generic in nature and is not intended to cover all requirements necessary to ensure compliance at each site. It may be necessary to obtain state or local permits/licenses and even a Commercial Drivers License (CDL) in some instances. In most cases, the forms in Attachment 2 and the data contained in this SOP will be sufficient.

3.0 REGULATORY REFERENCES

Procedures and information contained in this document were obtained from the below listed references:

- U.S. Army Corps of Engineers (USACE) Engineering and Support Center, Huntsville (CEHNC) Safety Concepts and Basic Considerations for UXO;
- EOD Technology, Inc. (EODT) Corporate Safety and Health Program (CSHP);
- Applicable sections of Department of Transportation, 49 CFR Parts 172, 173, and 383, Transportation;
- Bureau Alcohol, Tobacco and Firearms (BATF) P 5400.7, Explosives Law and Regulations;
- USACE EM 385-1-1, Safety and Health Requirements Manual;
- Department of Defense (DoD) 4145.26-M, Contractors' Safety Manual for Ammunition and Explosives;
- DoD 6055.9-STD, DoD Ammunition and Explosives Safety Standards;
- Department of the Army (DA) Pamphlet (PAM) 385-64, Ammunition and Explosives Safety Standards;
- Army Regulation (AR) 385-64, Ammunition and Explosives Safety Standards;
- AR 385-40 w/USACE Supplement, Accident Reporting and Records;
- Technical Manual (TM) 9-1300-200, Ammunition General;
- TM 9-1300-206, Military Explosives.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY

1958
RECEIVED
JAN 15 1958

TO THE DIRECTOR OF THE UNIVERSITY OF CHICAGO
FROM THE DEPARTMENT OF CHEMISTRY
RE: [Illegible]

RE: [Illegible]

[Illegible text block containing the main body of the document, likely a report or letter.]

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager (PM) is responsible for determining the specific site requirements for licensing, permitting, and placarding. He will then advise the Senior UXO Supervisor (SUXOS) who will prepare an addendum to this SOP covering the site specific requirements, if different from the SOP. The addendum will be reviewed and approved by the Director of Operations (DOPS).

4.2 SENIOR UXO SUPERVISOR

As stated above the SUXOS will prepare and submit for approval the site specific addendum to this SOP, if applicable. In addition, it is the SUXOS responsibility to ensure this SOP is enforced and that the pertinent forms in Attachment 2 are properly completed and in the vehicle(s).

4.3 EXPLOSIVE VEHICLE DRIVER

Individuals assigned to the transport of explosives will meet the site driver requirements, be thoroughly familiar with this SOP and the emergency procedures in the event of an accident/incident.

5.0 EXPLOSIVES AND OE TRANSPORTATION REQUIREMENTS

5.1 GENERAL REQUIREMENTS

Transportation of OE and explosives will comply with all Federal, state, and local regulations. Permits for the transportation of explosives or OE are not required for on-site or inter-facility transportation within Federal installations. Off-site shipment of OE will be made using commercial carriers approved to transport ammunition and explosives. For off-site shipment:

- OE will be packaged IAW 49 Code of Federal Register (CFR) part 172 and 173;
- Drivers will be provided EODT form 120-F-1(Special Instructions for Motor Vehicle Drivers);
- Vehicles will be inspected using EODT form 120-F-2, Motor Vehicle Inspection, and if applicable, be properly placarded;
- Compatibility requirements will be observed;
- The load shall be well braced and, except when in closed vans, covered with a fire-resistant tarpaulin.

5.2 TRANSPORTATION ON-SITE AND ON FEDERAL INSTALLATIONS

Transportation of explosives and OE on-site and on Federal installations will comply with the following:

- Vehicles will be inspected prior to use each day using the EODT Weekly Vehicle Inspection Checklists and will be properly placarded;
- Vehicle engine will not be running, and wheel chokes and brakes will be set when loading/unloading explosives;

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5800 S. DICKINSON DRIVE
CHICAGO, ILLINOIS 60637
TEL: (773) 835-3100

RECEIVED
DATE: 10/15/2001
BY: J. SMITH

FROM: DR. J. SMITH
SUBJECT: RESEARCH RESULTS

THE RESEARCH RESULTS OF THE
PROJECT ON THE
EFFECTS OF
ON THE
SYSTEM
WAS
AS FOLLOWS:

THE RESEARCH RESULTS OF THE
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PROJECT ON THE
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SYSTEM
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AS FOLLOWS:

- Explosives will be transported in closed vehicles whenever possible. When using an open vehicle, explosives will be covered with a flame resistant tarpaulin (except when loading/unloading);
- The area of the vehicle where the explosives are placed for transportation will have either a plastic bed liner, dunnage, or sand bags placed in the area to protect the explosives from contact with the metal bed and fittings;
- Vehicles transporting explosives will have a first aid kit, two 10 pound ABC fire extinguishers, and communications capabilities;
- Initiating explosives, such as detonators, will remain separated at all times;
- Compatibility requirements will be observed;
- Operators transporting explosives will have a valid drivers license; and
- Drivers will comply with posted speed limits, but will not exceed a safe and reasonable speed for conditions. Vehicles transporting explosives off-road will not exceed 25 mph.

5.3 GENERAL PLACARDING REQUIREMENTS

According to 49 CFR 172.504, the placarding requirements listed below will apply to EODT explosives transportation:

“(a) Except as otherwise provided, each bulk packaging, freight container, unit load device, transport vehicle or rail car containing any quantity of a hazardous material must be placarded on each side and each end with the type of placards specified in Tables 1 and 2, in accordance with other requirements and exceptions.” (Tables 1 and 2 are presented on the following page.)

“(c) Exceptions for less than 454 kg (1,001 pounds). Except for bulk packaging and hazardous materials subject to §172.505, when hazardous materials covered by Table 2 of this section are transported by highway or rail, placards are not required on—

(1) A transport vehicle or freight container which contains less than 454 kg (1,001 lbs.) aggregate gross weight of hazardous materials covered by Table 2 of paragraph (e) of this section; or

(2) A rail car loaded with transport vehicles or freight containers, none of which is required to be placarded.”

The exceptions provided in paragraph (c) provided above, do not prohibit the display of placards in the manner prescribed in this subpart, if not otherwise prohibited (see § 172.502), on transport vehicles for freight containers which are not required to be placarded.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to ensure the validity of the findings.

3. The third part of the document describes the results of the data analysis and the key findings. It notes that the data indicates a significant trend in the market, which has implications for the organization's strategy.

4. The fourth part of the document discusses the implications of the findings and provides recommendations for future actions. It suggests that the organization should focus on improving its internal processes to better align with the market trends.

5. The fifth part of the document concludes the report and summarizes the main points. It reiterates the importance of ongoing monitoring and evaluation to ensure the organization remains competitive in a dynamic market.

6. The sixth part of the document provides a detailed breakdown of the data, including tables and charts. This section is intended to provide a clear and concise overview of the key data points and trends.

7. The seventh part of the document discusses the limitations of the study and the potential sources of error. It acknowledges that while the data is comprehensive, there are still some areas that require further investigation.

8. The eighth part of the document provides a list of references and sources used in the research. This section is intended to provide a clear and concise overview of the key data points and trends.

9. The ninth part of the document provides a list of references and sources used in the research. This section is intended to provide a clear and concise overview of the key data points and trends.

10. The tenth part of the document provides a list of references and sources used in the research. This section is intended to provide a clear and concise overview of the key data points and trends.

11. The eleventh part of the document provides a list of references and sources used in the research. This section is intended to provide a clear and concise overview of the key data points and trends.

12. The twelfth part of the document provides a list of references and sources used in the research. This section is intended to provide a clear and concise overview of the key data points and trends.

TABLE 1

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard Design Section Ref.(§)
1.1	Explosives 1.1	172.523
1.2	Explosives 1.2	172.524
1.3	Explosives 1.3	172.525
2.3	Poison Gas	172.532
4.3	Dangerous When Wet	172.528
6.1 (PG I, inhalation hazard only)	Poison	172.542
7 (Radioactive Yellow III label only)	Radioactive	172.544

TABLE 2

Category of material (Hazard class or division number and additional description, as appropriate)	Placard name	Placard Design Section Ref.(§)
1.4	Explosives 1.4	172.523
1.5	Explosives 1.5	172.524
1.6	Explosives 1.6	172.525
2.1	Flammable Gas	172.532
2.2	Non-Flammable Gas	172.528
3	Flammable	172.542
Combustible liquid	Combustible	172.544
4.1	Flammable Solid	172.546
4.2	Spontaneously Combustible	172.547
5.1	Oxidizer	172.550
5.2 (Other than organic peroxide, Type B, liquid or solid, temperature controlled).	Organic peroxide	172.552
6.1 (PG I or II, other than Zone A or B inhalation hazard).	Poison	172.554
6.1 (PG III)	Keep Away from Food	172.553
6.2	(None)
8	Corrosive	172.558
9	Class 9	172.560
ORM-D	(None)

Year	Month	Day	Event
1974	Jan	15	...
1974	Feb	10	...
1974	Mar	5	...
1974	Apr	1	...
1974	May	1	...
1974	Jun	1	...
1974	Jul	1	...
1974	Aug	1	...
1974	Sep	1	...
1974	Oct	1	...
1974	Nov	1	...
1974	Dec	1	...

Year	Month	Day	Event
1974	Jan	15	...
1974	Feb	10	...
1974	Mar	5	...
1974	Apr	1	...
1974	May	1	...
1974	Jun	1	...
1974	Jul	1	...
1974	Aug	1	...
1974	Sep	1	...
1974	Oct	1	...
1974	Nov	1	...
1974	Dec	1	...

5.4 OFF-SITE TRANSPORTATION OF EXPLOSIVES OVER PUBLIC HIGHWAY

5.4.1 DOT Certificate of Registration

As long as only 1.4 explosives or less than 55 net explosive weight (NEW) of 1.1, 1.2, or 1.3 explosives are transported by EODT personnel, DOT certificates of registration for EODT persons involved in the transportation of demolition materials are not required.

5.4.2 Definition of Commercial Motor Vehicles

The term "commercial motor vehicle" (CMV) means a motor vehicle, or combination thereof, used in commerce to transport passengers or property if the motor vehicle meets any of the following:

- Has a gross combination weight rating of 11,794 or more kilograms (kg) (26,001 pounds or more) inclusive with a towed unit with a gross vehicle weight rating of more than 4,536 kilograms (10,000 pounds); or
- Has a gross vehicle weight rating of 11,794 or more KG (26,001 pounds or more); or
- Is designed to transport 16 or more passengers, including the driver; or
- Is of any size and is used in the transportation of materials found to be hazardous for the purposes of the Hazardous Materials Transportation Act and which require the motor vehicle to be placarded under the Hazardous Materials Regulations (49 CFR part 172, subpart E).

5.4.3 CDL Requirements

As long as EODT personnel are not using vehicles that weigh more than 26,000 pounds and are not transporting any materials that must be placarded under the DOT Hazardous Materials Regulations (i.e., they are only transporting 1.4 explosives) then the vehicle being used need not be classified as a CMV and the operator of the vehicle need not have a Commercial Driver's License (CDL). This is the typical situation for EODT personnel since EODT usually transports relatively small quantities of 1.4 demolition materials. However, if a CDL is required, the SUXOS will ensure that the requisite license/permits are obtained.

5.4.4 Mixed Packaging Requirements

Explosives of compatibility Group S may be packed with explosives of all other explosive compatibility groups except A and L. To determine the compatibility of the materials typically transported by EODT, check the Material Data Sheets presented in Attachment 1 to this SOP.

6.0 DOCUMENTATION

6.1 EODT FORMS

Any time explosives are being transported this entire SOP to include the completed copies of supporting forms presented in Attachment 2 of this SOP, will be in the vehicle. A brief description of the relevant forms is included below and shall be used to ensure proper completion of the forms.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
5708 SOUTH CAMPUS DRIVE
CHICAGO, ILLINOIS 60637

TO: [Name]
FROM: [Name]
SUBJECT: [Subject]

[Faded text block containing the main body of the letter, including a salutation and several paragraphs of text.]

[Faded text block containing the middle section of the letter, possibly including a signature or a specific point of discussion.]

[Faded text block containing the closing section of the letter, including a closing phrase and a signature line.]

[Faded text block containing the footer information, including contact details and possibly a reference number.]

1. EODT FORM 120E/F-1

Only those items which are being transported will be entered in the form with the applicable qty/units and weight columns completed. It is imperative that the NEW limitations of 55 lbs. not be exceeded. All required data will be entered on the front and the Guide 50 block should be checked on the back of the form.

2. EODT FORM 120E/F-2

The form will be completed ensuring the pertinent data for all those transporting explosives is included on the form. As with the other required forms, this one will also be part of the transport paperwork. Only the route shown will be used unless there is an emergency or the route is blocked. Any deviation from the planned route will be reported to and coordinated with the SUXOS.

3. EODT FORM 120F-3

The form is to be completed prior to placing any explosives in the vehicle and will accompany the shipment.

6.2 BATF PERMIT/LICENSE

A copy of the current BATF license will accompany the vehicle at all times and will be readily available for inspection. A copy of the BATF license will also remain at the project site whenever explosives transportation is being conducted as a requirement of the clients Statement of Work.

1. Introduction
The purpose of this study is to investigate the effects of...
The study was conducted over a period of six months...

2. Methodology
The research design was a quantitative approach...
Data was collected through a series of surveys...
The sample size consisted of 100 participants...

3. Results
The findings of the study indicate that...
There was a significant positive correlation between...
The data suggests that the intervention had a positive impact...

4. Conclusion
In conclusion, the study has shown that...
The results support the hypothesis that...
Further research is needed to explore these findings in greater detail...

ATTACHMENT 1

MATERIAL DATA SHEETS



CORD, DETONATING - 1.4D - UN0289

NET EXPLOSIVE WEIGHT (NET):

0.00229 OZ = 1 Grain

80 gr. X .00229 = .1832 oz.

0.1832 oz. Per ft. x 100' = 18.32 oz. Total Net Explosive Weight per 100 feet

HAZARDOUS CLASS OF US MILITARY EXPLOSIVES AND MUNITIONS

Proper Shipping Name:

CORD DETONATING, FLEXIBLE UN0289 1.4D

49 CFR 172.101 - TABLE OF HAZMAT MATERIAL

CORD DETONATING, FLEXIBLE UN0289 1.4D

49 CFR 173.63 (a)

Packaging Exceptions

(a) Cord, Detonating (UN0065), having an explosive content not exceeding 6.5g (0.23 ounces) per 30 centimeter length (one linear foot) may be offered for transportation domestically and transported as Cord, detonating (UN0289), Division 1.4 Compatibility Group D (1.4D) explosives, if the gross weight of all packages containing Cord, detonating (UN0065), does not exceed 45 kg (99 pounds) per:

(1) Transport vehicle, freight container, or cargo-only aircraft;
UN0065 and UN0289 Use Packaging Instruction #139

Packing Instruction	Inner Packagings	Intermediate Packagings	Outer Packagings
139 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord must be sealed, for example, by a plug firmly fixed so that the explosive cannot escape. The ends of CORD DETONATING flexible must be fastened securely. 2. For UN 0065 and UN 0289, inner Packagings are not required when they are fastened securely in coils.	Bags Plastics Receptacles Fiberboard Metal Plastics Wood Reels Sheets Paper Plastics	Not necessary	Boxes. Steel (4A). Aluminum (4B). Wood, natural, ordinary (4C1). Wood, natural, sift proof walls (4C2). Plywood (4D). Reconstituted wood (4F). Fibreboard (4G). Plastics, solid (4H2). Drums. Steel, removable head (1A2). Aluminum, removable head (1B2). Plywood (1D). Fibre (1G). Plastics, removable head (1H2).

THE UNIVERSITY OF CHICAGO
 DEPARTMENT OF CHEMISTRY
 5708 SOUTH CAMPUS DRIVE
 CHICAGO, ILLINOIS 60637
 TEL: 773-936-3700 FAX: 773-936-3701
 WWW: WWW.CHEM.UCHICAGO.EDU

The following information is provided for your information. It is not intended to be used as a substitute for the actual data. The information is provided for your information only.

The following information is provided for your information. It is not intended to be used as a substitute for the actual data. The information is provided for your information only.

Sample	Concentration	Wavelength	Absorbance
1	0.1	254	0.15
2	0.2	254	0.30
3	0.3	254	0.45
4	0.4	254	0.60
5	0.5	254	0.75
6	0.6	254	0.90
7	0.7	254	1.05
8	0.8	254	1.20
9	0.9	254	1.35
10	1.0	254	1.50

SHAPE CHARGE (1.4S) (UN0441)

HAZARDOUS CLASS OF US MILITARY EXPLOSIVES AND MUNITIONS

Proper Shipping Name:

CHARGES, SHAPED, COMMERCIAL W/O DETONATOR UN0441 1.4S

49 CFR 172.101 TABLE OF HAZMAT MATERIAL

CHARGERS, SHAPED, COMMERCIAL WITHOUT DETONATOR UN0441 1.4S

49 CFR 173.62

Packaging & Instructions #137

49 CFR ch. 1 (10-97 Edition) § 173.62

Packing Instruction	Inner Packagings	Intermediate Packagings	Outer Packagings
<p>137 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: For UN 0059, 0439, 0440, and 0441, when the shaped charges are packed singly, the conical cavity must face downwards and the package marked "This Side Up". When the shaped charges are packed in pairs, the conical cavities must face inwards to minimize the jetting effect in the event of accidental initiation. 2. For UN 0065 and UN 0289, inner Packagings are not required when they are fastened securely in coils.</p>	<p>Bags Plastics Boxes Fiberboard Tubes Fiberboard Metal Plastics Dividing partitions in the outer Packagings.</p>	<p>Not necessary ..</p>	<p>Boxes. Steel (4A). Aluminum (4B). Wood, natural, ordinary (4C1). Wood, natural, sift proof walls (4C2). Plywood (4D). Reconstituted wood (4F). Fibreboard (4G).</p>

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Handwritten text block, possibly a date or author information.

