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WORK PLAN ADDENDUM 1 MUNITIONS RESPONSE AND ONSITE CONSTRUCTION
SUPPORT FOR DISCARDED MILITARY MUNITIONS NAS CECIL FIELD FL
11/1/2001
CH2MHILL CONSTRUCTORS INC

**Work Plan Addendum No. 01
Munitions Response and Onsite Construction
Support for Discarded Military Munitions**

**Former Naval Air Station Cecil Field
Jacksonville, Florida**

Revision No. 00

**Contract No. N62467-01-D-0331
Contract Task Order No. 0029**

Submitted to:
**U.S. Naval Facilities
Engineering Command
Southern Division**

Prepared by:



115 Perimeter Center Place, N.E.
Suite 700
Atlanta, GA 30346

November 2004

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Prepared/Approved By:

Michael D. Halil, Project Manager

Date

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Client Acceptance:

U.S. Navy Responsible Authority

Date

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- C Explosives Safety Submission
- D Explosives Siting Plan
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 - Submittal Register
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 - Contractor Daily Production Report
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 - Preparatory Phase Report

Acronyms

AEDA	Ammunition, Explosives, and Dangerous Articles
AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AHA	Activity Hazard Analysis
AMP	Air Monitoring Plan
BATF	Bureau of Alcohol, Tobacco, and Firearms
BIP	Blast-in-place
BRAC	Base Realignment and Closure
CAD	cartridge actuated device
CDC	Controlled Detonation Chamber
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CH2M HILL	CH2M HILL Constructors, Inc.
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CO	Contracting Officer
CPR	Cardiopulmonary Resuscitation
CTO	Contract Task Order
CWM	Chemical Warfare Materiel
dBA	decibels A scale
dBC	decibels C scale
DDESB	Department of Defense Explosive Safety Board
DID	Data Item Description
DoD	Department of Defense
DOT	Department of Transportation
DMM	Discarded Military Munitions
EBS	Environmental Baseline Survey
ECA	Equipment Check Area
EISOPQAM	Environmental Investigative Standard Operating Procedure and Quality Assurance Manual
EMP	Explosives Management Plan
EOD	Explosive Ordnance Disposal
ESS	Explosives Safety Submission
ESP	Explosives Siting Plan
EPA	U.S. Environmental Protection Agency
EZ	Exclusion Zone
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GPS	Global Positioning System
HE	High Explosive
HMX	Octahydro-1,3,5,7-tetramitro-1,3,5,7-tetrazine
HSP	Health and Safety Plan

IRCDQM	Installation Restoration Chemical Data Quality Manual
JAA	Jacksonville Airport Authority
LDR	Land Disposal Restriction
MEC	Munitions and Explosives of Concern
MGFD	Munition with the Greatest Fragmentation Distance
mm	millimeter(s)
MMRP-CX	Military Munitions Response Program Center of Expertise
MPPEH	Material Potentially Presenting an Explosive Hazard
MR	Munitions Response
MRQCM	Munitions Response Quality Control Manager
MRSO	Munitions Response Safety Officer
NAS	Naval Air Station
NAVFAC EFD SOUTH	U.S. Naval Facilities Engineering Command, Southern Division
NAVSEA	Naval Sea Systems Command
NEW	net explosive weight
NIOSH	National Institute for Occupational Safety and Health
NOSSA	Naval Ordnance Safety and Security Activity
NPL	National Priorities List
NVLAP	National Voluntary Laboratory Accreditation Program
OSHA	Occupational Safety and Health Act
PM	Project Manager
PPE	personal protective equipment
PTSP	Pre-Task Safety Plan
PVC	polyvinyl chloride
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RPM	Remedial Project Manager
RTK	Real-Time Kinematic
ROICC	Resident Officer in Charge of Construction
SAP	Sampling and Analysis Plan
SOPs	Standard Operating Procedures
SUXOS	Senior Unexploded Ordnance Supervisor
T&D	Transportation and Disposal
TAT	Turnaround time
TCRA	Time Critical Removal Action
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
UXO	Unexploded Ordnance
UXOQCS	Unexploded Ordnance Quality Control Specialist
UXOSO	Unexploded Ordnance Safety Officer

1.0 Introduction

The purpose of this Work Plan Addendum is to outline the procedures to be used to perform munitions response (MR) and onsite construction support for discarded military munitions (DMM) and material that potentially present an explosive hazard (MPPEH) at the former Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. The MR action is being implemented by CH2M HILL Constructors, Inc. (CH2M HILL) for the U.S. Naval Facilities Engineering Command, Southern Division (NAVFAC EFD SOUTH), under Response Action Contract No. N62467-01-D-0331, Contract Task Order (CTO) No. 0029.

This Work Plan Addendum is organized into ten sections of text as follows and includes eight appendices.

Section 1.0 Introduction includes the project authorization, project purpose, and regulatory framework.

Section 2.0 Background includes the general project background, location, and history.

Section 3.0 Scope of Work describes the project scope of work, schedule, communications plan, and traffic control plan. A detailed project schedule is provided in Appendix A of this Work Plan Addendum. The NAS Cecil Field Basewide Work Plan (CH2M HILL, 1998) provides a brief description of the reporting requirements under this contract.

Section 4.0 Munitions Response Operations Plan details the planned Munitions and Explosives of Concern (MEC) team composition, project authority, training, medical monitoring, and operational procedures.

Section 5.0 Chemical Warfare Materiel (CWM) describes actions to take in the event that CWM is discovered at the site.

Section 6.0 Quality Management Program details the quality control (QC) program for the project and includes the testing requirements for work described in this Work Plan Addendum. The QC attachments (i.e., the submittal register, testing plan and log, etc.) are provided in Appendix H.