Column 1 Header	Column 2 Header	Column 3 Header	Column 4 Header
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Handwritten entry 3	Handwritten entry 3	Handwritten entry 3	Handwritten entry 3
Handwritten entry 4	Handwritten entry 4	Handwritten entry 4	Handwritten entry 4
Handwritten entry 5	Handwritten entry 5	Handwritten entry 5	Handwritten entry 5
Handwritten entry 6	Handwritten entry 6	Handwritten entry 6	Handwritten entry 6
Handwritten entry 7	Handwritten entry 7	Handwritten entry 7	Handwritten entry 7
Handwritten entry 8	Handwritten entry 8	Handwritten entry 8	Handwritten entry 8
Handwritten entry 9	Handwritten entry 9	Handwritten entry 9	Handwritten entry 9

DETONATOR, NON-ELECTRIC (1.4B) (UN0267)

HAZARD CLASSIFICATION OF US MILITARY EXPLOSIVES AND MUNITIONS

Proper Shipping Name

DETONATOR, NON-ELECTRIC UN0267 1.4B

CFR 49 172.101 TABLE OF HAZARDOUS MATERIALS

DETONATOR, NON-ELECTRIC UN0267 1.4B

Special Provisions (column #7)

#103 Detonators which will not mass detonate and undergo only limited propagation in the shipping package may be assigned to 1.4B classification code. Mass detonate means that more than 90 percent of the devices tested in a package explode practically simultaneously.

49 CFR 173.63 (g)

Packaging Exceptions

(g) Detonators that are classed as 1.4B or 1.4S and contain no more than 1 g of explosive (excluding ignition and delay charges) may be packed as follows in which case they are excepted from the packaging requirements of § 173.62:

- (1) No more than 50 detonators in one inner packaging;
- (2) IME Standard 22 container is used as the outer packaging;
- (3) No more than 1000 detonators in one outer packaging; and
- (4) Each inner packaging is marked "1.4B Detonators" or "1.4S Detonators", as appropriate.

1. The first part of the document discusses the importance of maintaining accurate records.

2. It then goes on to describe the various methods used to collect and analyze data.

3. The next section details the results of the study and the conclusions drawn from them.

4. Finally, the document provides a summary of the findings and suggests areas for further research.

5. The author concludes by emphasizing the need for continued research in this field.

6. This section discusses the implications of the study for future research and practice.

7. The author also discusses the limitations of the study and the need for further research.

8. In conclusion, the study has shown that there is a significant relationship between the variables.

9. The findings of this study have important implications for the field of research.

10. The author hopes that this study will contribute to the understanding of the phenomenon.

11. The study was supported by the following grants and funding sources.

12. The author would like to thank the following individuals for their assistance.

13. The data for this study were collected from the following sources.

14. The author has no conflicts of interest to disclose.

15. The author is available for consultation on matters related to this study.

16. The author can be contacted at the following address.

17. The author is grateful to the reviewers for their helpful comments.

18. The author is currently working on a book related to this study.

19. The author is currently working on a grant proposal related to this study.

DETONATOR, ELECTRIC (1.4B) (UN0244)

HAZARDOUS CLASSIFICATION OF US MILITARY EXPLOSIVES AND MUNITIONS

Proper Shipping Name

DETONATOR, ELECTRIC UN0244 1.4B

49 CFR 172.101 TABLE OF HAZARDOUS MATERIALS

DETONATOR, ELECTRIC UN0255 1.4B

Special Provisions (column #7)

#103 Detonators which will not mass detonate and undergo only limited propagation in the shipping package may be assigned to 1.4B classification code. Mass detonate means that more than 90 percent of the devices tested in a package explode practically simultaneously. Limited propagation means that if one detonator near the center of a shipping package is exploded, the aggregate weight of explosives, excluding ignition and delay charges, in this and all additional detonators in the outside packaging that explode may not exceed 25 grams.

49 CFR 173.63 (f) & (g)

Packaging exceptions:

(f) Detonators containing no more than 1g explosive (excluding ignition and deadly charges) that are electric blasting caps with leg wires four feet long or longer, delay connectors in plastic sheaths, or blasting caps with empty plastic tubing twelve feet long or longer, may be packed as follows, in which case they are excepted from the packaging requirements of § 173.62:

- (1) No more than 50 detonators in one inner packaging;
- (2) IME Standard 22 container or compartment is used as the outer packaging;
- (3) No more than 1,000 detonators in one outer packaging; and
- (4) No material may be loaded on top of the IME Standard 22 container and no material may be loaded against the outside door of the IME standard 22 compartment.

(g) Detonators that are classed as 1.4B or 1.4S and contain no more than 1g of explosive (excluding) ignition and delay charges) may be packed as follows in which case they are excepted from the packaging requirements of § 173.62:

- (1) No more than 50 detonators in one inner packaging;
- (2) IME Standard 22 container is used as the outer packaging;
- (3) No more than 1,000 detonators in one outer packaging; and
- (4) Each inner packaging is marked "1.4B Detonators" or "1.4S Detonators", as appropriate.

1. The first part of the report deals with the general situation of the country and the progress of the work during the year.

2. The second part of the report deals with the work done in the various departments during the year.

3. The third part of the report deals with the work done in the various departments during the year.

4. The fourth part of the report deals with the work done in the various departments during the year.

49 CFR 173.62 SPECIAL PACKING REQUIREMENTS FOR EXPLOSIVES

(Explosives Table) UN0267 PI# 131

Research and Special Programs Administration, DOT § 173.62

Table of Packing Methods - Continued

Packing Instruction	Inner Packagings	Intermediate Packagings	Outer Packagings
<p>131 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0029, 0267, and 0455, bags and reels may not be used as inner packagings. 2. For UN 0030, 0255, and 0455, inner packagings are not required when detonators are packed in pasteboard tubes, or when their leg wires are wound on spools with the caps either placed inside the spool or securely taped to the wire on the spool, so as to restrict freedom of movement of the caps and to protect them from impact forces. 3. For UN 0360, 0361, and 0500, detonators are not required to be attached to the safety fuse, metal-clad mild detonating cord, detonating cord, or shock tube, inner packagings are not required if the packing configuration restricts freedom of movement of the caps and protects them from impact forces.</p>	<p>Bags Paper Plastics Receptacles Fiberboard Metal Plastics Wood Reels</p>	<p>Not necessary ..</p>	<p>Boxes. Steel (4A). Aluminum (4B). Wood, natural, ordinary (4C1). Wood, natural, sift proof walls (4C2). Plywood (4D). Reconstituted wood (4F). Fibreboard (4G). Drums. Steel, removable head (1A2). Aluminum, removable head (1B2). Fibre (1G). Plastics, removable head (1H2).</p>

49 CFR 173.63 PA PACKAGING EXCEPTIONS (Enclosure 1)

(g) (2) IME Standard 22 container

Publication: Institute of Makers of Explosives SLP #22

May 1993

Publication: Guide for the Use of the IME 22 Container

Oct. 1, 1993

Date	Description	Debit	Credit
1900	Balance		100.00
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2050

Total Debit: \$100.00
 Total Credit: \$100.00
 Balance: \$0.00

IGNITER, M2/M60 F/TIME BLASTING FUSE (1.4S) (UN0131)

HAZARD CLASSIFICATION OF US MILITARY EXPLOSIVES AND MUNITIONS

Proper Shipping Name:

LIGHTERS, FUSE 1.4S UN0131

49 CFR 172.101 TABLE OF HAZARDOUS MATERIALS

LIGHTER, FUSE 1.4S UN0131

49 CFR 173.62

Packaging Instruction #142

49 CFR ch. 1 (10-97 Edition) § 173.62

Table of Packing Methods - Continued

Packing Instruction	Inner Packagings	Intermediate Packagings	Outer Packagings
142	Bags Paper Plastics Receptacles Fiberboard Metal Plastics Wood Sheets Paper Trays, fitted with dividing partitions plastics	Not necessary ..	Boxes. Steel (4A). Aluminum (4B). Wood, natural, ordinary (4C1). Wood, natural, sift proof walls (4C2). Plywood (4D). Reconstituted wood (4F). Fibreboard (4G). Plastics, solid (4H2). Drums. Steel, removable head (1A2). Aluminum, removable head (1B2). Fibre (1G). Plastics, removable head (1H2).

2. Date of the experiment: _____

3. Aim of the experiment: _____

4. Theory: _____

5. Apparatus: _____

6. Procedure: _____

Sl. No.	Reading	Calculation	Result
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7. Conclusion: _____

8. Discussion: _____

9. Precautions: _____

10. Viva Questions: _____

FUSE, BLASTING TIME M700 (1.4S) (UN0105)

HAZARD CLASSIFICATION OF US MILITARY EXPLOSIVES AND MUNITIONS

Proper Shipping Name:

FUSE, SAFETY UN0105 1.4S

49 CFR 49 172.101 TABLE OF HAZARDOUS MATERIALS

FUSE, SAFETY UN0105 1.4S

49 CFR 173.62

Packing Instructions #140

Research and Special Programs Administration, DOT § 173.62

Table of Packing Methods - Continued

Packing Instruction	Inner Packagings	Intermediate Packagings	Outer Packagings
140 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. If the ends of UN 0104 are sealed, no inner packagings are required. 2. For UN 0101, the packaging must be sift-proof except when the fuse is covered by a paper tube and both ends of the tube are covered with removable caps. 3. For UN 0101, steel or aluminum boxes or drums must not be used.	Bags Plastics Reels Sheets Paper, kraft Plastics	Not necessary ..	Boxes. Steel (4A). Aluminum (4B). Wood, natural, ordinary (4C1). Wood, natural, sift proof walls (4C2). Plywood (4D). Reconstituted wood (4F). Fibreboard (4G). Plastics, solid (4H2). Drums. Steel, removable head (1A2). Aluminum, removable head (1B2). Fibre (1G).

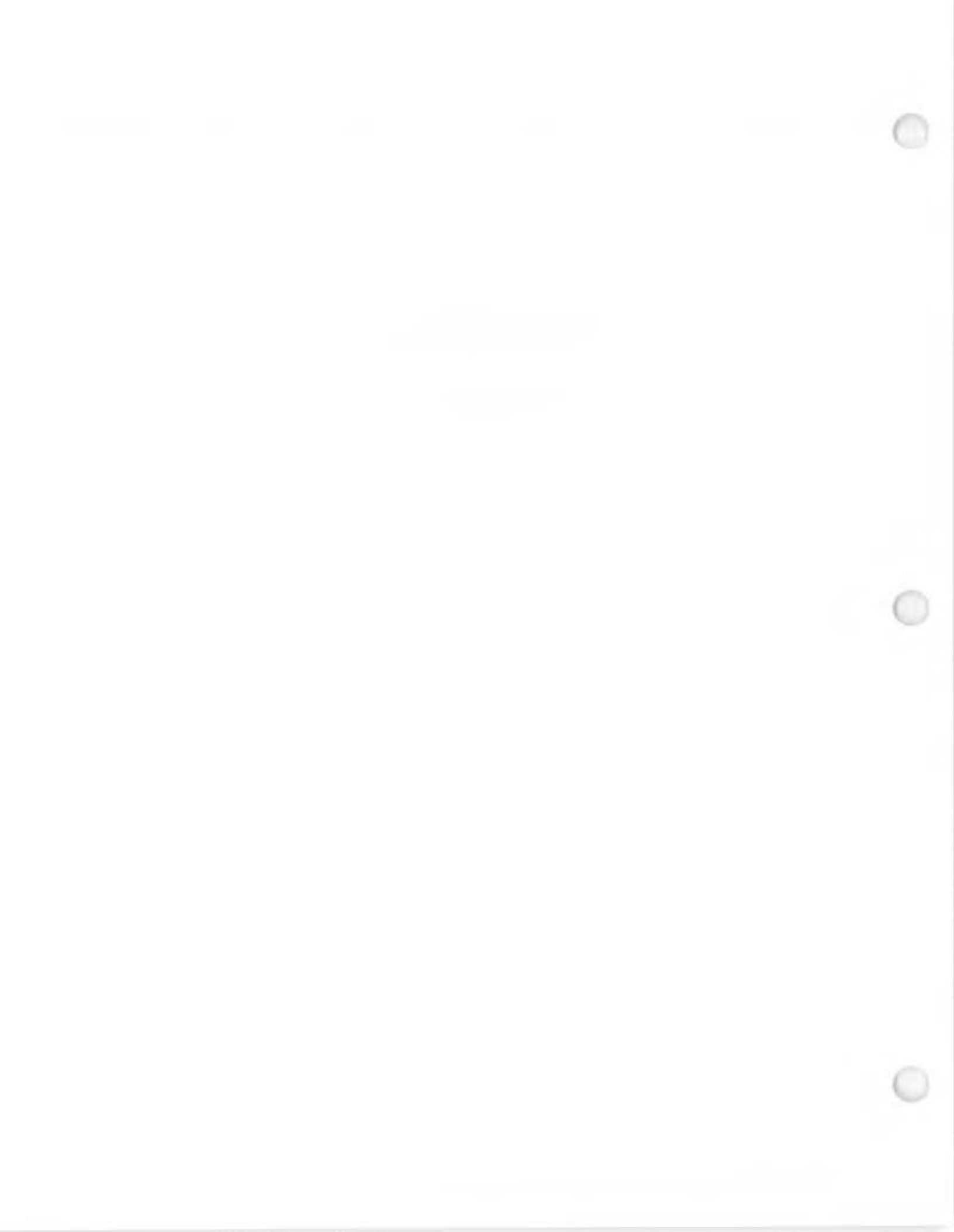
[Faint Title]

[Faint text block, possibly a letter or report introduction]

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[Faint Row 1 Col 1]	[Faint Row 1 Col 2]	[Faint Row 1 Col 3]	[Faint Row 1 Col 4]
[Faint Row 2 Col 1]	[Faint Row 2 Col 2]	[Faint Row 2 Col 3]	[Faint Row 2 Col 4]
[Faint Row 3 Col 1]	[Faint Row 3 Col 2]	[Faint Row 3 Col 3]	[Faint Row 3 Col 4]
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[Faint Row 6 Col 1]	[Faint Row 6 Col 2]	[Faint Row 6 Col 3]	[Faint Row 6 Col 4]
[Faint Row 7 Col 1]	[Faint Row 7 Col 2]	[Faint Row 7 Col 3]	[Faint Row 7 Col 4]
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ATTACHMENT 2

FORMS



SHIPPING PAPER AND EMERGENCY RESPONSE INFORMATION FOR HAZARDOUS MATERIALS

THIS VEHICLE IS TRANSPORTING HAZARDOUS MATERIALS

Date Prepared: _____	Date of Travel: _____			Page _____ of _____	
Proper Shipping Name	Hazard	ID No.	PG	Qty/Units	Weight

Emergency notification. In all cases of accident, incident, breakdown or fire, prompt notification must be given.
FOR EMERGENCY RESPONSE INFORMATION, SEE BACK OF THIS FORM

Remarks:

Certification: This is to certify that the above named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Signature of Shipper Representative:

Signature(s) of Vehicle Operator(s): _____

24-Hour Emergency Assistance Telephone Numbers:

Work Hours Emergency Phone Numbers:

UNIT 3: THE HISTORY OF THE UNITED STATES

THE AMERICAN WEST

Year	Event	Location	Significance
1846	Texas Annexation	Texas	Expanded US territory
1848	California Gold Rush	California	Massive migration to the West
1849	California Statehood	California	First state from the West
1850	Compromise of 1850	National	Resolved territorial disputes
1853	Gadsden Purchase	Arizona, New Mexico	Completed US continental expansion
1859	Montgomery's Declaration of Independence	Montgomery, California	First state to secede from the Union
1862	Homestead Act	National	Encouraged westward settlement
1869	Transcontinental Railroad	National	Connected the East and West
1876	Wagon Wheel	Arizona	Symbol of the American West
1880	Great Migration	Westward	Massive westward movement
1890	Wounded Knee Massacre	South Dakota	End of the Indian Wars
1893	Overland Route	California	First transcontinental route
1898	Spanish-American War	Spain vs. US	US acquired overseas territories
1900	Yellow Fever	California	First major epidemic in the West
1909	Recreation Act	National	Established national parks
1912	Arizona Statehood	Arizona	First state from the West to join the Union
1917	Arizona Territorial Act	Arizona	Established Arizona Territory
1920	Prohibition	National	Banned alcohol
1929	Stock Market Crash	National	Start of the Great Depression
1933	Prohibition Ends	National	Alcohol consumption resumed
1935	New Deal	National	Government intervention in economy
1941	Pearl Harbor	Hawaii	US enters World War II
1945	End of WWII	National	War ends
1949	China Falls to Communism	China	End of the Cold War
1950	McCarthyism	National	Red Scare
1954	Brown v. Board of Education	Supreme Court	Desegregation of schools
1957	First African American in Space	USA	Integration of space exploration
1960	John F. Kennedy	National	First African American President
1963	Civil Rights Act	National	Desegregation of public facilities
1968	Richard Nixon	National	End of the Vietnam War
1970	Environmental Movement	National	Protection of the environment
1973	Watergate Scandal	National	End of Nixon's presidency
1976	Jimmy Carter	National	End of the Vietnam War
1980	Reagan	National	End of the Vietnam War
1981	Iran Hostage Crisis	National	End of the Vietnam War
1982	California Statehood	California	First state from the West to join the Union
1984	Los Angeles Olympics	California	First Olympics in the West
1987	California Statehood	California	First state from the West to join the Union
1990	George H.W. Bush	National	End of the Vietnam War
1991	Soviet Union Collapses	National	End of the Cold War
1992	Bill Clinton	National	End of the Vietnam War
1993	Clinton	National	End of the Vietnam War
1994	California Statehood	California	First state from the West to join the Union
1995	Clinton	National	End of the Vietnam War
1996	Clinton	National	End of the Vietnam War
1997	Clinton	National	End of the Vietnam War
1998	Clinton	National	End of the Vietnam War
1999	Clinton	National	End of the Vietnam War
2000	George W. Bush	National	End of the Vietnam War
2001	Bush	National	End of the Vietnam War
2002	Bush	National	End of the Vietnam War
2003	Bush	National	End of the Vietnam War
2004	Bush	National	End of the Vietnam War
2005	Bush	National	End of the Vietnam War
2006	Bush	National	End of the Vietnam War
2007	Bush	National	End of the Vietnam War
2008	Obama	National	End of the Vietnam War
2009	Obama	National	End of the Vietnam War
2010	Obama	National	End of the Vietnam War
2011	Obama	National	End of the Vietnam War
2012	Obama	National	End of the Vietnam War
2013	Obama	National	End of the Vietnam War
2014	Obama	National	End of the Vietnam War
2015	Obama	National	End of the Vietnam War
2016	Trump	National	End of the Vietnam War
2017	Trump	National	End of the Vietnam War
2018	Trump	National	End of the Vietnam War
2019	Trump	National	End of the Vietnam War
2020	Biden	National	End of the Vietnam War
2021	Biden	National	End of the Vietnam War
2022	Biden	National	End of the Vietnam War
2023	Biden	National	End of the Vietnam War

UNIT 4: THE AMERICAN WEST

The American West is a vast and diverse region that has played a significant role in the history of the United States. It is characterized by its rugged terrain, diverse climate, and rich cultural heritage. The West has been a crucible of innovation, exploration, and discovery, shaping the nation's identity and destiny. From the early days of Spanish and Mexican settlement to the gold rush and the transcontinental railroad, the West has been a land of opportunity and challenge. It has been a place where the American dream was often realized, but also where the harsh realities of frontier life were experienced. The West's history is a testament to the resilience and spirit of the American people, and its legacy continues to influence the nation today.