Section 7.0 Sampling and Analysis Plan (SAP) provides project sample locations, sample collection frequency, and the required laboratory analyses for samples collected during project activities. The NAS Cecil Field Basewide Work Plan (CH2M HILL, 1998) and Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (SOPs) outline the sample collection methodology including sample handling, labeling, and required collection of quality assurance (QA)/QC samples.

Section 8.0 Waste Management Plan discusses the characterization, onsite management, and transportation and disposal (T&D) of wastes generated during project activities.

Section 9.0 Environmental Protection Plan contains site-specific environmental provisions and references the NAS Cecil Field Basewide Work Plan (CH2M HILL, 1998), which contains the Environmental Protection Plan for all work completed at the former NAS Cecil Field.

Section 10.0 References includes a listing of the documents utilized to develop this Work Plan Addendum.

The site-specific Health and Safety Plan (HSP) that addresses the work described in this Work Plan Addendum is included in Appendix B. The Site Health and Safety Plan included in the NAS Cecil Field Basewide Work Plan (CH2M HILL, 1998) addresses project-specific health and safety issues for the remedial activities to be completed at the former NAS Cecil Field.

1.1 Project Authorization

CH2M HILL was contracted on September 14, 2004, by NAVFAC EFD SOUTH to prepare this Work Plan Addendum, under the Response Action Contract No. N62467-01-D-0331, CTO No. 0029.

Naval Ordnance Safety and Security Activity (NOSSA) Instruction 8020.15 mandates onsite construction support at construction sites “on property known or suspected to contain MEC where the probability of encountering MEC has been determined to be moderate to high.” Although the NAS Cecil Field site is not a known or suspected munitions site and the probability of encountering MEC has been determined to be low, onsite construction support has been determined to be the most effective manner of ensuring project personnel safety.

1.2 Project Purpose

The purpose of the scope of work described in this Work Plan Addendum is to provide MR and onsite MEC construction support as a cautionary action to protect human health and safety during construction activities at the site.

1.3 Regulatory Framework

The MR action and on-site construction support activities to locate and remove MEC will be performed as a Time Critical Removal Action (TCRA) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

In the event that MEC is encountered, the actual detonation (i.e., “disposal operation”) will be carried out under an Emergency Permit as an Emergency Detonation of Certain Hazardous Wastes, in accordance with the provisions of Florida Administrative Code (FAC) Chapter 62-730.320. Because MEC is potentially flammable, shock sensitive, and explosive, it would be considered a reactive hazardous waste. Under the Florida hazardous waste rules (FAC Chapter 62-730), the FDEP grants authorization for the emergency detonation or

treatment of such hazardous wastes under an emergency permit. The provisions for this permit include:

- FDEP must be notified and permission (written or oral) obtained prior to detonation, and the notification must include:
 - Type and amount of MEC to be detonated
 - Time and place of detonation
 - Detonation procedures
- FDEP grants specific authorization which cannot exceed 90 days
- Authorization conditions:
 - Detonation is conducted/supervised by local law enforcement officials, bomb squads, or other officials/agencies experienced in the handling and disposal of explosives
 - Applicable local, state, and federal approvals and licenses will be obtained
 - Visible residue will be recovered and properly disposed
 - Adequate fire protection will be provided
 - Local FDEP representative will be notified, and may be present to observe detonation activities
 - Prior to detonation, the site will be secured and access controlled
 - Detonation will be conducted only at the times and place specified in the notice
 - Post-detonation soil sampling may be required by FDEP
 - A written summary will be submitted to FDEP within 30 days of detonation

2.0 Background

On Friday, September 10, 2004, one DMM and 10 expended cartridge actuated devices (CADs) were found near Building 365 at the former NAS Cecil Field. The items were discovered during clearing and grubbing operations of an approximately 5-acre area in support of an ongoing Jacksonville Airport Authority (JAA) construction project to expand the north apron aircraft taxiway. The DMM consisted of one 20-millimeter (mm) round consisting of cartridge case with percussion primer, not impinged; high explosive (HE) projectile unfired with the point detonating fuze sheared off. On September 21, 2004, the CH2M HILL MR Team visited the site and talked with one of the responding Florida Air National Guard Explosive Ordnance Disposal (EOD) Technicians. The EOD Technician stated that the recovered 20-mm round was in a safe condition and had been removed from the site for disposal.

The DMM find caused a work stoppage of the JAA construction project and prompted the need for onsite construction support.