**SHIPPING PAPER AND EMERGENCY RESPONSE INFORMATION FOR
HAZARDOUS MATERIALS**

THIS VEHICLE IS TRANSPORTING HAZARDOUS MATERIALS

Date Prepared: <i>January 01, 2000</i>	Date of Travel: <i>January 01, 2000</i>	Page <u> 1 </u> of <u> 1 </u>
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Proper Shipping Name	Hazard	ID No.	PG	Qty/Units	Weight
<i>Cord, Detonating 80 gr per foot</i>	<i>1.4D</i>	<i>UN0289</i>	<i>II</i>	<u> </u> <i>FT</i>	
<i>Charges, Shaped Commercial</i>	<i>1.4S</i>	<i>UN0441</i>	<i>II</i>	<u> </u> <i>EA</i>	
<i>Detonators, Non-electric</i>	<i>1.4B</i>	<i>UN0267</i>	<i>II</i>	<u> </u> <i>EA</i>	
<i>Lighters, Fuse</i>	<i>1.4S</i>	<i>UN0131</i>	<i>II</i>	<u> </u> <i>EA</i>	
<i>Fuse, Safety</i>	<i>1.4S</i>	<i>UN0105</i>	<i>II</i>	<u> </u> <i>FT</i>	
<i>Detonators, Electric</i>	<i>1.4B</i>	<i>UN0255</i>	<i>II</i>	<u> </u> <i>EA</i>	

Emergency notification. In all cases of accident, incident, breakdown or fire, prompt notification must be given.
FOR EMERGENCY RESPONSE INFORMATION, SEE BACK OF THIS FORM

Remarks:

PAGE 1 EXAMPLE

Certification:

This is to certify that the above named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Signature of Shipper Representative:	Signature of Vehicle Operator(s):
--------------------------------------	-----------------------------------

24-Hour Emergency Assistance Telephone Numbers: <i>(915) 555-0229</i>	Work Hours Emergency Phone Numbers: <i>(915) 555-2351</i> <i>Cellular Phone</i> <i>(915) 555-3217</i>
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Date		Description		Amount	
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1/2					
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STATE OF TEXAS

County of _____

EMERGENCY RESPONSE INFORMATION

Guide Number 46 and 50 from the U.S. Department of Transportation Emergency Response Guide Book P 5800.6 are reproduced hereon. These guides are applicable to Hazard Class 1 Materials (Explosives).

Mark an X in the appropriate box:

USE GUIDE 46 FOR EXPLOSIVES
(1.1), (1.2), (1.3), (1.5), AND (1.6)

USE GUIDE 50 FOR EXPLOSIVES
(1.4)

For all other hazardous materials or substances, annotate appropriate Emergency Response Guide Book Guide Number in the block below, and attach a copy of the guide number page or pages.

Guide Numbers:

GUIDE 46 (ERG 93)

POTENTIAL HAZARDS

FIRE OR EXPLOSION:

May explode and throw fragments 1 mile or more if fire reaches cargo.

HEALTH HAZARDS:

Fire May produce irritating or poisonous gases.

EMERGENCY ACTION

If fire reaches cargo, do not fight fire.

If you know or suspect that heavily-encased explosives, such as bombs or artillery projectiles are involved, stop all traffic and begin to evacuate all persons, including emergency responders, from the area in all directions for 5000 feet (1 mile) for rail car or 4000 feet (3/4 mile) for tractor/trailer.

When heavily-encased explosives are not involved, evacuate the area for 2500 feet (1/2 mile) in all directions.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.

CALL Emergency Response Telephone Number on Shipping paper FIRST. If Shipping Paper NOT AVAILABLE or NO ANSWER, CALL CHEMTREC AT 1-800-424-9300.

FIRE

Cargo Fires: DO NOT FIGHT FIRE WHEN IT REACHES CARGO. Withdraw from area and let fire burn.

Truck and Equipment Fires: Try to prevent fire from reaching the explosive cargo compartment. Flood with water; if no water is available use Halon, dry chemical or earth.

Promptly isolate the scene by removing ALL PERSONS from the vicinity of the incident if there is a fire. First, move people out of line-of-sight of the scene and away from windows. Then, obtain more information and specific guidance from competent authorities listed on the shipping papers.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area. Do not touch or walk through spilled material.

FIRST AID

Call emergency medical care.

Use first aid treatment according to the nature of the injury.

GUIDE 50 (ERG 93)

POTENTIAL HAZARDS

FIRE OR EXPLOSION:

May explode and throw fragments 1/3 mile or more if fire reaches cargo.

HEALTH HAZARDS:

Fire May produce irritating or poisonous gases.

EMERGENCY ACTION

If fire reaches cargo, do not fight fire.

Stop all traffic and begin to evacuate all persons, including emergency responders, from the area for 1500 feet (1/3 mile) in all directions.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.

CALL Emergency Response Telephone Number on Shipping paper FIRST. If Shipping Paper NOT AVAILABLE or NO ANSWER, CALL CHEMTREC AT 1-800-424-9300.

FIRE

Cargo Fires: DO NOT FIGHT FIRE WHEN IT REACHES CARGO. Withdraw from area and let fire burn.

Truck and Equipment Fires: Try to prevent fire from reaching the explosive cargo compartment. Flood with water; if no water is available use Halon, dry chemical or earth.

Promptly isolate the scene by removing ALL PERSONS from the vicinity of the incident if there is a fire. First, move people out of line-of-sight of the scene and away from windows. Then, obtain more information and specific guidance from competent authorities listed on the shipping papers.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area. Do not touch or walk through spilled material.

FIRST AID

Call emergency medical care.

Use first aid treatment according to the nature of the injury.

SUPPLEMENTAL INFORMATION

Packages bearing the 1.4S label contain explosive substances or articles that are designed or packaged in such a manner that when involved in a fire, may burn vigorously with localized detonations and projection of fragments; effects are usually confined to immediate vicinity of packages.

If fire threatens cargo area containing packages bearing the 1.4S label, consider initial isolation of at least 50 feet in all directions. Fight fire with normal precaution from a reasonable distance.

EODT EXPLOSIVES PURCHASE/RECEIPT/TRANSPORTATION AUTHORIZATION LIST

Address and County: (Home Office)

Address and County: (Field Office)

Federal License #:

Expiration Date:

The following persons are agents, employees, or representatives of the undersigned, and are authorized to order or acquire explosive materials on behalf of EOD TECHNOLOGY, INC.:

Name and Home Address	Driver's License No.	Soc. Sec. Number	Place of Birth

The undersigned certifies the foregoing information to be true and correct to the best of his knowledge and belief, and that he will communicate any additions or deletions to the foregoing list to EOD Technology, Inc.

Corporate Officer

Date

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**EODT EXPLOSIVES PURCHASE/RECEIPT/TRANSPORTATION
AUTHORIZATION LIST**

Address and County: (Home Office): *10938 Hardin Valley Rd. Knoxville, TN 37932*

Address and County: (Field Office): *1000 Main Street, Sink Hole, New Jersey 01020*

Federal License #: *1 TN-001-33-OH-97374*

Expiration Date: *August 1, 2000*

The following persons are agents, employees, or representatives of the undersigned, and are authorized to order or acquire explosive materials on behalf of EOD TECHNOLOGY, INC.:

Name and Home Address	Driver's License No. ,	Soc. Sec. Number	Place of Birth
Sean Connery	PA 102030405	123-34-4567	Glencoe, Scotland
Roger Moore	NY 01020304	987-76-6543	Hometown USA

EXAMPLE FORM

The undersigned certifies the foregoing information to be true and correct to the best of his knowledge and belief, and that he will communicate any additions or deletions to the foregoing list to EOD Technology, Inc.

_____	_____
Corporate Officer	Date

REPORT ON THE INVESTIGATION OF THE ...

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CONCLUSIONS

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EODT VEHICLE INSPECTION CHECKLIST

(To be used weekly for all vehicles EXCEPT explosive carriers which must be inspected prior to each explosives transport)

Site Name / Location: _____

SUXOS: _____ Inspector: _____ Vehicle: _____
(MAKE AND LICENSE PLATE #)

Date Inspected: _____ Mileage: _____ Owner: _____
(RENTAL, EODT, GFE, CONTRACT)

USE ✓ FOR PASS, X FOR DISCREPANCY

1. DOCUMENTATION:	Pass	Fail	2. BRAKES:	Pass	Fail
Registration	[]	[]	Hand/Emergency	[]	[]
Insurance	[]	[]	Service	[]	[]
Emergency Route Map and Phone Numbers	[]	[]			
3. TIRES:			4. BELTS:		
Pressure	[]	[]	Proper tension	[]	[]
Condition	[]	[]	Condition	[]	[]
5. EQUIPMENT:			6. LIGHTS:		
Fire extinguishers*	[]	[]	Headlights (high & low)	[]	[]
First Aid/CPR/Burn	[]	[]	Brake Lights	[]	[]
Eyewash kits	[]	[]	Parking	[]	[]
Emergency Breakdown Kit	[]	[]	Back-up	[]	[]
Spare Tire	[]	[]	Turn Signals	[]	[]
Tire Changing Equipment	[]	[]	Emergency Flashers	[]	[]
Tie downs*	[]	[]			
Chocks*	[]	[]			
Placards*	[]	[]			
7. FLUID LEVELS:			8. GENERAL:		
Oil	[]	[]	Windshield Wipers	[]	[]
Coolant	[]	[]	Windshield/Windows	[]	[]
Brake	[]	[]	Seat Belts	[]	[]
Steering	[]	[]	Steering	[]	[]
Transmission	[]	[]	Horn	[]	[]
Windshield Wiper	[]	[]	Gas Cap	[]	[]
Fluid Leaks	[]	[]	Mirrors	[]	[]
			Cleanliness	[]	[]
			Exhaust System*	[]	[]

(Note: Items marked with * are required for explosive carriers and must be inspected prior to each use)

Description of deficiencies: _____

Deficiencies corrected by: _____ Date: _____

THE UNIVERSITY OF CHICAGO

DATE	DESCRIPTION	AMOUNT	BALANCE
1/1/50	Balance	100.00	100.00
1/15/50	Check #101	25.00	75.00
2/1/50	Deposit	50.00	125.00
2/15/50	Check #102	15.00	110.00
3/1/50	Deposit	30.00	140.00
3/15/50	Check #103	20.00	120.00
4/1/50	Deposit	40.00	160.00
4/15/50	Check #104	10.00	150.00
5/1/50	Deposit	20.00	170.00
5/15/50	Check #105	15.00	155.00
6/1/50	Deposit	35.00	190.00
6/15/50	Check #106	25.00	165.00
7/1/50	Deposit	45.00	210.00
7/15/50	Check #107	30.00	180.00
8/1/50	Deposit	55.00	235.00
8/15/50	Check #108	40.00	195.00
9/1/50	Deposit	65.00	260.00
9/15/50	Check #109	50.00	210.00
10/1/50	Deposit	75.00	285.00
10/15/50	Check #110	60.00	225.00
11/1/50	Deposit	85.00	310.00
11/15/50	Check #111	70.00	240.00
12/1/50	Deposit	95.00	335.00
12/15/50	Check #112	80.00	255.00
1/1/51	Balance	255.00	255.00

EODT STANDARD OPERATING PROCEDURE 107

EXCAVATION AND TRENCHING

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements and procedures applicable to the conduct of operations involving excavation or trenching.

2.0 SCOPE

This SOP applies to all site personnel, to include contractor and subcontractor personnel, and operations involving soil excavation or trenching. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- Applicable sections of OSHA Construction Industry Standard 29 CFR Part 1926, Subpart P; and
- USACE EM 385-1-1, Section 25.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for excavation or trenching operations. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the success of any business and for the protection of the interests of all parties involved.

2. The second part of the document outlines the various methods and procedures for recording transactions. It provides detailed instructions on how to properly document each transaction, including the use of receipts, invoices, and other supporting documents.

3. The third part of the document discusses the importance of regular audits and reviews of the records. It explains how audits can help identify errors, prevent fraud, and ensure that the records are accurate and complete. It also provides guidance on how to conduct an audit and how to address any issues that may arise.

4. The fourth part of the document discusses the importance of maintaining the records in a secure and accessible manner. It provides information on how to protect the records from loss, theft, and damage, and how to ensure that the records are easily accessible to all authorized personnel.

5. The fifth part of the document discusses the importance of keeping the records up-to-date and current. It provides information on how to regularly update the records and how to ensure that all transactions are properly recorded and documented.

4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence of a SUXOS, the UXOS shall be implement the responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

4.5 TRENCHING AND EXCAVATION COMPETENT PERSON

A trenching and excavation competent person is one who by virtue of experience or training is capable of identifying existing and predictable hazards in the surroundings or working conditions and is authorized to take corrective actions. This person may be the SSHO, a registered professional engineer or other site personnel with the appropriate knowledge and experience needed to accurately assess trenching/excavation hazards. The competent person will be responsible for inspecting the trenching/excavation when employee exposure to potential hazards can be reasonably expected. The inspection shall be conducted daily prior to personnel entry into the trench/excavation site and after every rainstorm or other hazard increasing occurrence. The competent person shall complete the Daily Excavation Checklist (see Figure 2) each time the excavation is inspected and shall post a copy of the inspection at the excavation site.

5.0 PROCEDURE

All personnel, including contractor and subcontractor personnel, involved in excavation or trenching operations shall be familiar with the potential safety and health hazards associated with the conduct of this operation, and with the work practices and control techniques to be used to reduce or eliminate these hazards.

5.1 SAFETY HAZARDS AND OPERATIONAL CONTROL TECHNIQUES

The safety and health hazards and operational control techniques to be used during conduct of excavation or trenching operations are discussed below:

1. Prior to initiation of any excavation or trenching activity, the location of underground utilities and installations shall be determined;
2. When the excavation/trench achieves a depth of five feet, a competent person shall inspect the excavation or trench prior to entry by personnel to determine if there are any indications that a cave-in could occur;

3. An excavation or trench greater than five feet in depth shall be inspected daily by a competent person prior to commencement of work activities;
4. Evidence of cave-ins, slides, sloughing, or surface cracks will be cause for work to cease until necessary precautions are taken to safeguard workers;
5. Excavations five feet or deeper, will be sloped at an angle of one and one half horizontal to one vertical (34 degrees measured from the horizon);
6. Excavations five feet or deeper which can not be sloped as specified in item 5 above shall require a registered engineer to design the sloping/benching/support system;
7. Protective systems shall be selected from OSHA 29 CFR 1926 Subpart P and/or designed by a registered professional civil engineer;
8. Spoils and other materials shall be placed a least two feet from the edge of the excavation;
9. Materials used for sheeting, shoring, or bracing shall be in good condition;
10. Timbers shall be sound, free of knots, and of appropriate dimensions for the trench;
11. Safe access shall be provided into the excavation(s) by means of a gradually sloped personnel access/egress ramp, or ladders or stairs will be provided;
12. Ladders used shall extend 3 ft. above grade level and be secured from movement;
13. Excavations 4 ft. or more in depth shall have a means of egress at a frequency such that lateral travel to the egress point does not exceed 25 ft.;
13. Walkways or bridges with standard guardrail shall be provided where employees are required or permitted to cross over excavations;
14. If the depth of an excavation or trench is greater than 4 feet, it shall be inspected by the SSHO to determine if it meets the criteria for a confined space;
15. Accumulated water inside an excavation shall be removed prior to personnel entry;
16. If an excavation or trench is determined to be a Confined Space the requirements set forth in the Confined Space Program found in the EODT CSHP shall apply, as well as the requirements of 29 CFR 1910.146 and EM 385-1-1;
17. All excavations or trenches shall be properly barricaded or flagged off to prevent personnel from accidentally falling into the excavation or trench; and
18. In accordance with the requirements of 29 CFR 1926.651(g), if an excavation or trench is greater than 4 feet in depth, and the potential exists for having a hazardous atmosphere – inside the excavation or trench, then the atmosphere shall, as a minimum, be tested for oxygen deficiency and toxicity prior to entry by site personnel.

5.2 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Personnel shall wear the appropriate level of protection as specified in the SSHP. The PPE outlined in the SSHP will have been selected in accordance with the chemical and physical hazards anticipated for the given task. Additionally, no site personnel shall enter a trench or excavation site until it has been inspected by a competent person and all safety and health related precautions and controls have been implemented.

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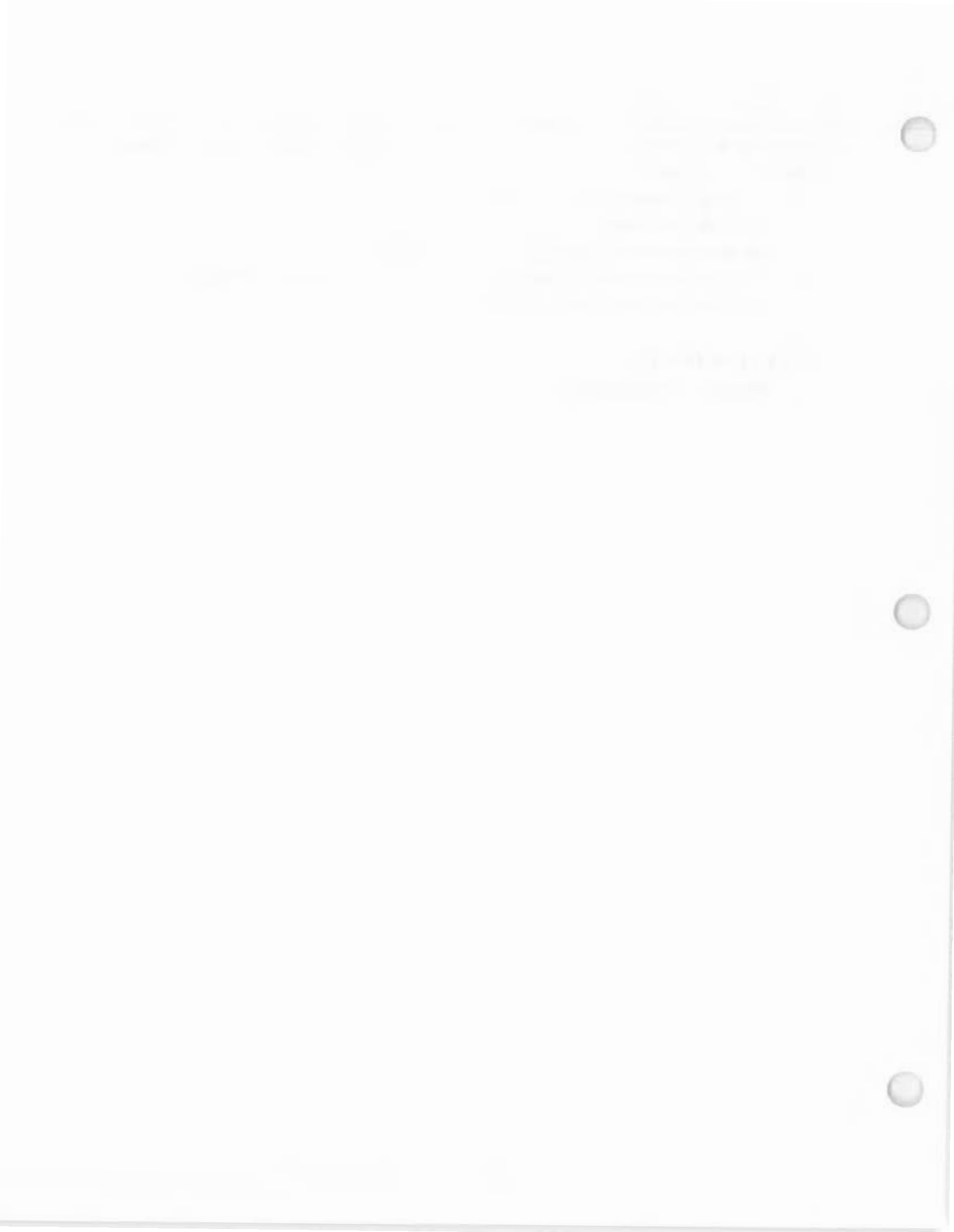
6.0 AUDIT CRITERIA

The following items related to excavation or trenching operations will be audited to ensure compliance with this SOP:

1. The Daily Operational and Safety Logs;
2. The Daily Excavation Checklist;
3. The Documentation of Training form for the initial site hazard training;
4. The Documentation of Training form for the Daily Tailgate Safety Briefing; and
5. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

1. The Daily Excavation Checklist



DAILY EXCAVATION CHECKLIST

	W/C	N/C	N/A
1. Has the excavation or trench been inspected by a competent person and have the safety requirements been established?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Have the underground utilities been identified and located?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Has the protection system (shoring, benching, sloping, etc.) been selected and installed and monitored daily?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are adjacent surfaces encumbrances removed or barricaded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Where employees are permitted to cross over excavation, are walkways or bridges provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are ramps and bridges designed by a competent person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are stairways, ladders, ramps, or other safe means of egress provided within 25 feet of every employee?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. If mobile equipment must operate next to the excavation, are suitable barricades, flagging, stop logs, or beams provided to prevent encroachment on bank edges?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Are employees exposed to overhead loads handled by lifting or excavating equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is atmospheric monitoring (confined space program) conducted in excavations where hazardous atmospheres could reasonably be present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. If the excavation or trench is classified as a confined space, is the appropriate rescue equipment readily available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Key: W/C - Within compliance N/C - Not in compliance N/A - Not applicable

DAILY EXCAVATION CHECKLIST (con't)

	W/C	N/C	N/A
12. If there is a water hazard present, are adequate precautions in place to prevent flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. If adjacent structures (building foundations, sidewalks, roadways, etc.) are undermined by the excavation, has a suitable support system been designed by a registered professional engineer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Employees must be protected from falling loose rock and soil. Is the spoil at least two feet back from the edge?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Is the excavation and trench checklist being maintained at the excavation site and in the site records?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 CALIFORNIA ONLY			
1. Has CAL-OSHA been contacted for an excavation permit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the permit on file and accessible for review during an inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

KEY: W/C - Within compliance N/C - Not in compliance N/A - Not Applicable

CORRECTIVE ACTIONS

Date Completed: _____

Competent Person: _____

Signature

Printed Name

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STANDARD OPERATING PROCEDURE 116

SITE RULES AND PROHIBITED PRACTICES

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide the minimum safety and health requirements, procedures and site standing orders applicable to the conduct of operations on site. These standing orders outline the rules which will be strictly enforced during all on site activities.

2.0 SCOPE

This SOP applies to all site personnel, to include contractor and subcontractor personnel, who are involved in operations in the exclusion, contamination reduction and support zones (EZ, CRZ, and SZ). The rules and prohibited practices outlined here are required to help ensure the safety and health of all site personnel, the environment and the general public. This SOP is not intended to contain all requirements needed to ensure regulatory compliance. Consult the documents listed in section 3.0 of this SOP for additional for compliance issues.

3.0 REGULATORY REFERENCES

The following Occupational Safety and Health Administration (OSHA) standards and U.S. Army Corps of Engineers (USACE) requirements directly apply to the conduct of operations associated with the SOP. In the event other hazards are associated with the conduct of this SOP, consultation of other SOPs and regulatory references may be needed.

- OSHA Construction Industry Standard 29 CFR Part 1926.65;
- OSHA General Industry Standard 29 CFR Part 1910.120; and
- USACE EM 385-1-1, Section 28.

4.0 RESPONSIBILITIES

4.1 PROJECT MANAGER

The Project Manager shall be responsible for ensuring the availability of the resources needed to implement this SOP, and shall also ensure that this SOP is incorporated in plans, procedures and training for sites where this SOP is to be implemented.

4.2 SENIOR UXO SUPERVISOR

The Senior UXO Supervisor (SUXOS) will ensure that this SOP is implemented for all operations. The SUXOS will also ensure that relevant sections of this SOP are discussed in the tailgate safety briefings and that information related to its daily implementation is documented in the Site Operational Log.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY

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4.3 UXO SUPERVISOR

The UXO Supervisor (UXOS) shall be responsible for the field implementation of this SOP and for implementing the safety and health requirements outlined in section 5.0 of this SOP. In the absence of a SUXOS, the UXOS shall be responsible for implementing the SUXOS responsibilities outlined in para 4.2.

4.4 SITE SAFETY AND HEALTH OFFICER

The Site Safety and Health Officer (SSHO) will be responsible for ensuring that the safety and health hazards and control techniques associated with this SOP are discussed during the initial site hazard training and the daily tailgate safety briefings. The SSHO will also be responsible for daily inspection of site operations and conditions to ensure their initial and continued compliance with this SOP and other regulatory guidelines.

5.0 PROCEDURE

All site personnel, including contractor and subcontractor personnel, involved in any site operation shall be familiar with the rules and prohibited practices listed in this SOP. The items outlined in the standing orders listed below are considered to be the minimum rules and prohibited practices which will be enforced onsite. This list may be expanded by the SSHO, based upon site conditions and characteristics. Since the safety and health of all site personnel, the environment and the general population is of paramount importance, all personnel will be expected to follow the standing orders at all times. Violation of these standing orders, or those imposed by the SSHO, may lead to personal injury or property damage, and may be grounds for positive disciplinary action.

5.1 SITE STANDING ORDERS

5.1.1 General Standing Orders For The Site

The standing orders listed below shall be followed at all times by on-site personnel conducting operations in any location of the site.

1. Site personnel will comply with the SSHP and all other required safety and health guidelines.
2. All necessary and feasible precautions will be taken to prevent injury to personnel.
3. Potentially harmful situations will be immediately reported to the SSHO.
4. Spillage and splashing of hazardous materials will be prevented to the extent possible, and spills of hazardous materials will be reported to the SSHO.
5. Good housekeeping shall be practiced by keeping the work area neat, clean and orderly.
6. All personal injuries, no matter how minor, will be reported to the SSHO.
7. Site equipment shall be maintained in good working order, and defective equipment shall be reported to the SSHO.
8. Personnel shall properly inspect, use and maintain PPE as required by the SSHP.

1. Introduction
2. Methodology
3. Results
4. Discussion
5. Conclusion

The first part of the study was a literature review. This was followed by a series of experiments designed to test the hypotheses. The results of these experiments are presented in the following sections. The discussion section provides a detailed analysis of the findings and their implications. Finally, the conclusion summarizes the main points of the study and suggests directions for future research.

The second part of the study was a series of experiments. The first experiment was designed to test the hypothesis that... The results of this experiment are shown in Figure 1. The second experiment was designed to test the hypothesis that... The results of this experiment are shown in Figure 2. The third experiment was designed to test the hypothesis that... The results of this experiment are shown in Figure 3. The fourth experiment was designed to test the hypothesis that... The results of this experiment are shown in Figure 4.

The results of the experiments are summarized in Table 1. The table shows that the results of the experiments are consistent with the hypotheses. The first experiment showed that... The second experiment showed that... The third experiment showed that... The fourth experiment showed that...

The discussion section provides a detailed analysis of the findings. It shows that the results of the experiments are consistent with the hypotheses. The first experiment showed that... The second experiment showed that... The third experiment showed that... The fourth experiment showed that... The results of the experiments are consistent with the hypotheses.

The conclusion summarizes the main points of the study. It shows that the results of the experiments are consistent with the hypotheses. The first experiment showed that... The second experiment showed that... The third experiment showed that... The fourth experiment showed that...

9. Running and horseplay are prohibited in all areas of the site, at all times.
10. Tobacco product use, eating, and drinking, will be allowed only in designated areas while personnel are performing operations within a work zone.
11. If site hazards include the potential for airborne or physical contact with chemical contaminants, personnel will refrain from eating, drinking, using tobacco, applying cosmetics or any other hand to face activity while they are in the area of chemical contamination. This requirement will hold true at all times unless procedures are specified in the SSHP which allow for the taking of breaks in the work zone.
12. Ignition of flammable materials in any work zone is prohibited, unless directed by the SSHO.
13. Buddy System procedures shall be enforced during all site operations.
14. The number of personnel in the SZ, CRZ or EZ shall be the minimum number necessary to perform work tasks in a safe and efficient manner.
15. Site personnel shall check in with the SSHO prior to leaving the site, and again upon returning to the site.
16. Site personnel will report to the SSHO any medical conditions or medications which could affect their ability to perform operations safely.
17. Site visitors are to be escorted by UXO qualified personnel at all times, and site operations will cease if non-UXO qualified personnel enter an area where UXO operations are being conducted.
18. Site personnel shall perform only those tasks which they are trained and qualified to perform.
19. Site personnel shall remain aware of site conditions at all times and shall alert the SSHO to any changes which could pose additional hazards.
20. "When in doubt. Don't do it". Ask questions first.

5.1.2 Standing Orders For The CRZ.

The standing orders listed below shall be followed at all times by on-site personnel conducting operations in the CRZ.

1. No tobacco product use, eating, drinking, application of cosmetics or other hand to face activities are allowed in this area, unless specifically provided for in the SSHP.
2. No matches or lighters in this zone.
3. Check-in/out at the access control point upon entrance to or exit from this zone.
4. Personnel handling potentially contaminated items shall wear appropriate PPE as prescribed by the SSHP.
5. Enter/Exit only through designated corridors.
6. Only "Buddies" enter/exit through this zone, no one passes through here alone, unless directed by the SSHO, and then only when line of sight can be maintained.

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Fifth main paragraph of text, with faint, illegible characters.

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7. Hands and face shall be thoroughly washed upon leaving this zone.
8. Remember - "The Contamination Stops Here". Do your best to keep it that way.

5.1.3 Standing Orders For The EZ

The standing orders listed below shall be followed at all times by on-site personnel conducting operations in the EZ.

1. No tobacco product use, eating, drinking, application of cosmetics or other hand to face activities are allowed in this area.
2. No matches or lighters in this zone.
3. Check-in/out at the access control point upon entrance to or exit from this zone.
4. Always have your buddy with you in this zone, and follow the buddy system procedures.
5. No personnel allowed in this area without appropriate PPE as specified by the SSHP.
6. Remain alert to site conditions and report any changes or unusual occurrences to the SSHO.
7. Contact with contaminated or potentially contaminated surfaces should be avoided;
8. Whenever possible, do not walk through puddles, mud or any discolored ground surface.
9. Do not kneel on the ground or lean, sit or place equipment on drums, containers, potentially contaminated vehicles or the ground unless the potentially contaminated surface has been covered with plastic.
10. Visual or verbal contact shall be maintained between the site personnel and the Command Post at all times.
11. Remember - Site Safety and Health is Everyone's Responsibility. Do your part.

5.2 USE OF MODIFIED WORK SCHEDULES TO CONTROL EXPOSURES

Except as outlined in the Heat and Cold Stress SOPs, modification of work schedules is not considered to be an acceptable method to control personnel exposure to chemical or physical hazards. Any and all other feasible and effective means of controlling the degree and level of exposure, to include the use of personal protective equipment, will be developed and used prior to using modified work schedules as a means of control. Only in extreme cases where no other feasible, effective control method is available will work schedules be modified to reduce exposures. In the event that modified work schedules must be used, the procedures for monitoring the respective hazard and modifying personnel work schedules will be clearly outlined in the monitoring section of the SSHP.

5.3 SAFETY AND PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Site personnel will at all times comply with safety precautions, safe work practices and PPE requirements detailed in the SSHP for each task. Deviation from assigned safety precautions, practices and PPE will be allowed only after approval by the SSHO and the responsible contractor and/or client safety and health personnel.

The first part of the document discusses the importance of maintaining accurate records. It emphasizes that proper record-keeping is essential for ensuring the integrity and reliability of the data collected. This section also outlines the various methods used to collect and analyze the data, highlighting the challenges faced during the process.

In the second part, the authors describe the results of their study. They present a detailed analysis of the data, showing the trends and patterns observed. The findings indicate that there is a significant correlation between the variables studied, which supports the hypothesis of the research. The authors also discuss the implications of these results for future research and practice.

The third part of the document focuses on the conclusions drawn from the study. The authors summarize the key findings and discuss the limitations of the study. They acknowledge that while the study provides valuable insights, there are still some areas that need further exploration. The authors conclude by emphasizing the need for continued research in this field to better understand the underlying mechanisms.

References are provided at the end of the document, listing the sources used in the study. These references include books, journal articles, and other relevant literature. The authors also provide contact information for those interested in further details or in obtaining a copy of the full report.

The authors express their gratitude to the funding agencies and the participants who made this study possible. They also thank the reviewers for their constructive comments and suggestions. The authors hope that this work will contribute to the advancement of knowledge in the field and inspire others to conduct similar research.

Finally, the authors provide information about how to access the full text of the document. They mention that the document is available online and can be downloaded for free. They also provide a link to the website where the document is hosted. The authors encourage readers to visit the website and explore the document further.

6.0 AUDIT CRITERIA

The following items related to site operations will be audited to ensure compliance with this SOP:

1. The Daily Operational, Safety and Monitoring Logs;
2. The Documentation of Training form for the initial site hazard training;
3. The Documentation of Training form for the Daily Tailgate Safety Briefings; and
4. The Daily Safety Inspection Checklist.