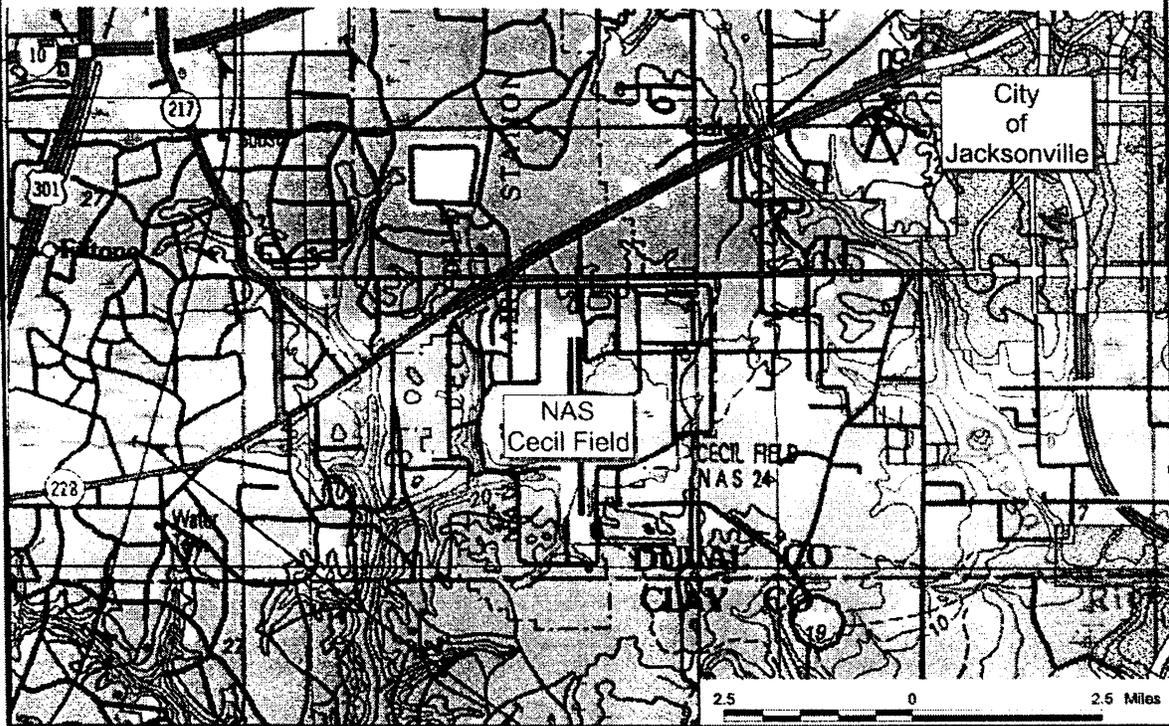
2.1 Location (General/Specific Descriptions)

The former NAS Cecil Field is located in the western portion of Duval County and northeast portion of Clay County in northeast Florida (see Figure 2-1). NAS Cecil Field was established in 1941 and provided facilities, services, and material support for naval operations. It was added to the National Priorities List (NPL) in 1989. In July 1993, the Base Realignment and Closure (BRAC) Commission recommended the closure of the Air Station. On September 30, 1999, the Air Station was closed and the majority of the flightline was transferred to the JAA. In September 2000, the majority of the remainder of the Air Station was transferred to the City of Jacksonville.

Building 365 is a one-story cinderblock bunker built in 1957 at the former NAS Cecil Field and is located west of Runway 18R, south of Buildings 373/104, and north of Building 366 (see Figures 2-2 and 2-3). An access road runs along the west side of the building and a wooded area was formerly located to the west.

2.2 History

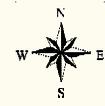
According to the Environmental Baseline Survey (EBS) Report, Building 365 was a former earth covered weapons storage locker built in 1957 at the former NAS Cecil Field. The building is a one-story cinderblock bunker that is divided into 10 individual storage areas. Building 365 was reported to store CADs and was used as a ready service magazine to store munitions for flight operations at the former NAS Cecil Field. The building and adjacent property were classified in the EBS report as "1/White," an area where no release or disposal of hazardous substances or petroleum products occurred (including any migration of these substances from adjacent areas). The building had been previously found suitable to transfer with property transfer from the Navy to the JAA completed.



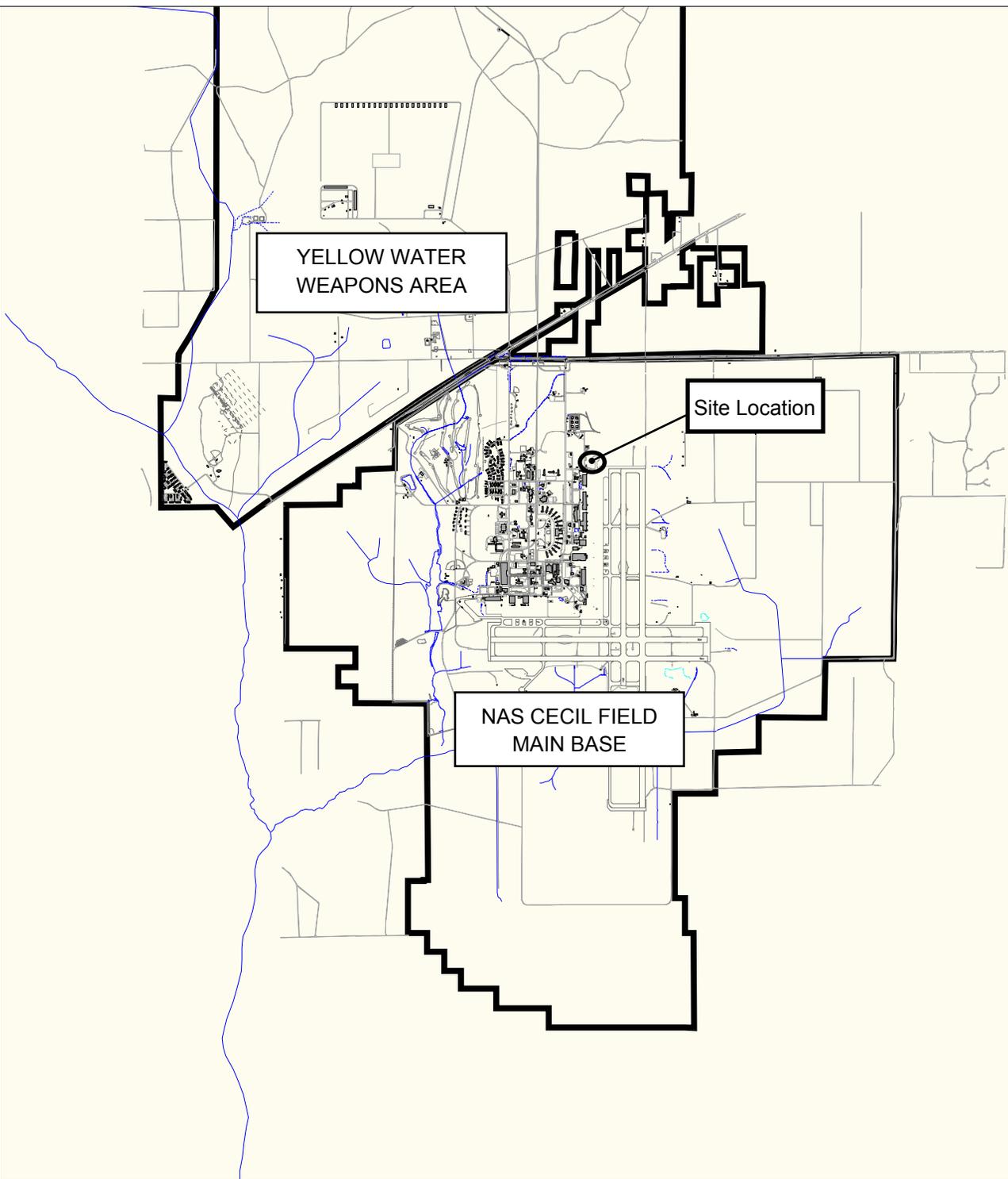
DRAWN BY MJJ	DATE 30 Jun 02
CHECKED BY <i>US</i>	DATE <i>9/10/02</i>
COST/SCHEDULE-AREA	
SCALE AS NOTED	



FIGURE 2-1
REGIONAL MAP
NAS CECIL FIELD

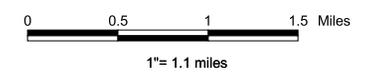


**FIGURE 2-2
ACTIVITY MAP
NAS CECIL FIELD**

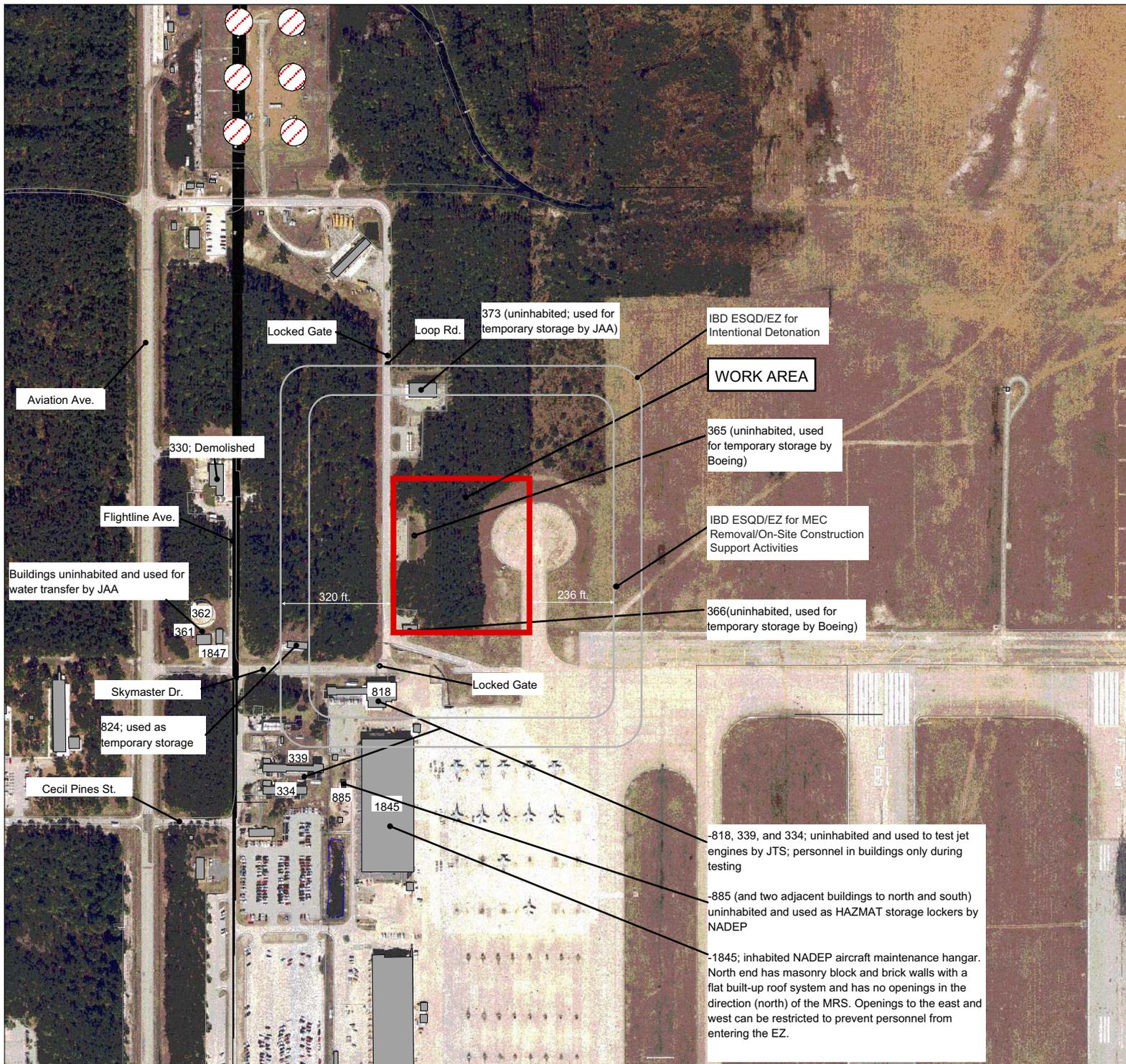


LEGEND

- Structures
- PERMANENT
 - DEMOLITION
- Roads
- Installation Area



**FIGURE 2-3
QUANTITY DISTANCE
MAP**



3.0 Scope of Work

The project scope of work, schedule, communications plan, and traffic control plan are described in this section.