7.0 ATTACHMENTS

No attachments associated with this SOP.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail. The second part of the document outlines the various methods used to collect and analyze data, including interviews, surveys, and focus groups. The third part of the document describes the results of the study and the conclusions drawn from the data. The fourth part of the document discusses the implications of the findings for practice and for future research. The fifth part of the document provides a summary of the key points of the study.

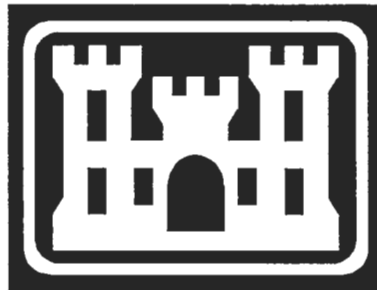
References

1. Smith, J. (2010). The importance of accurate records in financial reporting. *Journal of Accounting and Finance*, 10(2), 123-135.

APPENDIX H
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK
MATERIAL SAFETY DATA SHEETS

Contract Number: DACA87-97-D-0005
Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenoir City, Tennessee 37932

March 1999

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1952

1953

RECEIVED BY THE DIRECTOR OF THE BUREAU OF THE CENSUS
WASHINGTON, D. C. 20540
MAY 21 1953

ATTORNEY GENERAL DAVID S. REID

Department of Justice
Washington, D. C.

1954



RECEIVED BY THE DIRECTOR OF THE BUREAU OF THE CENSUS
WASHINGTON, D. C. 20540

1955



RECEIVED BY THE DIRECTOR OF THE BUREAU OF THE CENSUS
WASHINGTON, D. C. 20540

1956

MATERIAL SAFETY DATA SHEET

GENIUM PUBLISHING CORPORATION
 1145 CATALYN STREET
 SCHENECTADY, NY 12303-1836 USA
 (518) 377-8855



No. 469
 FUEL OIL NO. 2
 Date October 1981

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: FUEL OIL NO. 2
 DESCRIPTION: Mixture of petroleum hydrocarbons; a distillate oil of low sulfur content.
 OTHER DESIGNATIONS: ASTM D396, GE Material D27B1A, CAS #068-476 302
 MANUFACTURER: Available from many suppliers, including:
 AMOCO Oil Co.
 200 East Randolph Drive
 Chicago, Illinois 60601

SECTION II. INGREDIENTS AND HAZARDS

	X	HAZARD DATA
Fuel Oil No. 2 Complex mixture of paraffinic, olefinic, naphthenic, and aromatic hydrocarbons Sulfur content Benzene** *Current OSHA standard and ACGIH (1981) TLV **A low benzene level reduces carcinogenic risk. Fuel oils are exempted under the benzene standard (29 CFR 1910.1028)	<0.5 <100 ppm	8-hr TWA 5 mg/m ³ (mineral oil mist)*

SECTION III. PHYSICAL DATA

Boiling point range, deg F, ----- Ca 340-675 Specific gravity (H₂O=1) -- <0.876
 Solubility in water ----- negligible Pour point, deg C ----- below -6
 Viscosity at 38 C, cSt ----- 2.0-3.6

Appearance and Odor: Clear, bright liquid with a mild petroleum odor.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
100F min (TCC)	257 C (495F)	% by volume	0.6	7.5

Extinguishing Media: Dry chemical, carbon dioxide, foam, water spray. Use a water spray to cool fire exposed containers. Use a smothering technique for extinguishing fire of this combustible liquid. Do not use a forced water stream directly on oil fire as this will only scatter the fire. Material is an OSHA Class II combustible liquid. Firefighters should wear self-contained breathing apparatus and full protective clothing.

SECTION V. REACTIVITY DATA

This is a stable material in closed containers at room temperature under normal storage and handling conditions. It does not undergo hazardous polymerization.
 Incompatible with strong oxidizing agents; heating greatly increases fire hazard.
 Thermal-oxidative degradation may yield various hydrocarbons and hydrocarbon derivatives (partial oxidation products), CO₂ and CO and SO₂.



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SECTION VI. HEALTH HAZARD INFORMATION	TLV 5 mg/m ³ oil (mist) (See Sect II)
---------------------------------------	--

Inhalation of excessive concentrations of vapor or mist can be irritating to the respiratory passages and can cause the following symptoms: headache, dizziness, nausea, vomiting, and loss of coordination. Prolonged or repeated skin contact may cause irritation of the hair follicles and block the sebaceous glands. This produces a rash of acne pimples and spots, usually on the arms and legs. (Good personal hygiene will prevent this).

Chemical pneumonitis may result when ingestion occurs and oil is aspirated in the lungs.

FIRST AID:
Eye Contact: Flush thoroughly with running water for 15 min. including under eyelids.
Skin Contact: Remove contaminated clothing. Wipe excess oil off with a dry cloth. Wash affected area well with soap and water.
Inhalation: Remove to fresh air. Restore and/or support breathing as required.
Ingestion: Do not induce vomiting.
 Seek medical assistance for further treatment, observation and support.

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Notify safety personnel of leaks or spills. Remove sources of heat or ignition. Provide adequate ventilation. Clean-up personnel to use protection against liquid contact and vapor or mist inhalation. Contain spill by diking. Small spills can be contained by using absorbants, such as rags, straw, polyurethane foam, activated carbon, and sand. Clean up spills promptly to reduce fire or vapor hazards.

DISPOSAL: May be disposed of by a licensed waste disposal company, or by controlled incineration or burial in an approved landfill.
 Follow Federal, State and Local regulations. Report large oil spills.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide adequate ventilation where operating conditions (heating or spraying) may create excessive vapors or mists. Use explosion proof equipment. Provide approved respiratory apparatus for nonroutine or emergency use. Use an approved filter & vapor respirator when vapor/mist concentrations are high. Wear protective rubber gloves and chemical safety glasses where contact with liquid or high mist conc. may occur. Additional suitable protective clothing may be required depending on working conditions. An eye-wash fountain and washing facilities to be readily available near handling and use areas.

Laundry soiled or contaminated clothing before reuse (at least weekly laundering of work clothes is recommended).

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store in closed containers in a cool, dry, well-ventilated area away from sources of open flame, heat, strong oxidizing agents, and ignition. Protect containers from physical damage. Use non sparking tools and explosion-proof electrical equipment. Prevent static electric sparks.

Avoid prolonged skin contact and breathing of vapors or mists.
 No smoking in areas of use. Follow good hygienic practice in the use of this material. Do not wear oil contaminated clothing. Do not put oily rags into pockets. Wash exposed skin areas several times a day with soap and warm water when working with this material.
 DOT Classification: COMBUSTIBLE LIQUID
 DATA SOURCE(S) CODE: 1,6,7,12

<p><small>Judgment as to the suitability of information herein for purchaser's purposes are necessary purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, Genium Fluorizing Corporation extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of such information for application to purchaser's intended purposes or for consequences of its use.</small></p>	<p>APPROVALS: MIS CRD <i>J.M. Miller</i></p> <p>Industrial Hygiene and Safety <i>DM</i> 10-13-81</p> <p>MEDICAL REVIEW: _____</p>
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UNLEADED GASOLINE
34310019 Revised 19-NOV-1994 Printed 13-JAN-1995

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number : DU001044

Tradenames and Synonyms

AUTOMOTIVE UNLEADED GASOLINE
PETROL
MOTOR SPIRITS
GASOLINE - UNLEADED
CC0379

Company Identification

MANUFACTURER/DISTRIBUTOR
PURCHASED MATERIAL

PHONE NUMBERS

Transport Emergency : CHEMTREC: 1-800-424-9300
Medical Emergency : 1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
GASOLINE	8006-61-9	100
*BENZENE	71-43-2	0.1-4.9
*ETHYLBENZENE	100-41-4	~2
*CUMENE	98-82-8	~1
*PSEUDOCUMENE	95-63-6	~2
*METHYL T-BUTYL ETHER	1634-04-4	<15
*XYLENES	1330-20-7	~12
*TOLUENE	108-88-3	~15

* Regulated as a Toxic Chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Main body of faint text, appearing to be a list or a series of entries. The text is mostly illegible due to low contrast.

Second section of faint text, continuing the list or entries. Some words are slightly more discernible than in the first section.

Third section of faint text, possibly a summary or a concluding part of the list. The text is very light and difficult to read.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens. A "P" indicates a proposed carcinogen.

Material	IARC	NTP	OSHA	ACGIH
GASOLINE	X			
BENZENE	X	X	X	X

Du Pont controls the following materials as potential carcinogens:
 BENZENE.

 FIRST AID MEASURES

First Aid

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.

If irritation develops, consult a physician.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400 mL water and mix thoroughly. Administer 5 mL/kg, or 350 mL for an average adult.

Minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

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Remove source of heat, sparks, flame, impact, friction or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas.

Accidental Release Measures

Several components of gasoline are subject to the Superfund reportable discharge requirements if spilled. Concentrations of gasoline components with a Superfund Reportable Quantity (RQ) will depend on vendor formulations.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors or mist. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling.

For use as a motor fuel only. Do not use as a cleaning solvent, or thinner, or for other non-motor fuel uses.

Handling (Physical Aspects)

Ground container when pouring. Use of non-sparking and explosion-proof equipment may be necessary depending on type of operation. Keep away from heat, sparks and flames.

Storage

Keep container in a cool place. Do NOT expose to direct sunlight. Store in a well ventilated place. Keep container tightly closed. Store in accordance with National Fire Protection Association recommendations.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Keep container tightly closed.

Use ventilation that is adequate to keep employee exposure to airborne concentrations below exposure limits.

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MSDS NUMBER: 34310019_40

ISSUE DATE: 95/01/13

PAGE 7

PEL (OSHA) : 50 ppm, 245 mg/m3, 8 Hr. TWA, Skin
TLV (ACGIH) : 50 ppm, 246 mg/m3, 8 Hr. TWA, Skin
AEL * (Du Pont) : None Established

PSEUDOCUMENE

PEL (OSHA) : 25 ppm, 125 mg/m3, 8 Hr. TWA
TLV (ACGIH) : 25 ppm, 123 mg/m3, 8 Hr. TWA
AEL * (Du Pont) : None Established

METHYL T-BUTYL ETHER

PEL (OSHA) : None Established
TLV (ACGIH) : 40 ppm, 144 mg/m3, 8 Hr. TWA
Notice of Intended Changes (1994-1995)
40 ppm, 144 mg/m3, 8 Hr. TWA, A3
AEL * (Du Pont) : None Established
WEEL (AIHA) : 100 ppm, 8 Hr. TWA

XYLENES

PEL (OSHA) : 100 ppm, 435 mg/m3, 8 Hr. TWA
TLV (ACGIH) : 100 ppm, 434 mg/m3, 8 Hr. TWA
STEL 150 ppm, 651 mg/m3
AEL * (Du Pont) : 100 ppm, 8 Hr. TWA
150 ppm, 15 minute TWA

TOLUENE

PEL (OSHA) : 200 ppm, 8 Hr. TWA
300 ppm, Ceiling
500 ppm - 10 Min. Max.
TLV (ACGIH) : 50 ppm, 188 mg/m3, 8 Hr. TWA, Skin
AEL * (Du Pont) : 50 ppm, 8 & 12 Hr. TWA

* AEL is Du Pont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point : 29-225 C (84-437 F)
Vapor Pressure : 275-475 mm Hg @ 20 C (68 F)
% Volatiles : 100% by Volume
Solubility in Water : May be slightly soluble
Odor : Gasoline
Form : Liquid
Color : Red-dyed, pink, or colorless to light yellow
Specific Gravity : 0.70-0.77 (H2O=1)

1. The first part of the document discusses the importance of maintaining accurate records.

2. It is essential to ensure that all data is entered correctly and consistently.

3. Regular audits should be conducted to verify the accuracy of the information.

4. Any discrepancies should be investigated and corrected immediately.

5. The final section provides a summary of the findings and recommendations.

6. It is recommended that these procedures be followed for all future data collection.

7. The document concludes with a statement of approval and the date of completion.

Hazard Class : 3 (IMO 3.1)
UN No. : UN1203
DOT/IMO Label : FLAMMABLE LIQUID
Packing Group : II

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : Yes
Fire : Yes
Reactivity : No
Pressure : No

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating
Health : 1
Flammability : 3
Reactivity : 0

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : Du Pont
Address : Corporate MSDS Office - HR
Barley Mill Plaza, P14-2150
Wilmington, DE 19880-0014
Telephone : 302-992-6704

Indicates updated section.

End of MSDS

1. Introduction

2. Methodology

3. Results

4. Discussion

5. Conclusion

6. References

VI. REACTIVITY DATA

Stability:	Stable <u> X </u>	Unstable <u> </u>
Conditions to avoid:	NA	
Incompatibility:	Strong oxidizing materials	
Hazardous decomposition products:	Thermal decomposition may yield carbon monoxide and/or carbon dioxide.	
Hazardous polymerization:	May occur <u> </u>	Will not occur <u> X </u>

VII. SPILL OR LEAK PROCEDURES

Spill Response Procedures

Absorb small quantities with sand, earth, sawdust. Large quantities pump into tank.

Waste Disposal Method

Incinerate liquid, bury saturated absorbent in land fill. Dispose of in accordance with local, state and federal regulations.

VIII. SPECIAL HANDLING INFORMATION

Ventilation:	Sufficient to keep solvent vapor less than TLV.
Respiratory Protection:	Advised when concentrations exceed TLV.
Protective Gloves:	Advised to prevent possible skin irritation.
Eye Protection:	Approved eye protection to safeguard against potential eye contact, irritation or injury.
Other Protective Equipment:	None required.

IX. SPECIAL PRECAUTIONS

Keep from open flame, do not take internally. Avoid excessive inhalation of spray particles. Keep from children.

X. TRANSPORTATION DATA

Domestic Surface

Description:	Petroleum Distillates N.O.S.
Hazard Class:	Combustible Liquid
ID No.:	UN 1268
Packaging Group:	III
Label Required:	NONE, for containers less than 100 Gallons

Domestic Air

Description:	Petroleum Distillates N.O.S. (Stoddard Solvent)
Hazard Class:	3 UN 1268 PGIII
Label Required:	Flammable Liquid

XI. REGULATORY INFORMATION

All ingredients for this product are listed on the TSCA inventory.

SARA Title III chemicals:	None
California Prop 65 chemicals:	None
CERCLA reportable quantity:	None
RCRA hazardous waste no:	D001 (Ignitable)

SIGNATURE: R. Miles

TITLE: Technical Director

REVISION DATE: October 1993

SUPERSEDES: August 1992

A = Not applicable

NDA = No data available

< = Less than

> = More than

1. Introduction

The purpose of this study is to investigate the effects of the independent variable on the dependent variable. The study is designed to provide a comprehensive understanding of the relationship between the two variables.

2. Methodology

The study was conducted using a quantitative research design. Data was collected through a series of experiments and surveys. The sample size was determined to be statistically significant.

3. Results

The results of the study indicate a strong positive correlation between the independent variable and the dependent variable. The data shows that as the independent variable increases, the dependent variable also increases significantly.

4. Conclusion

In conclusion, the study has demonstrated that the independent variable has a significant impact on the dependent variable. The findings suggest that further research is needed to explore the underlying mechanisms of this relationship.

5. References

The following references were consulted during the course of this study:

- Smith, J. (2018). *Journal of Applied Research*, 15(2), 123-135.
- Johnson, A. (2019). *International Journal of Science*, 22(1), 45-58.
- Williams, B. (2020). *Research in Psychology*, 30(3), 210-225.

6. Appendix

Appendix A: Data from Experiment 1

Independent Variable	Dependent Variable
10	15
20	30
30	45
40	60
50	75

Appendix B: Survey Results

The survey results show that 75% of participants reported a positive correlation between the variables. The remaining 25% reported a neutral or negative correlation.

Material Name
Quaker State HD 10W Motor Oil

Page : 2
Issue Date: 11/04/1994
MSDS No.: QS-021

Inhalation

Negligible hazard at room temperature (up to 95 degrees F). High temperatures or mechanical action may form mists or fumes. Inhalation of oil mists or fumes can cause irritation of the nose, throat and upper respiratory tract.

Section 4 - FIRST AID MEASURES

Eyes

Flush eyes with large amounts of water for 15 minutes. If eyes become inflamed, seek medical advice.

Skin

Remove contaminated clothing. Wash affected area with mild soap and water. Launder contaminated clothing before reuse. If leather articles become saturated they should be discarded.

Ingestion

Do not induce vomiting unless instructed to do so by a physician. Call your local poison control center or get medical attention.

Inhalation

Remove to fresh air. If not breathing, give mouth to mouth resuscitation. If breathing is difficult, give oxygen. Call a physician.

Notes to Physician

This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affected person appropriately.

Section 5 - FIRE FIGHTING MEASURES

Flash Point

400 deg F (204 deg C)

Method Used

Cleveland Open Cup

UFL

Not determined

LFL

Not determined

Auto Ignition

Not determined

Flammability Classification

IIIB

Rate of Burning

Not determined

General Fire Hazards

This product is combustible at high temperatures.

Hazardous Combustion Products

Carbon dioxide, carbon monoxide, oxides of sodium, calcium, magnesium, phosphorus, and zinc.

Extinguishing Media

Dry chemical or carbon dioxide for small fires. Water spray or foam for large fires.

Fire Fighting Equipment/Instructions

Wear full set of protective equipment including chemical goggles and gloves. Use water spray to cool fire-exposed containers and as a protective screen. Do not point solid water stream directly into burning oil to avoid spreading.

Continued on next page...

The first part of the document discusses the importance of maintaining accurate records. It highlights the need for regular updates and the role of technology in streamlining data collection and analysis. The text emphasizes that consistent record-keeping is essential for identifying trends and making informed decisions.

In the second section, the author explores various methods for data collection. This includes direct observation, surveys, and the use of sensors. Each method is evaluated based on its accuracy, cost, and ease of implementation. The text suggests that a combination of these methods often yields the most comprehensive results.