3.1 Scope of Work

The activities associated with the scope of work are as follows:

- Mobilization
- Mosquito Control
- Survey
- Vegetation Removal
- Anomaly Detection and Intrusive Investigation (Mag and Dig)
- Inspect Existing Vegetation Piles for MEC
- Construction Support (onsite)
- Disposal of Recovered MEC
- Disposition of MPPEH
- Waste Characterization Sampling
- Decontamination
- T&D of Generated Wastes
- Demobilization
- Preparation and submittal of a Munitions Response and Onsite Construction Support After Action Report

3.1.1 Mobilization

This task will consist of the mobilization of personnel and equipment to the work site and the establishment of temporary facilities and site controls, consisting of portable sanitary facilities, decontamination area, site refuge area, material/equipment laydown area, construction barricades, and security fencing. Project management and scheduling activities, including contractor coordination, will be achieved from the CH2M HILL office located at the former NAS Cecil Field, Jacksonville, Florida.

3.1.2 Mosquito Control

Because of the nature of the operations to be conducted by Unexploded Ordnance (UXO) Technicians at the site and the heavy concentration of mosquitoes observed during the site visit on September 21, 2004, mosquito control will be performed prior to conducting site operations. The tasks associated with onsite construction support require individuals to be focused and concentrated on visual and audible observations (from handheld geophysical instruments) and the large mosquito population will be a significant distraction if not alleviated or reduced.

3.1.3 Survey

A local Professional Land Surveyor will perform a boundary survey and establish a uniform system of operational grids across the site. The boundary survey will be performed first and include placement of colored flagging on stakes along the perimeter of the site to establish work area limits. A system of 100- by 100-foot grids coinciding with the Florida State Plane coordinate system will be established across the site using labeled wooden stakes.

The surveyed horizontal geographic position and state plane coordinates will be referenced to permanent or semi-permanent control points existing on the site and will be accurate to ± 0.25 meter. Horizontal control of Class one, third order or better will be established for all new semi-permanent and tertiary control points. Horizontal controls for graphic and non-graphic information are Mercator Projection, GRS 80, State Plane Coordinate System, North American Datum 1983, Lambert Zones 1 through 6 (or appropriate zone for region to be mapped). Vertical controls are Mean Sea Level, North American Vertical Datum, 1988. Data conversions from the metric system to the English system will use 1 meter = 39.37 inches exactly.

3.1.4 Vegetation Removal

If necessary, CH2M HILL will use a local vegetation removal contractor to remove the brush between existing trees.

3.1.5 Anomaly Detection and Intrusive Investigation (Mag and Dig)

A mag and dig operation will be performed over the construction footprint at the site to locate and excavate the sources of all detectable metallic anomalies in the subsurface prior to any additional construction related soil excavation or grubbing operations.

3.1.6 Inspect Existing Vegetation Piles for MEC

All existing vegetation piles at the site (from grubbing activities prior to finding the DMM) will be carefully inspected to ensure that MEC are not present prior to moving the vegetation onto trucks for removal from the site.

3.1.7 Construction Support (Onsite)

Onsite construction support will be provided for all remaining intrusive construction activities.

3.1.8 Disposal of MEC

All MEC recovered at the site will be disposed of by either open detonation or detonation in a Controlled Detonation Chamber (CDC) in accordance with this Work Plan Addendum and all applicable State (FAC Chapter 62-730.320) and Federal regulations.

Following MEC disposal, visible residual materials and/or impacted soil will be recovered from the site and managed, transported, and disposed of in accordance with Section 8.0 of this Work Plan Addendum.

3.1.9 Disposition of MPPEH

All MPPEH will be inspected, demilitarized if necessary, certified and verified as free of explosive hazards and suitable for recycling. Handling and disposal procedures for MPPEH are provided in Appendix G.

3.1.10 Waste Characterization Sampling

Recovered visible residual materials and/or impacted soil and any generated decontamination wastes will be characterized in accordance with Section 7.0 Sampling and Analysis Plan of this Work Plan Addendum to determine the necessary handling and T&D requirements.

3.1.11 Decontamination

Personnel and equipment will be properly decontaminated to remove all contamination that may be adhering to personnel or equipment as a result of project activities. Any water accumulated during the decontamination process will be containerized in 55-gallon drum(s); sampled in accordance with Section 7.0 of this Work Plan Addendum; and managed, transported, and disposed in accordance with Section 8.0 of this Work Plan Addendum. Decontamination of personnel and equipment will be performed in accordance with the HSP provided in Appendix B and the applicable provisions of 29 Code of Federal Regulations (CFR) 1910.120.

3.1.12 Transportation and Disposal of Generated Wastes

Recovered visible residual materials and/or impacted soil and any generated decontamination wastes will be containerized in 55-gallon drum(s); sampled in accordance with Section 7.0 of this Work Plan Addendum; and managed, transported, and disposed in accordance with Section 8.0 of this Work Plan Addendum.

3.1.13 Demobilization

During demobilization, temporary facilities and equipment will be removed from the site. In addition, any debris or solid waste material remaining from project activities will be removed and properly disposed of offsite in accordance with Section 8.0 of this Work Plan Addendum.