The third part of the document focuses on data analysis. It introduces statistical techniques such as regression analysis and hypothesis testing. The author explains how these tools can be used to uncover hidden patterns and relationships within the data. Practical examples are provided to illustrate the application of these methods.

Method	Accuracy	Cost	Ease of Implementation
Direct Observation	High	Medium	Low
Surveys	Medium	Low	High
Sensors	High	High	Medium

The table above summarizes the key characteristics of different data collection methods. It shows that while direct observation provides high accuracy, it is more costly and difficult to implement. Surveys, on the other hand, are more economical and easier to carry out but may have lower accuracy. Sensors offer high accuracy but at a significantly higher cost.

The following section discusses the challenges of data analysis. It notes that large volumes of data can be overwhelming and that selecting the appropriate analytical tools is crucial. The text also addresses the issue of data quality, emphasizing the need for thorough cleaning and validation before analysis.

Skin: Use impervious gloves for prolonged contact or any contact with used oil. The use of neoprene gloves is recommended.
Respiratory: Normally not necessary. If mist is generated (heating, spraying) and engineering controls are not sufficient, wear approved organic vapor respirator suitable for oil mist.
General: Use good hygiene when handling petroleum product.

Section 9 - PHYSICAL & CHEMICAL PROPERTIES

Appearance	: Light amber	Odor	: Mild hydrocarbon
Physical State	: Liquid	pH	: Not applicable
Vapor Pressure	: Negligible	Vapor Density	: Not determined
Boiling Point	: Not determined	Freezing Point	: Not determined
Melting Point	: Not determined	Solubility (H ₂ O)	: Negligible in water
Specific Gravity	: 0.87 to 0.88	Particle Size	: Not applicable
Softening Point	: Not determined	Evaporation Rate	: Not determined
Viscosity	: approx. 210 SUS @ 100 F	Bulk Density	: Not determined
Percent Volatile	: Negligible	Molecular Weight	: Mixture
Additional Properties	None		

Section 10 - CHEMICAL STABILITY & REACTIVITY INFORMATION

Chemical Stability: Stable
Conditions to Avoid: Avoid excessive heat and all sources of ignition.
Incompatibility
Strong oxidizing agents (peroxides, chlorine, strong acids).
Hazardous Decomposition Products
At thermal decomposition temperatures carbon dioxide, carbon monoxide, oxides of calcium, magnesium, phosphorus, and zinc.
Hazardous Polymerization
Hazardous polymerization will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity/Target Organ Information

A. General Product/Component Information

Based on similar products the LD₅₀ is expected to be greater than 5,000 mg/kg. Product has the ability to cause oil acne on the skin and fibrosis in the lung.

B. Component LD₅₀/LC₅₀

Epidemiology

No data available for product.

Carcinogenicity

A. General Product/Component Information

No data available on the product as a whole. Note that USED oils tend to contain higher amounts of the cancer-causing aromatics, which have been linked to scrotal and lung cancer in humans.

B. Component Carcinogenicity Listings

None of this product's components are listed by ACGIH, IARC, NIOSH, NTP or OSHA.

Teratogenicity/Reproductive Effects

No data available for the product as a whole. Review of information on components indicates no components at greater than 1.0% have teratogenic effects.

1947

1947

Dear Sir,
I have the pleasure to acknowledge the receipt of your letter of the 15th inst. in relation to the above matter.

The enclosed documents are being forwarded to you for your information and records. It is noted that the same have been reviewed and approved by the appropriate authorities.

I am sure that you will find the enclosed documents of interest and value. Should you have any further queries or require any additional information, please do not hesitate to contact me.

Very truly yours,
[Signature]
[Title]

This document is confidential and should be handled accordingly.

Material Name
Quaker State HD 10W Motor Oil

Page : 6
Issue Date: 11/04/1994
MSDS No.: QS-021

B. Component Information

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) or CERCLA (40 CFR 302.4).

State Regulations

A. General Product Information

No components require labeling under California Proposition 65.

B. Component Information

None of this product's components are listed on the state lists from CA, FL, MA, MN, NJ, or PA.

Other Regulations

A. General Product Information

This product is not considered a controlled product under the Canadian Controlled Products Act.

B. Component Information

None of this product's components are listed on the Canadian Controlled Product Ingredient Disclosure List.

Section 16 - OTHER INFORMATION

Other Information

This information is, to the best of Quaker State Corporation's knowledge and belief, accurate and reliable. However, no representation, warranty, or guarantee is made to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.

Information Preparation: 11/04/94

Key/Legend

NA = Not Applicable; ND = Not Determined; Y = Yes; N = No

Contact Person: D. W. Cralley - Corporate
Manager, Health and Safety

Phone: (814)676-7676

End of MSDS #QS-021

The first part of the document discusses the importance of maintaining accurate records. It emphasizes that proper record-keeping is essential for ensuring the integrity and reliability of the data collected. This section also outlines the various methods used to collect and analyze the data, highlighting the challenges faced during the process.

The second part of the document provides a detailed analysis of the results obtained from the study. It compares the findings with previous research and discusses the implications of the results. The analysis shows that there is a significant correlation between the variables studied, which supports the hypothesis of the study. The document concludes by summarizing the key findings and suggesting areas for further research.

The final part of the document contains the conclusions and recommendations. It states that the study has successfully demonstrated the relationship between the variables and provides a clear path forward for future research. The recommendations include the need for more extensive data collection and the use of advanced analytical techniques to further explore the findings. The document ends with a statement of appreciation to the participants and funding sources.

OLD LIMIT VALUE (TLV-TWA)	Not available	LC ₅₀	Not available	AMMONIUM NITRATE P. 2
OF EXPOSURE WHEN: HALED	Allergen, possible faintness & lowered blood pressure. Also see 'Ingested'.			
CONTACT WITH EYES	Irritation			
CONTACT WITH SKIN	Irritation			
GESTED	Dizziness, cramps, vomiting, possible methemoglobinemia, weakness, depression, headache			
NCY AND ID PROCEDURES HALATION	Remove to fresh air. If not breathing, give artificial respiration. Keep warm & at rest. Obtain medical attention.			
ES	Flush eyes with running water for at least 20 minutes, holding eyelids open. Obtain medical attention.			
SIN	Remove contaminated clothing. Flush affected area with running water for 20 minutes. If irritation persists, obtain medical attention.			
GESTION	If conscious; give large amounts of water or milk to induce vomiting. Obtain medical attention.			

Section VI		Special Protection Information		
ATION REQUIREMENTS	Local ventilation preferred			
ATORY PROTECTION	Air purifying respirator approved by NIOSH/MSHA equipped with dust, mist, fume cartridges, if necessary			
TIVE GLOVES	Impermeable gloves	EYE PROTECTION Safety glasses		
ROTECTIVE EQUIPMENT	Protective clothing as required			

Section VII		Special Requirements		
TION IN HANDLING DRING	Protect containers against physical damage. Store in cool dry well-ventilated building, preferably noncombustible equipped with automatic sprinkler protection. Floor drains & recesses should be plugged or eliminated to prevent entrapment of flowing molten nitrate during fire. Separate from Incompatibles (Sec IV) acids, corrosive liquids, organic materials, Chlorates, Sulphur, powdered metals, charcoal, coke, sawdust			

Section VIII		Spill or Leak Procedures		
TO BE TAKEN IN EVENT OF RELEASE. IN ALL CASES APPLICABLE GOVERNMENT TY IF SPILL IS SIGNIFICANT	Stop & contain leak or spill. If in solid form or solution, absorb in earth or sand and shovel into containers for disposal. If contamination has not occurred, collect for reclaim.			
MENTAL EFFECTS	Contaminated water is toxic to children & cattle. Toxic to fish at low concentrations (4.2 mg/l); aesthetic critical concentration (0.5 mg/l); fish toxicity critical concentrations (300 mg/l); used as fertilizer on land.			
IZING CHEMICALS	Remove slowly into a large container of water. Add Soda Ash slightly by stirring. After 24 hours, decant or siphon into another container. Neutralize with 6M-HCl.			
DISPOSAL	Consult federal, provincial & local regulations on chemical waste disposal. May be possible to neutralize, flush & disperse with large quantities of water. May also be possible to dispose of in a secure sanitary landfill site.			

Section IX		References		
<p>U.S. Dept. of Labor, Bureau of Occupational Safety and Health, <u>Dangerous Properties of Industrial Materials</u>, 5th Ed., Van Nostrand Reinhold, 1979.</p> <p><u>Toxic and Hazardous Industrial Chemicals Safety Manual</u>, The International Tech. Info. Inst., Japan, 1979.</p>				

"Information contained herein is provided without any warranty, and C-I-L Inc. will not be liable for any damage which may result from the use or reliance on any information contained herein." Before any product is used, the label should be carefully read.



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SECTION V HEALTH HAZARD DATA

THOLD LIMIT VALUE

Not Applicable

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST-AID PROCEDURES

SECTION VI REACTIVITY DATA

STABILITY N/A	UNSTABLE	CONDITIONS TO AVOID
	STABLE	

INCOMPATIBILITY
(Materials to avoid)

HAZARDOUS
DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will Not Occur	

SECTION VII SPILL OR LEAK PROCEDURES

TO BE TAKEN
IF THE MATERIAL IS
RELEASED OR SPILLED

Safe for humans to handle

WASTE DISPOSAL METHOD

Any Sewer

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION
(Specify Type) Not Applicable

VENTILATION	LOCAL EXHAUST	SPECIAL OTHER
	MECHANICAL (general)	

PROTECTIVE GLOVES

EYE PROTECTION

OTHER
PROTECTIVE
EQUIPMENT

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE
TAKEN IN HANDLING
AND STORING. Protect from freezing

PRECAUTIONS

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SPECIAL FIRE FIGHTING PROCEDURES: DO NOT fight fire. Isolate area. Evacuate personnel to a safe area. Guard against intruders. Allow fire to burn itself out.

UNUSUAL FIRE AND EXPLOSION HAZARDS: May detonate with impact or on heating. May explode and throw fragments 1 mile or more if fire reaches cargo. Evacuate all persons, including emergency responders from the area.

HEALTH HAZARDS

Shaped Charge Products do not present health hazards in normal handling and use. However, the products are Class A or Class C Explosives and detonation may cause severe physical injury, including death. All explosives are dangerous and must be handled carefully and used following approved safety procedures under the direction of competent, experienced persons in accordance with all applicable Federal, State, and Local Laws, Regulations and Ordinances.

Inhalation of explosive powders may cause nervous system irregularities including headaches and dizziness. May be absorbed through the skin in toxic amounts.

Over exposure to lead may cause adverse effects to the blood forming, nervous, urinary, and reproductive systems including weakness, weight loss, insomnia, constipation, anemia, motor weakness, and encephalopathy. Lead may penetrate the placental barrier and has caused congenital abnormalities in animals. Several animal studies have indicated that high doses of lead may be carcinogenic.

Nitrogen oxides generated during use are skin, eye and respiratory tract irritants.

CARCINOGENICITY

None of the components of these materials are listed as a carcinogen by NTP, IARC, or OSHA.

OTHER SYMPTOMS AFFECTED

A review of available data does not identify any conditions worsened by exposure to this product.

FIRST AID

INHALATION:

Not a likely route of exposure. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably by mouth-to-mouth. If breathing is difficult, give oxygen. Seek Prompt Medical Attention.

EYE AND SKIN CONTACT:

Not a likely route of exposure.

INGESTION:

Not a likely route of exposure.

NOTE: Seek prompt medical attention if detonation caused physical injury.

1. The first part of the document discusses the general principles of the law of contract. It states that a contract is an agreement between two or more parties which is intended to be legally binding. The law of contract is concerned with the formation, performance, and breach of contracts.

2. The second part of the document discusses the requirements for a valid contract. It states that a contract must be made between two or more parties who are legally capable of entering into a contract. The parties must have a mutual understanding of the terms of the contract, and the contract must be supported by consideration.

3. The third part of the document discusses the formation of a contract. It states that a contract is formed when the parties have reached an agreement on all the essential terms of the contract. The agreement must be made in a certain way, and the contract must be supported by consideration.

4. The fourth part of the document discusses the performance of a contract. It states that the parties to a contract must perform their obligations under the contract. If a party fails to perform its obligations, it may be liable for breach of contract. The law of contract provides remedies for breach of contract, including damages and specific performance.

5. The fifth part of the document discusses the discharge of a contract. It states that a contract may be discharged in a number of ways, including by agreement, by operation of law, and by frustration. The law of contract provides rules for the discharge of a contract.

6. The sixth part of the document discusses the remedies for breach of contract. It states that the law of contract provides remedies for breach of contract, including damages and specific performance. The law of contract also provides rules for the assessment of damages.

7. The seventh part of the document discusses the law of tort. It states that a tort is a wrongful act which causes harm to another person. The law of tort is concerned with the liability of a person for a tort. The law of tort provides remedies for tort, including damages and injunctions.

8. The eighth part of the document discusses the law of negligence. It states that a person is liable for negligence if they owe a duty of care to another person and they breach that duty. The law of negligence provides remedies for negligence, including damages. The law of negligence also provides rules for the assessment of damages.

9. The ninth part of the document discusses the law of intentional torts. It states that a person is liable for an intentional tort if they intend to cause harm to another person. The law of intentional torts provides remedies for intentional torts, including damages and injunctions. The law of intentional torts also provides rules for the assessment of damages.

10. The tenth part of the document discusses the law of strict liability. It states that a person is liable for strict liability if they engage in an activity which is inherently dangerous. The law of strict liability provides remedies for strict liability, including damages. The law of strict liability also provides rules for the assessment of damages.



Material Safety Data Sheets

Section I

Manufacturer's Name The Ensign-Bickford Company		Emergency Telephone No. 1-203-658-4411	
Address (Number, Street, City, State, Zip Code) 660 Hopmeadow Street, Simsbury, CT 06070			
Chemical Name & Synonyms NOT A CHEMICAL		Trade Name & Synonyms PRIMACORD [®] DETONATING CORD	
Chemical Family N/A	Formula N/A	C.A.S. Number	

Section II - Hazardous Ingredients

Ingredient PENTAERYTHRITOL TETRANITRATE (PETN)	Percent
T.L.V.:	P.E.L.:
Ingredient CYCLOTRIMETHYLENE TRINITRAMINE (RDX)	Percent
T.L.V.:	P.E.L.:
Ingredient CYCLOTETRAMETHYLENE TETRANITRAMINE (HMX)	Percent
T.L.V.:	P.E.L.:
Ingredient 2,6-BIS(PICRYLAMINO)-3,5-DINITROPYRIDINE (PYX)	Percent
T.L.V.:	P.E.L.:

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Section V - Health Hazard Data

Threshold Limit Value: NOT ESTABLISHED

Effects of Overexposure

Eye Contact : N/A - NOT A LIKELY ROUTE OF EXPOSURE

Skin Contact : N/A - NOT A LIKELY ROUTE OF EXPOSURE

Inhalation: N/A - NOT A LIKELY ROUTE OF EXPOSURE

Ingestion : N/A - NOT A LIKELY ROUTE OF EXPOSURE

Emergency and First Aid Procedures

Eye Contact : N/A

Skin Contact : N/A

Inhalation: IF DETONATION FUMES ARE INHALED REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH TO MOUTH. IF BREATHING IS DIFFICULT GIVE OXYGEN. CALL A PHYSICIAN.

Ingestion : N/A

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Section VIII - Special Protection Information

Respiratory : NONE
Protection :

Ventilation

Local Exhaust : N/A

Special : N/A

Mechanical : N/A

Other : N/A

Protective Gloves : NONE

Eye Protection : SAFETY GLASSES

Other Protective : NONE
Equipment :

Section IX - Special Precautions

Precautions To Be : TRANSPORTATION AND STORAGE MUST BE IN
Taken in Handling : ACCORDANCE WITH FEDERAL AND STATE
and Storing, Etc. : REGULATIONS

Other Precautions : REFER TO MANUFACTURER'S INSTRUCTIONS
AND WARNINGS SUPPLIED WITH PRODUCT.

Data Sheet Prepared By: E.L. STEARNS
Last Data Sheet Revision:

Name	Age
John Doe	35
Jane Smith	28
Robert Johnson	42
Emily White	31
Michael Brown	29
Sarah Green	38
David Black	33
Lisa Gray	27
James Hill	40

This document is a record of the names and ages of individuals listed in the table above. The information is organized in a structured format for easy reference. Each entry corresponds to a row in the table, showing the full name and the associated age.

The names listed are: John Doe, Jane Smith, Robert Johnson, Emily White, Michael Brown, Sarah Green, David Black, Lisa Gray, and James Hill. Their respective ages are: 35, 28, 42, 31, 29, 38, 33, 27, and 40.

This record is maintained for administrative purposes and is subject to change as more information is gathered.

Boron and Tellurium. These materials have the following hazards:

Nitrogen Oxides: Are skin, eye and respiratory system irritants.

Overexposure to Lead compounds may cause abnormal blood forming system function with anemia. Higher exposure may lead to abnormal kidney function with reduced urine volume, abnormal laboratory tests or edema; nervous system effects.

Symptoms may include loss of appetite, anemia; disturbance of sleep and fatigue. Tests of some lead compounds for mutagenic activity in bacterial or mammalian cell cultures have been inconclusive, with positive results in some studies, and negative results in others. Some studies suggest that lead compounds may have developmental toxicity at dosage levels showing maternal toxicity; while some tests

with lead compounds in animals demonstrate reproductive toxicity. DuPont handles lead compounds as potential developmental toxins. Women of childbearing potential should be warned of the risk to the fetus in operations involving direct exposure to lead compounds.