3.1.14 Munitions Response and On-site Construction Support After Action Report

A Munitions Response and Onsite Construction Support After Action Report will be prepared to document the activities performed to complete the scope of work in accordance with NOSSA Instruction 8020.15. The After Action Report will include:

1. Executive Summary
2. The known or reasonably anticipated end use of the MR site
3. Tabulation of all UXO, munitions scrap, and other related material recovered during the MR action

4. QA/QC Summary
5. Discussion of the methods and technology used to remove or remediate munitions, including relative effectiveness, lessons learned, and advice for future operations
6. Documentation for final disposition of munitions-related scrap
7. Information about the surveyed actual response boundary
8. Information about any MR sites where MR activities were not conducted with rationale
9. Estimate of the hazards/risks remaining after response actions
10. Any institutional controls in place
11. Information regarding required recurring reviews
12. Rationale for deviations from the approved Explosives Safety Submission (ESS)
13. Summary of the MR site area (acres), response action cost, and labor hours to perform the response action
14. Figures (scale 1:400) showing anticipated land use, residual hazard/risk, and munitions constituent sampling locations
15. Figure of subsurface geophysical anomalies
16. Dig sheets for all excavations
17. Color photographs
18. Videotape with voice narration showing major response activities and UXO discoveries.
19. Laboratory analytical results
20. Transportation and disposal of generated wastes documentation
21. Any archaeological sites or environmentally sensitive areas encountered with mitigative or corrective actions taken
22. Number of acres of re-vegetation or re-seeding
23. Damage to trees, utilities, or facilities, with corrective actions taken

3.2 Project Schedule

A project schedule has been prepared that includes each project activity. The schedule addresses the project management, field tasks, reports and deliverables and associated review periods for the project. The proposed schedule might vary depending on the actual conditions encountered in the field. Appendix A provides a schedule for the work to be performed.

3.3 Communications Plan

A communication matrix outlining the lines of communications for NAVFAC EFD SOUTH and CH2M HILL is presented in Table 3-1. Table 3-2 provides a project personnel directory.

TABLE 3-1
Communications Matrix

CCI Position	Navy Direct Report
Ray Tyler, Executive Sponsor	Candace Borden, CO
R. Scott Newman, Program Manager	Jimmy Jones, COTR Richard Stanley, ACO
Scott Smith, Senior Project Manager	Jimmy Jones, COTR Richard Stanley, ACO
Michael Halil, CTO Project Manager	Mark Davidson, RPM Larry Blackburn, Environmental Programs Coordinator /ROICC

CO – Contracting Officer
ACO – Administrative Contracting Officer
RPM – Remedial Project Manager
COTR – Contracting Officer’s Technical Representative

TABLE 3-2
Project Personnel Directory

Contact	Company
R. Scott Newman, Program Manager Scott Smith, Senior Project Manager Joe Giandonato, Contracts Administration Manager Richard Rathnow, Health and Safety Manager Theresa Rojas, QA/QC Manager	CH2M HILL Constructors, Inc 115 Perimeter Center Place, N.E. Suite 700 Atlanta, GA 30346-1278 770/604-9095
Michael Halil, Project Manager	CH2M HILL Constructors, Inc. 6219 Authority Avenue Jacksonville, FL 32221 904/777-4812 ext. 233
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Richard Stanley, ACO	As above 843/820-5939
Jimmy Jones, COTR	As above 843/820-5544
Mark Davidson, RPM	As above 843/820-5526
Larry Blackburn, Environmental Programs Coordinator	Engineering Field Activity Southeast Environmental Programs Coordinator/Resident Officer in Charge of Construction P. O. Box 139, Building 13 NAS Jacksonville, FL 32212-0139 904/542-5571, ext. 260

3.4 Traffic Control Plan

Traffic control will be the responsibility of CH2M HILL. CH2M HILL will minimize disturbance to established traffic patterns during project activities. CH2M HILL will consult with onsite JAA personnel to evaluate site access, placement of equipment, and traffic flow to minimize the impact of this work.

4.0 Munitions Response Operations Plan

4.1 Site Visit/Records Review

The CH2M HILL MR Team performed a site visit on September 21, 2004, and a records review was performed in development of the ESS (Appendix C) and this Work Plan Addendum. No additional site visits or records review activities are planned.

4.2 MEC Team Composition

4.2.1 Personnel Qualifications

UXO personnel assigned to positions UXO Technician I, UXO Technician II, UXO Technician III, UXO Safety Officer (UXOSO), UXO Quality Control Specialist (UXOQCS), or Senior UXO Supervisor (SUXOS), will be U.S. citizens and graduates of one of the following schools or courses:

- U.S. Army Bomb Disposal School, Aberdeen Proving Ground, Maryland
- US Naval EOD School, Indian Head, Maryland or Eglin Air Force Base (AFB), Florida
- EOD Assistants Course, Redstone Arsenal, Alabama
- EOD Assistants Course, Eglin AFB, Florida
- Department of Defense (DoD)-certified equivalent course

EOD experience in National Guard or Reserve Units will be based on the actual documented time spent on active duty, not on the total time of service.

All UXO Technicians will be qualified in accordance with terms outlined by U.S. Army Corps of Engineers (USACE) Data Item Description (DID) OE-025.02.

4.2.2 Personnel Responsibilities

Project Manager

The CH2M HILL Project Manager (PM), Mr. Michael Halil, reports to the CH2M HILL Activity Manager. He is responsible for ensuring that all activities performed by CH2M HILL at the former NAS Cecil Field are conducted in accordance with contractual specifications and approved work plans. The PM will also coordinate with the Navy representative. The CH2M HILL PM is responsible for management of all operations conducted for the project. He will ensure that all personnel assigned to the project, including subcontractors, have reviewed the technical plans before any task associated with the project begins. The CH2M HILL PM will monitor the budget and schedule to ensure availability of necessary personnel, equipment, subcontractors, and services. He will also participate in the development of the field program, evaluation of data, and reporting.

CH2M HILL Munitions Response Manager

The CH2M HILL MR Manager, Mr. Ben Redmond, provides specialized technical support and training during the implementation of MR activities. The MR Manager monitors advances in MR technology and advances the state of the art for MR operations. He also ensures that the best technical approach is utilized on each MR project.

Munitions Response Safety Officer

The CH2M HILL MR Safety Officer (MRSO) is responsible for developing MR Safety policy and guidance for project delivery teams and for providing oversight for the implementation of MR specific sections of the HSP for MR related projects. Overall, the MRSO is responsible for ensuring the safety of all project personnel involved in MR operations.

Munitions Response Quality Control Manager

The CH2M HILL MR Quality Control Manager (MRQCM) provides oversight for implementation of MR specific sections of CH2M HILL's QC Program for all MR related projects. The MRQCM is responsible for ensuring that all MR work complies with stipulated contractual requirements and is in compliance with all DoD, Federal, State, and local statutes and codes.

Health and Safety Manager

The Program Health and Safety Manager (a Certified Industrial Hygienist [CIH]) oversees the development and implementation of the HSP to ensure that it meets all of the specific needs of the project and that the appropriate health and safety requirements have been defined. He routinely coordinates directly with the MR Manager, MRSO, MRQCM, PM, SUXOS, and UXOSO on site to answer technical questions and to provide assistance to the work sites. He also performs health and safety program audits and inspections to ensure compliance with company health and safety policy.

Senior UXO Supervisor

The SUXOS will be a graduate of a school listed in Section 4.2.1. This individual will have at least 15 years of UXO experience, which may be a combination of active duty military EOD and contractor UXO experience, and will include 10 years in supervisory positions. The SUXOS will be able to fully perform all of the functions enumerated in the following sections for UXO Technicians II and III. In addition, the ability to perform the following functions is a requirement for the SUXOS: planning, coordinating, and supervising all contractor onsite UXO activities; preparation of SOPs for MEC operations; ensuring compliance with DoD directives as well as local, State, and Federal statutes and codes; and certification of Ammunition, Explosives, and Dangerous Articles (AEDA) and/or range scrap as ready for turn-in or disposal in accordance with current policies. The SUXOS must also be fully capable of supervising multiple project teams that may be performing MEC- and MEC-related activities (e.g., vegetation clearance; land surveying; reconnaissance and classification of MEC, pyrotechnic items, and military explosives and demolition materials; locating surface and subsurface MEC; destroying MEC by burning or detonation; and/or transporting and storing MEC and explosives material).

UXO Safety Officer

The UXOSO will have the same minimum qualifications as a UXO Technician III, as listed below. In addition, this individual will have the specific training, knowledge, and experience necessary to implement the HSP and verify compliance with applicable health and safety requirements. This individual will be able to perform all functions enumerated in the following sections for UXO Technicians II and III. In addition, the UXOSO will have the ability to implement the approved MEC and explosives safety program in compliance with all DoD, Federal, State, and local statutes and codes; analyze MEC and explosives operational risks, hazards, and safety requirements; establish and ensure compliance with all site-specific safety requirements for MEC and explosives operations; enforce personnel limits and safety exclusion zones (EZ) for MEC clearance operations, MEC and explosives transportation, storage, and destruction; conduct safety inspections to ensure compliance with MEC and explosives safety codes; and operate and maintain air monitoring equipment as required for airborne contaminants.

A separate UXOSO is not required when three or fewer teams are working on site or when fewer than 15 personnel are working on site. The SUXOS will be the UXOSO for the former NAS Cecil Field site.

UXO Quality Control Specialist

The UXOQCS will have the same minimum qualifications as a UXO Technician III as listed below. In addition, this individual will have documented QC Training. This individual will be able to fully perform all functions enumerated for UXO Technicians II and III. The UXOQCS will have the ability to implement the UXO-specific sections of this Work Plan Addendum for all MEC-related tasks, conduct QC inspections of all MEC and explosives operations for compliance with established procedures, and direct and approve all corrective actions to ensure all MEC-related work complies with contractual requirements.

A UXOQCS is not required full-time on site. The SUXOS will act as the UXOQCS for the former NAS Cecil Field site.

UXO Technician III

A UXO Technician III will be a graduate of a school listed in Section 4.2.1. This individual will have experience in MEC clearance operations and supervising personnel, and will have at least 10 years combined active duty military EOD and contractor UXO experience. This individual will be able to fully perform all functions enumerated in the following section for UXO Technician II. In addition, the ability to perform the following functions is a requirement for the UXO Technician III: supervising and performing on site disposal of MEC; preparing explosives storage plans in accordance with all applicable guidance; preparing required MEC administrative reports; preparing SOPs for onsite MEC operations; performing risk hazard analyses; conducting daily site safety briefings; and supervising the conduct of all onsite evolutions directly related to MEC operations.

UXO Technician II

A UXO Technician II will be a graduate of a school listed in Section 4.2.1. As an exception, a UXO Technician II may be a UXO Technician I with at least 5 years combined military EOD and contractor UXO experience. In addition, the ability to perform the following functions is

a requirement of the UXO Technician II: properly storing MEC material in accordance with applicable guidance; identifying fuzes and determining fuze condition; determining a magnetic azimuth using current navigational/locating equipment; performing field expedient identification procedures to identify explosives contaminated soil; preparing an on site holding area for MEC material; and operating modes of transportation for transporting MEC material, when appropriate.

Essential Personnel

The SUXOS/UXOSO may approve additional personnel for entry inside the EZ if they have specialized skills needed to accomplish the project objectives and have documented specialized training.