For exposure longer than 8 hours, the OSHA Exposure limit is reduced by this formula:
Exposure limit (in ug/m3) = 400 /hours worked in the day.

Tellurium Oxide has caused adverse liver and kidney effects in laboratory animals. Exposure can lead to a metallic taste in the mouth and a garlic odor on the breath. Studies in laboratory animals have shown adverse effects to the nervous system.

Barium salts cause muscle paralysis, alteration of the hearts electrical activity with irregular pulse, palpitations or inadequate circulation.

Overexposure to Magnesium by inhalation, ingestion, or skin or eye contact may initially include: skin irritation with discomfort or rash; eye irritation with discomfort, tearing, blurring of vision; irritation of mucosal surfaces; or metal fume fever.

Overexposure to Iron Oxide by: Eye contact may initially include; mild eye irritation with

discomfort, tearing, or blurring of vision. Inhalation may initially include; irritation of the upper respiratory passages, with coughing and discomfort; or deposition of iron in the lung tissue resulting in discoloration but without fibrosis or significant symptoms.

Over exposure to Boron and Boron Oxides may cause eye, nose or throat irritation.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens. A "P" indicates a proposed carcinogen.

Material	IARC	NTP	OSHA	ACGIH
Lead Azide				X
Lead Styphnate				X

FIRST AID MEASURES

Get medical attention immediately if explosion causes physical injury. If decomposition fumes are inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

FIRE FIGHTING MEASURES

Flammable Properties

Detonates when exposed to heat or flame.

Fire and Explosion Hazards:

Hazardous gases/vapors produced in fire are Boron, Iron, Magnesium, Lead and Tellurium compounds, Carbon Monoxide and Nitrogen Oxides. Products are Class A or Class C Explosives (DOT). Will detonate with friction, impact, heat, low level electrical current or electrostatic energy. Detonation produces shrapnel.

Extinguishing Media None

Fire Fighting Instructions

Evacuate personnel to a safe area. Do not fight fire. Isolate area. Guard against intruders.

ACCIDENTAL RELEASE MEASURES

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

2. The second part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

3. The third part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

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8. The eighth part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

9. The ninth part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

10. The tenth part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

11. The eleventh part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

12. The twelfth part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

13. The thirteenth part of the document discusses the importance of maintaining accurate records of all transactions. This is essential for ensuring the integrity of the financial statements and for providing a clear audit trail.

electrostatic or RF energy.

Incompatibility with Other Materials
Incompatible with acids and alkalis.

Decomposition

Decomposes with heat. Decomposes with shock.
Hazardous gases/vapors produced are Boron, Iron,
Magnesium, Tellurium and Lead compounds,
Carbon Monoxide and Nitrogen Oxides.
Detonation produces shrapnel.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

No Information Available

ECOLOGICAL INFORMATION

No Information Available

DISPOSAL CONSIDERATIONS

Waste Disposal

Consult explosive manufacturer for
recommended methods of destroying explosive
materials. Comply with applicable Federal,
State and Local Regulations.

TRANSPORTATION INFORMATION

Shipping Information

Shipping Information depends on packaging and
product characteristics. Check manufacturer or
shipper for specific information.

OTHER INFORMATION

Additional Information

WARNING: This product contains chemicals
known to the State of California to cause cancer,
birth defects, or other reproductive harm. It is
obviously impossible to include warnings or
approved methods for every conceivable situation.
A list of suggestions to aid in avoiding the more
common causes of
accidents is set forth in the "Always and Never"
and "Instructions and Warnings" included as case

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial data and for facilitating the audit process.

2. The second part of the document outlines the specific procedures that should be followed when recording transactions. It details the steps from identifying the transaction to the final entry in the accounting system.

3. The third part of the document discusses the role of internal controls in preventing errors and fraud. It highlights the importance of segregation of duties and regular reconciliations.

4. The fourth part of the document addresses the challenges of managing financial data in a complex and rapidly changing environment. It suggests strategies for staying up-to-date and for adapting to new technologies.

5. The fifth part of the document concludes by summarizing the key points and emphasizing the overall goal of achieving financial transparency and accountability.

6. The sixth part of the document provides a detailed overview of the accounting cycle, from identifying the transaction to the final closing of the books.

7. The seventh part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial data and for facilitating the audit process.

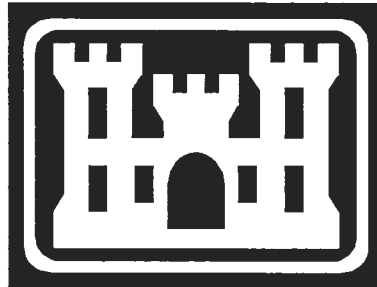
8. The eighth part of the document outlines the specific procedures that should be followed when recording transactions. It details the steps from identifying the transaction to the final entry in the accounting system.

APPENDIX I
OF THE
WORK PLAN
FOR THE
ORDNANCE AND EXPLOSIVES OPERATIONS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK
PROPERTY MANAGEMENT PLAN

Contract Number: DACA87-97-D-0005

Task Order Number: 0003

Prepared For:



The U.S. Army Engineering and Support Center
Huntsville, Alabama

Prepared By:



2229 Old Highway 95
Lenoir City, Tennessee 37932

March 1999

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1.0 INTRODUCTION

1.1 POLICY STATEMENT

It is the policy of EOD Technology, Inc. (EODT) to meet or exceed Federal Government property control guidelines. In compliance with this policy, EODT and its subcontractor personnel are obliged to adhere to the policies, procedures and practices contained in this Program during the performance of all Government contracts managed by EODT.

1.2 OBJECTIVE

The objective of this Property Management and Control Program (PMCP) is to outline the procedures and acceptable practices to be used for the management of all Government owned property used by EODT in the execution of its contracts with the Government. This PMCP contains a standardized system for the control, protection, preservation, maintenance and tracking of Government equipment.

1.3 SCOPE

This program shall apply to all Government property and equipment provided to EODT during the performance of any Federal Government contract or subcontract awarded to, and managed by, EODT. This Program also applies to any Government property or equipment furnished by the Government for use by EODT subcontractors in the execution of a Federal Government contract.

1.4 APPLICATION

The Federal Acquisition Regulation (FAR) Part 45 applies to Government property that will be controlled and used by EODT or its subcontractors. If the provisions of a particular Government contract conflict with any aspect of this PMCP, or EODT management and accounting policies, the specific contract provision shall govern and apply to the execution of the particular Government contract. Portions of this Program shall be amended, as needed, to reflect specific contract requirements for the use of Government property.

2.0 DEFINITIONS

The terms used in this PMCP are defined in FAR 45.501. These pre-defined terms, along with some Program specific definitions are presented below and shall apply to the implementation of this Program.

- **Acquisition:** The process of acquiring Government property either through requisition or transfer from Government sources or through purchase, including those made through contractor stores.
- **Contaminated Property:** Equipment or supplies that have been exposed to radioactive or toxic waste, chemicals, materials, or environments that have rendered them unsafe to use.

- **Contracting Officer (CO):** The Government employee who is the only Government representative authorized to make changes in a contract and approve the furnishing or acquisition of property under the contract. The CO is also the individual who designates the Government Property Administrator, as defined below.
- **Contractor-acquired Property (CAP):** Property acquired by EODT using contract funds that is reportable to the Government as property.
- **Equipment:** This is the category of property which refers to all items covered under the definitions of nonexpendable property.
- **Expendable Property:** Materials and other supplies that are acquired and expended routinely in the performance of the contract. Expendable property is consumed and loses its identity after use, such as paper, pens, disposable clothing/gloves, etc.
- **Government-furnished Property (GFP):** Government property or equipment that is directly acquired by or in the possession of the Government, and which is delivered to or otherwise assigned to EODT for the performance of a Government contract. Once transferred to EODT, maintenance and responsibility for use is also transferred to EODT.
- **Government Property:** All property owned by or leased to the Government, or acquired by the Government under the terms of a contract. Government property includes GFP and CAP as defined previously.
- **Government Property Administrator (GPA):** The designated representative of the CO who administers the contract obligations and requirements relevant to Government property.
- **Hazard-free Certification:** A certification indicating that the Government property is free of contamination that is submitted by EODT to the Government when Government property is no longer required at an EODT facility. This certification will be signed by the EODT Equipment Manager and submitted to the Contract Property Administrator.
- **Inventory:** The process of visually locating and tagging/marking, describing and reporting all Government property. The inventory results are to be reconciled and balanced against the Contract Property Administrator records.
- **Material:** Property that may be incorporated into (or attached to a deliverable end item) or that may be consumed, or expended, in performing a contract. This includes assemblies, components, parts, raw and processed materials and small tools and supplies that may be consumed in normal use while performing the contract.
- **Non-conformance:** Any deviation from this Program. All non-conformance will be documented and resolved under the direction of the Equipment Manager.
- **Nonexpendable Property:** Durable Government-furnished or contractor-acquired materials and other supplies that are not typically expended in the performance of the contract. Nonexpendable property is not consumed and does not lose its identity or usefulness during use, such as vehicles, computers, field radios, magnetometers, etc.

- **Project Manager (PM):** The EODT employee responsible for the operational performance of a project under a Government contract. This employee may be assigned to manage the project from either the project site, or the corporate office.
- **Project Officer:** The technical representative of the CO who is responsible for monitoring the contractor's contract performance and providing property justification to the CO.
- **Site Manager (SM):** The senior on-site EODT employee assigned to a project who is responsible for the on-site implementation of this Program.

3.0 EODT PERSONNEL RESPONSIBILITIES

During the performance of a Government contract, the EODT personnel assigned to the positions listed below shall be responsible for the implementation of the this Program.

3.1 DIRECTOR OF OPERATIONS

During the performance of a Government contract, the EODT Director of Operations (DOO) will be responsible for the overall implementation of this Program, to include the following:

- Monitoring EODT's general compliance with the PMCP procedures;
- Implementing and enforcing the PMCP for EODT Government contracts;
- Coordinating with the EODT Contract Administrator (CA) to ensure compliance with contract terms, modifications and other contract administration requirements related to GFP;
- Serving as the primary EODT point of contact with the GPA regarding the guidelines set forth in the PMCP as they apply to Government contracts;
- Ensuring that all GFP is properly marked or tagged and keeping inventory records up to date;
- Coordinating with the SM to ensure that all GFP is maintained and calibrated in accordance with (IAW) the manufacturer's recommended service schedule and documenting all maintenance, repair and service; and
- Auditing the contract records to ensure site compliance with this Program.

3.2 PROJECT MANAGER

During the performance of a contract to which the PM has been assigned, the PM will be responsible for the following:

- Ensuring that all EODT and subcontractor personnel who are involved in the acquisition, and use of Government property in support of a given contract comply with the PMCP ;
- Providing direction and consultation to the SM for the implementation of the PMCP for contracts for which the PM is responsible;
- Having the ultimate authority and responsibility to control, maintain, protect and preserve GFP in the possession of EODT at the project site;
- Reporting to the GPA, as soon as details become available, any loss, damage or destruction (LDD) of any Government property;

- Ensuring that each item of accountable GFP is specifically identified in the contract and that any changes in Government property are formally modified in writing signed by the CO; and
- Ensuring that the GFP assigned to a project site is used only on the site to which it is assigned under the terms of the project contract.

3.3 SITE MANAGER

During the performance of a contract to which the SM has been assigned, the SM will be responsible for the following:

- Maintaining the records, reports and logs, and submitting necessary reports to the GPA as required by this Program;
- Ensuring that site personnel have the required training to properly operate and maintain the GFP which has been assigned to them;
- Monitoring and auditing EODT subcontractors for their compliance with this Program and FAR 45.500;
- Ensuring the GFP assigned to the site is maintained and calibrated, as needed, by qualified personnel; and
- Ensuring that GFP is decontaminated and/or cleaned by site personnel, and that the GFP is returned in good condition, allowing for normal usage.

3.4 CONTRACT ADMINISTRATOR

The EODT Contract Administrator (CA) shall be responsible for acquiring GFP and CAP according to EODT purchasing policies and this Program. In this role, the CA will request and coordinate the issuance of GFP from the GPA, and will obtain necessary quotations for CAP.

3.5 GFP USERS

During the period of time to which GFP is assigned to an EODT or subcontractor employee, the user is responsible for the following:

- Ensuring the security, condition, proper usage, calibration and maintenance of the GFP; and
- Reporting any GFP deficiencies or malfunctions noted to the SM.

3.6 EODT SUBCONTRACTORS

Any EODT subcontractors in the possession of or in control of Government property shall establish and maintain an acceptable written Government property control system that complies with FAR 45.500. The EODT PM shall review and approve the subcontractor's written Government property control system prior to the subcontractor initiating operations under an EODT managed Government contract requiring the subcontractor to use Government property. The subcontractors Government property control system shall make provisions for the subcontractor to provide the EODT PM with the required documentation relevant to the receipt, use, maintenance and disposition of all Government property used by the subcontractor.

4.0 EODT RESPONSIBILITY

EODT will be directly responsible and accountable for all Government property IAW their Government contracts and FAR 45.500. This includes Government property in the possession or control of an EODT subcontractor. IAW with this Program, EODT shall maintain and make available to the Government all records generated or received by EODT used for the accounting of Government property until EODT is relieved of the responsibility. EODT shall be responsible for the control of Government property incident to the following:

- Delivery of GFP into EODT's custody or control;
- Delivery, when property is purchased by EODT and the contract calls for reimbursement by the Government;
- Issuance of Government property withdrawn from EODT-owned stores for use in the contract performance and charged directly to the contract; or
- Upon acceptance of property title by the Government when the property is acquired pursuant to specific contract clauses or as a result of change orders.

The EODT SM shall promptly report to the GPA in writing all Government property received in excess of the amounts needed to complete full performance of the contract which provides for or authorizes the use of the Government property. In the event that unrecorded Government property is located on site, both the cause of the discrepancy and the actions to be taken to prevent recurrence shall be determined and reported in writing to the GPA. As directed by the GPA, the SM will take such actions as needed to rectify the situation.

5.0 RECORDS AND REPORTS OF GOVERNMENT PROPERTY

5.1 GENERAL REQUIREMENTS

As required by FAR 45.505, EODT shall establish and maintain adequate control records for all Government property, including property provided to and in the possession or control of an EODT subcontractor. The EODT Government property records identified in this Program have been designed to identify all Government property and provide a complete, current, auditable record of all transactions. For each project site where Government property is to be used, the SM will be responsible for maintaining on-site files, and the DOO shall be responsible for maintaining contract files, both of which will contain the Government property records and reports required by, and presented in, this Program. The EODT DOO shall establish and maintain separate property records for each contract. The records and reports to be maintained shall include any reports sent to the GPA and copies of all EODT documentation relevant to the receipt, use, maintenance and disposition of government property.

5.2 BASIC INFORMATION

To record the receipt of, and to track the disposition of Government property, the SM shall record all Government property received on an EODT Property Control and Tracking Card (see Figure 1).

Using the above referenced forms, the SM shall record the basic information listed below (as applicable) for every item of Government property in EODT's possession:

- Project name and location;
- Contract and delivery order number;
- Name and description of the property;
- National Stock Number (if furnished by the Government or otherwise known);
- Manufacturer model;
- Manufacturer's serial number and any EODT serial number assigned under the requirements of para 7.2.2 of this Program;
- Posting reference and date of transaction;
- Quantity received, issued and on hand;
- Date received;
- Unit price;
- Condition code upon receipt (see para 14.0 of this Program);
- Manner of final disposition;
- Condition code upon disposition (see para 14.0 of this Program);
- Date of disposition; and
- Any other information needed to accurately track property control.

EODT Property Control and Tracking Cards will be reviewed at least monthly and updated as needed, with all reports submitted per the terms of the contract. Inventory reports shall be submitted to the GPA within 30 days of completion of the Project and the Form DD-1662 (see Figure 2) shall be submitted by October 15 of each year.

5.3 RECORDS OF MISDIRECTED SHIPMENTS

Records of misdirected Government property shall be maintained on site by the SM and will include a written report to the GPA which contains the following data:

- The identity of the shipment;
- The origin of the shipment;
- A copy of the shipping documents (if available);
- Location of the property; and
- Proposed disposition.

A copy of the written report will be maintained on site and a copy will be forwarded to the DOO for inclusion into the contract file. As directed by the GPA, the SM will return or redirect any misdirected Government property, and will record and report the final disposition of the Government property.

5.4 RECORDS OF SCRAP OR SALVAGE

The EODT SM shall maintain records of all scrap or salvage generated as a result of site activities. Prior to placement into any scrap/salvage storage containers, the SM will ensure that the scrap/salvage has been inspected according to established EODT quality control procedures contained in the project plans. This inspection system has been designed to ensure that no hazardous components or materials are placed into the scrap/salvage storage container. To record scrap or salvage, the SM will utilize the EODT Scrap and Salvage Log (see Figure 3), which provides for the recording of the following information:

- Project name and location;
- Contract and delivery order number;
- Description of the salvaged items or scrap;
- Running total of current quantity on hand;
- Posting reference and date of transaction; and
- Disposition.

6.0 PROPERTY ACQUISITION

The SM will be responsible for preparing quantity and technical specification requirements for each piece of equipment to be used on the project. These requirements will be forwarded to the PM for review. Once approved, the equipment requirements shall be forwarded to the EODT Contract Administrator (CA), who is responsible for the implementation of EODT purchasing policies, and for the acquisition of equipment IAW applicable FAR regulations. For CAP, the CA will obtain three quotes and perform a lease purchase analysis for each item not available from government sources. If GFP may be available for issue to a contract, the CA will contact and coordinate with the Government CO to determine availability and the terms of acquisition.

Equipment and materials purchased on an overhead account may be stored in a segregated central location and transferred out to projects on an as needed basis (as determined by the PM). This type of acquisition will be for expendable property and materials only (i.e., gloves, rubber boots and other basic personal protective equipment items, paper towels, electrolyte replacement solutions and mixes, etc.) that have an individual item value less than \$50.00. These items may be purchased initially in large quantities to reduce the overall cost per item.

7.0 RECEIPT OF GOVERNMENT PROPERTY

7.1 GENERAL REQUIREMENTS

EODT shall furnish written receipts for all specified classes of Government property when the GPA deems it essential for maintaining minimum acceptable property controls. If evidence of receipt is required for CAP, EODT shall provide the evidence of receipt before submitting its request for payment of the CAP. For GFP, EODT shall furnish a written hand receipt immediately upon receipt and acceptance of the property.

7.2 IDENTIFICATION AND MARKING OF GOVERNMENT PROPERTY

Any serial numbers and markings of Government ownership required by this paragraph shall be securely affixed to the property, legible and conspicuous. In the event that the marking of Government property will damage the property or is otherwise impractical, the SM will promptly notify the GPA in writing and request that the item be exempted from the marking requirements. Markings shall be removed or obliterated when Government property is sold, scrapped or donated.

7.2.1 Indication of Government Ownership

IAW FAR 45.506, the SM shall ensure that each item of Government property received is identified and marked with an indication of Government ownership. Except for the following, all Government property shall be marked:

- Items issued to individuals for use in their work (i.e., protective clothing or tool crib tools) where adequate physical control is maintained over the items;
- Property of a bulk nature, or where its general nature of packing or handling precludes adequate marking;
- Material that is commingled; or
- Items where the GPA agrees that marking is impractical.

7.2.2 Assignment of EODT Serial Number

In addition to marking items with an indication of Government ownership, the Government property listed below shall be marked with a unique EODT serial number IAW procedures approved by the GPA. The EODT serial number assigned to an item of Government property shall be recorded on all applicable documents pertaining to the control of the item. The items to be marked with an EODT serial number are as follows:

- Special tooling;
- Special test equipment;
- Components of special test equipment that have an acquisition cost of greater than \$5,000.00 that are incorporated in a manner that makes removal and reutilization feasible and economical;
- Plant equipment; and
- Accessory or auxiliary equipment associated with a specific item of plant equipment if necessary to assure return with the associated basic item.

7.3 DOCUMENTATION OF THE RECEIPT OF CAP

Upon receipt of CAP, the SM shall ensure that the CAP is marked as required by para 5.2 and shall complete an EODT Property Control and Tracking Card for each item of CAP received. The CAP received will also be added to the EODT Property Tracking Log. Along with the EODT Property Control and Tracking Card, the supplier's packaging slip shall also be used to document receipt of the CAP. A copy of the EODT Property Control and Tracking Card(s) along with a copy of the

packaging slip shall be maintained on site and the originals will be forwarded to the DOO for inclusion in the contract file. Prior to the submission of a request for payment for CAP, EODT shall provide the GPA with a copy of the supplier's packaging slips and/or invoices for payment, along with the EODT Property Control and Tracking Card as documentation of the receipt of CAP.

7.4 DOCUMENTATION OF THE RECEIPT OF GFP

Upon receipt of GFP, each item will be inspected to determine its identity, condition and usability. The SM will ensure that all GFP is marked IAW the requirements of para 5.2 and the receipt of the GFP will be documented on the EODT Property Control and Tracking Card. Once the GFP has been recorded on the Property Control Card(s), the SM shall ensure that the EODT Property Control and Tracking Card(s) are properly filed on site and will forward a copy of the card(s) to both the DOO, for inclusion in the contract files, and the GPA to document receipt of the GFP.

7.5 DISCREPANCIES INCIDENT TO SHIPMENT AND RECEIPT

7.5.1 Contractor-acquired Property

The EODT SM and/or PM shall take all actions necessary to adjust overages, shortages or damages incident to the shipment of CAP from a supplier or vendor. However, when the shipment has been moved by Government bill of lading and carrier liability is indicated, EODT shall report the discrepancies IAW the provisions of para 7.5.2.

7.5.2 Government-furnished Property

If overages, shortages or damages are discovered upon receipt of GFP, the EODT SM or PM shall provide a written statement of the condition and apparent causes to the GPA. Only the quantity of GFP actually received will be recorded by the SM or PM using the EODT Property Control and Tracking Card(s).

8.0 SEGREGATION OF GOVERNMENT PROPERTY

Government property shall be kept physically separate from EODT-owned property. However, when advantageous to the Government and consistent with EODT's authority to use such Government property, the GPA may approve the commingled storage of Government and EODT property. Combined storage will be allowed provided that Government property is clearly identified and recorded as Government property IAW para 7.2 of this Program.

9.0 PHYSICAL INVENTORIES

EODT shall periodically conduct project specific physical inventories of all Government property in its possession or control. This requirement will also apply to any EODT subcontractors in control of Government property. Physical inventories shall, as a minimum, be conducted on a monthly basis for the duration of the contract for each project. Upon conclusion of the project, the procedures outlined in para 9.0 of this Program shall be followed concerning final physical inventory.

Personnel who perform the physical inventory shall not be the same individuals who maintain the on site property records or have custody of the property, unless the number of EODT personnel on site is too small to do otherwise. To conduct the inventory, the EODT Physical Inventory Log (see Figure 4) shall be used, with a copy of the log maintained on site, and a copy of the log forwarded to the DOO for inclusion in the contract file. Upon completion of the physical inventory, EODT shall submit to the GPA the following information:

- A copy of the Physical Inventory Log identifying inventory on hand and any discrepancies disclosed by the inventory;
- A statement signed by the SM indicating that the physical inventory was completed on a given date and that the official property records maintained on site were found to be in agreement except for any discrepancies noted.

10.0 USE, CARE AND MAINTENANCE OF GOVERNMENT PROPERTY

From the time of receipt until properly relieved of responsibility, EODT shall be responsible for the proper use, care and maintenance of Government property in its possession or control. Use, care and maintenance of Government property shall be conducted IAW sound practice and the terms of the project contract. The removal of Government property to storage or its contemplated transfer does not relieve EODT from these responsibilities. Only those procedures outlined in para 12.0 will be used to relieve EODT from these responsibilities.

10.1 USE OF GOVERNMENT PROPERTY

Government property assigned to a particular project site shall only be used by personnel at the project site who are appropriately trained and authorized to use the property. Additionally, Government property shall only be used for those purposes provided for and authorized by the project contract. With respect to Government property with an acquisition value of \$5,000.00 or more, EODT has established a minimum level of use of once per week. Use below this level will require the SM to conduct an analysis of need to justify retention of the property. To ensure the minimum use level, the actual use of the Government property shall be recorded in the SM or Team Leader daily operational log books. In the event that retention of Government property is not justifiable, the SM shall provide notification to the GPA.

10.2 EODT MAINTENANCE PROGRAM

Preventative maintenance is maintenance performed on a regularly scheduled basis to prevent the occurrence of defects and to detect and correct minor defects before they result in serious consequences. In the event that the need for a major repair, replacement or rehabilitation of Government property is discovered, the SM shall report the finding to the GPA prior to acquiring such services. Actual preventative maintenance programs for each project site will be established and specified in the project plans, however EODT has established the following minimum preventative maintenance requirements:

- All Government property and equipment shall be visually inspected at least weekly to determine proper function and reliability and to detect any defect, maladjustment, wear or impending failure;
- All Government property and equipment shall receive regularly scheduled service and maintenance as required by the manufacturer, or as specified in any instruction manuals;
- Any worn, damaged or otherwise compromised Government property, or its components, will be replaced as soon as possible;
- Defective or worn parts or components shall be replaced using manufacture's recommended parts/components, and shall be replaced by only those personnel authorized to do such repairs;
- Special tools or accessories furnished with Government property but not regularly used with it shall be stored in a designated area specified by the SM; and
- Documentation of inspection and maintenance shall be recorded in the SM or Team Leader daily operational log books.

11.0 LIABILITY FOR LOSS, DAMAGE OR DESTRUCTION

Subject to the terms of the contract and the circumstances surrounding the particular case, EODT may be liable for LDD of GFP in its possession. EODT may also be liable for use or consumption of Government property that unreasonably exceeds the allowances provided by the contract or other appropriate criteria. EODT and its subcontractors shall investigate and report to the GPA all cases of LDD according to the following:

- EODT shall provide information about LDD to the GPA as soon as facts become known;
- EODT subcontractors shall provide information to the SM regarding LDD as soon as facts relevant to the LDD become available;
- Reports for LDD shall contain a memorandum and any other support documents needed to accurately present the causes for the LDD; and
- Reports of LDD shall be maintained on site, with a copy sent to the DOO for inclusion in the project contract file.

For each case of LDD of Government property, the following information should be provided to the designated EODT PM:

- Date of incident;
- Date of report;
- Description of property, including applicable identification number;
- Contract number;
- Acquisition cost;
- Full narrative of the incident, location, etc.;
- Corrective action taken to prevent recurrence;
- Estimated scrap proceeds (when applicable);
- Repair labor and materials cost (when applicable);

- Estimated cost to replace (when applicable);
- Copies of any supporting documentation;
- The contract provision under which relief is being sought;
- Statement that no insurance costs or other means of covering LDD of Government property were charged to the contract (if applicable); and
- Statement that, in the event EODT was, or will be, reimbursed or compensated for LDD of Government property, (i.e., reimbursement by a subcontractor) the Government shall receive equitable reimbursement.

12.0 CONTRACT CLOSURE AND RELIEF FROM RESPONSIBILITY

All GFP shall be inventoried at the time of contract closure. Disposition of GFP shall be determined by the Government, or as otherwise stated in the contract. Upon termination of on-site activities, several options related to the disposition of GFP may be exercised at the discretion of the CO. Upon consent of the CO, GFP assigned to the terminating project site may be transferred to other contracts. If transfer of GFP is not an option or feasible, EODT relief from responsibility for GFP may occur as a result of the following:

- The authorized sale, provided the proceeds are received by or credited to the Government;
- Consumption of property in the performance of the contract as determined by the GPA as being reasonable and proper; and
- EODT may retain the property, with the approval of the CO, provided the Government has received consideration.

A determination by the CO for EODT's liability for any property lost, damaged, destroyed or consumed in excess of that normally anticipated may be made, provided:

- The determination is made in writing;
- The Government is reimbursed where required by the determination; and
- Property rendered unserviceable by damage is properly disposed of, and the determination is cross-referenced to documents evidencing disposal.

13.0 PROGRAM COMPLIANCE AND AUDITS

EODT personnel responsible for the acquisition, receipt, use, maintenance, care or disposition of Government property shall comply with the provisions and procedures presented in this Program. In the event that the government conducts an audit of this program and/or project sites where this Program is being implemented, EODT shall make available to the Government auditor all such records and related correspondence as requested by the auditor. For the purpose of ensuring EODT project site compliance, the EODT Quality Control Manager (QCM) shall periodically conduct internal audits of this program and the project sites where this program is being implemented. Upon completion of an internal audit, the QCM shall generate a report of the audit findings and will provide the DOO, SM and PM with copies of the report. If any noncompliance is noted, the SM and

PM will immediately take such actions as necessary to correct the noncompliance. If the noncompliance involves discrepancies in the inventory of GFP, the SM will notify the GPA in writing of the discrepancy and will correct the discrepancy. Copies of internal audit reports shall be maintained on site and in the contract file.

14.0 CONDITION CODES

The following condition codes shall be used when determining the condition of GFP and CAP at the time of receipt and disposition:

- UNG Unused-good: Unused property that is usable without repair or modification and is identical or interchangeable with new items from normal supply sources.
- UNF Unused-fair: Unused property that is usable without repair or modification, but is slightly deteriorated or damaged to the extent that it is no longer identical or interchangeable with new items available from normal supply sources.
- UNP Unused-poor: Unused property that is usable without repairs or modification, but is considerably deteriorated or damaged. However enough utility remains as to classify the property better than salvage.
- UG Used-good: Used property that is usable without repairs, but is somewhat worn or deteriorated and may soon require repairs.
- UF Used-fair: Used property that is usable without repairs, but is considerably worn or deteriorated to the degree that remaining utility is limited or significant repairs will soon be required.
- UP Used-poor: Used property that may still be used without repairs, but the item is considerably worn or deteriorated to the degree that remaining utility is limited and significant repairs will soon be required.
- RRMIN Repair required-minor: Property is unusable in its current state due to the required repairs. Repairs needed are minor and have been estimated to not exceed 15 percent of the original acquisition cost.
- RRMOD Repair required-moderate: Property is unusable in its current state due to the required repairs. Repairs are considerable and are estimated to range from 16 to 40 percent of the original acquisition cost.
- RRMAJ Repair required-major: Property is unusable due to required repairs. Repairs are major because property is badly damaged, worn or deteriorated and are estimated to range from 41 to 65 percent of the original acquisition cost.
- SAL Salvage: Property that has some value in excess of its basic material content, but repair or rehabilitation to usefulness is clearly impractical. Repair for any use would exceed 65 percent of the original acquisition cost.
- SCRAP Scrap: Material that has no value except for its basic material content.
- EXP Expended: Property that has been consumed in the performance of the work.
- MISS Missing: Property that is lost, stolen or missing.

EODT PROPERTY CONTROL AND TRACKING CARD

Project Name and Physical Location:		Contract Number:	Delivery Order Number:
Name and Address of Supplier: _____ _____ _____		Posting Reference No.:	Date of Transaction:
		National Stock Number:	Manufacturer Model No.:
		Name and Description of Item: _____ _____	
		EODT PO No.:	Unit Price:
		Item Received Is: <input type="checkbox"/> GFP, <input type="checkbox"/> CAP, <input type="checkbox"/> EODT-owned	
Item Issued To:		Date of Issue:	Date of Return:
Date of Final Disposition:	Condition Code Upon Disposition:	Place of Final Disposition:	
Manner of Final Disposition: _____ _____ _____ _____			

Comments: _____

To the best of my knowledge, the information presented on this EODT Property Control and Tracking Log is correct.

Printed Name: _____

Title: _____

Signature: _____

Date of Signature: _____

Figure 1

FORM DD-1662

DOD PROPERTY IN THE CUSTODY OF CONTRACTORS (DFARS 245.505-14) (See Instructions on reverse before completing this form.)				REPORT AS OF 30 SEP 19 ____ OR ____		Form Approved OMB No. 0704-0146 Expires Oct 31, 1991 REPORT CONTROL SYMBOL	
<small>Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0146), Washington, DC 20503.</small>							
1. TO (Enter name and address of property administrator)				2. FROM (Enter full name, address and CAGE code of contractor)			
3. IF GOVERNMENT-OWNED, CONTRACTOR-OPERATED PLANT, ENTER GOVERNMENT NAME OF PLANT							
4. CONTRACT NO. (PIN)		5. CONTRACT PURPOSE	6. BUSINESS TYPE (L, S, or N)	7. OFFICIAL NAME OF PARENT COMPANY			
8. PROPERTY LOCATION(S)					9. PLANT EQUIPMENT PACKAGE (PEP No. and use)		
a. PROPERTY (Type or Account)	b. BALANCE BEGINNING OF PERIOD		c. ADDITIONS (in dollars)	d. DELETIONS (in dollars)	e. BALANCE END OF PERIOD		
	(1) Acquisition Cost (in dollars)	(2) Quantity (in units or acres)			(1) Acquisition Cost (in dollars)	(2) Quantity (in units or acres)	
10. LAND							
11. OTHER REAL PROPERTY							
12. OTHER PLANT EQUIPMENT							
13. INDUSTRIAL PLANT EQUIPMENT							
14. SPECIAL TEST EQUIPMENT							
15. SPECIAL TOOLING (Government Title Only)							
16. MILITARY PROPERTY (Agency - Peculiar)							
17. GOVERNMENT MATERIAL (Government - Furnished)							
18. GOVERNMENT MATERIAL (Contractor - Acquired)							
CERTIFICATION I certify that this report was prepared under DoD requirements from records maintained under FAR 45.5 and DFARS 245.5.							
19. CONTRACTOR REPRESENTATIVE							
a. TYPED NAME (Last, First, Middle Initial)				b. SIGNATURE		c. DATE SIGNED (YYMMDD)	
20. DOD PROPERTY REPRESENTATIVE							
a. TYPED NAME (Last, First, Middle Initial)				c. SIGNATURE		d. DATE SIGNED (YYMMDD)	
b. TELEPHONE NUMBERS (Commercial and Autovon)							

Figure 2

EODT PHYSICAL INVENTORY LOG

Project Name and Location:						Contract Number:		Delivery Order Number	
Line No.	Item Name / Description	National Stock No. ¹	EODT Serial No. ²	Model Number ³	Serial Number ³	Quantity Received	Quantity On Hand	Discrepance Noted ⁴	Comments

1 - Record NSN if provided by the Government. 2- Serial number assigned IAW para 7.2.2 of this Program. 3 - Manufacturer's Model and Serial Numbers. 4 - Report of discrepancies is required to be sent to GPA and PM.

Figure 4a Page ____ of ____

EODT PHYSICAL INVENTORY LOG

Project Name and Location:					Contract Number:			Delivery Order Number	
Line No.	Item Name / Description	National Stock No. ¹	EODT Serial No. ²	Model Number ³	Serial Number ³	Quantity Received	Quantity On Hand	Discrepance Noted ⁴	Comments

1 - Record NSN if provided by the Government. 2- Serial number assigned IAW para 7.2.2 of this Program. 3 - Manufacturer's Model and Serial Numbers. 4 - Report of discrepancies is required to be sent to GPA and PM.

To the best of my knowledge, the information presented on this EODT Physical Inventory Log is correct and reflects the actual property inventory in EODT's possession.

Printed Name: _____ Title: _____ Signature: _____ Date: _____

Figure 4b