Heavy Equipment Operators

Subcontractors who will be responsible for the operation and maintenance of heavy equipment on site must be properly trained and certified to perform the tasks assigned. It is the responsibility of the subcontractor to provide the required documentation and medical surveillance records for their personnel. Heavy equipment operators will report directly to the SUXOS.

4.2.3 UXO Team Composition and Roles

The UXO team will consist of one UXO Technician III and three UXO Technicians II team members.

4.3 Project Authority

The SUXOS/UXOSO has final onsite authority for MR Safety.

4.4 Training

4.4.1 Health and Safety Indoctrination

Prior to commencement of site activities, the CH2M HILL PM will ensure that all employees engaged in hazardous waste operations are informed of the nature and degree of exposure to hazards which are likely to result from participation in site operations. CH2M HILL will accomplish this by ensuring that all personnel entering the site have received the appropriate Occupational Safety and Health Administration (OSHA) and site-specific training prior to participating in site activities.

4.4.2 Site Specific Training

Health and safety training requirements for on site project personnel have been established in accordance with OSHA requirements for hazardous site workers (29 CFR 1910.120). These training requirements are specified in the HSP (Appendix B), and are to be met before project personnel can begin site work. All personnel working on the site will review this HSP with the SUXOS/UXOSO. Personnel will sign an acknowledgment form to document their review and agreement to comply with the provisions of the HSP.

Activity Hazard Analysis (AHA) will be prepared using the AHA form provided in the HSP Attachments as a guide before beginning each project activity posing health and safety hazards to project personnel. The AHA will identify the work tasks required to perform each activity, along with potential health and safety hazards and recommended control measures for each work task. In addition, a listing of the equipment to be used to perform the activity, inspection requirements, and training requirements for the safe operation of the equipment listed must be identified. Daily safety meetings held with all project personnel in attendance will review the hazards posed and required health and safety procedures/AHAs that apply for each day's project activities.

At the start of each day's activities during the daily safety meeting, the SUXOS will complete the Pre-Task Safety Plan (PTSP), provided in the HSP attachments, with input from the work crew. The PTSP serves the same purpose as the general assembly safety meetings, but the PTSPs are held between the crew supervisor and their work crews to focus on those hazards posed to individual work crews. The day's tasks, personnel, tools and equipment that will be used to perform these tasks are listed, along with the hazards posed and required health and safety procedures, as identified in the AHA. The use of PTSPs, better promotes worker participation in the hazard recognition and control process, while reinforcing the task-specific hazard and required health and safety procedures with the crew each day. The use of PTSPs is a common safety practice in the construction industry.

4.4.3 MEC Awareness Training

Initial MEC Training

Initial MEC awareness training is an appropriate safety precaution for all personnel working on this project. MEC awareness consists of training in basic MEC characteristics, identification and reporting procedures.

Repetitive MEC Training

On the first workday of each work week/period, or more frequently if needed, a pertinent MEC-related topic will be selected and discussed by the SUXOS during the Tailgate Safety Briefing. These safety meetings will help ensure the safety and health of field personnel in the performance of regular work activities and in emergency situations. Safety meetings will be documented.

4.4.4 OSHA Training

All employees involved in hazardous waste site activities receive 40 hours of OSHA HAZWOPER training. They must also have current HAZWOPER 8-Hour Refresher Training prior to working on the site. Any site worker entering the site will be required to have current HAZWOPER training.

4.4.5 Hazards Communication Training

OSHA's standard for hazard communication requires all workers be informed of potentially hazardous materials used in their work area. Employees will be provided information and training on hazardous materials at their work site at the time of their initial assignment and whenever a new material is introduced or found that could present a potential hazard. Personnel will be briefed on the general requirements of the OSHA hazard communication

standard and duty-specific hazards by their immediate supervisor before they begin any duties on the work site. Personnel transferred from another site also will be briefed on the duty-specific hazards by their immediate supervisor before they begin any duties on the work site.

4.4.6 Hearing Conservation Training

The risk management of noise requires the identification of noise sources, assessment of potential to cause injury, and control of all noise sources, such that no personnel should be exposed to potentially harmful noise levels. A full systematic approach must be implemented to successfully manage site noise. The amount of noise or its loudness is measured for continuous noise in decibels on the A scale (dBA), slow response mode. The limit for unprotected noise exposure is 85 dBA averaged over an 8-hour day. Noise levels above 85 dBA generally require raising one's voice to be heard at a distance of 3 feet (approximately 1 meter). The higher the noise level, the shorter the allowable limits of unprotected exposure time. Hearing protection should be utilized for all noise exposures above 85 dBA. The level of impulsive or impact noise is measured on the C scale (dBc) using a "peak hold" or impact setting. The maximum limit for impulsive noise is 140 dBc for a single impulse. Whenever CH2M HILL employee noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 dBA and/or an impact noise level of 140dBc from use of heavy equipment or explosions from the detonation of MEC, hearing protection will be required.

4.4.7 First Aid and CPR

At least two site personnel will be required to have first aid and cardiopulmonary resuscitation (CPR) training and appropriate certification. CPR certification is renewed annually; first aid certification is renewed every 3 years. All first aid/CPR training is American Red Cross-approved or in accordance with OSHA standards. Additionally, first aid/CPR qualified personnel received bloodborne pathogen training as required by 29 CFR 1910.1030.

4.4.8 Bloodborne Pathogen Training

Bloodborne Pathogen training is required for all personnel working on MR sites who could reasonably come in contact with blood or other potentially infectious materials, as the result of performing their job duties.

4.4.9 Visitor Training

Visitors to the site may include representatives from the Navy or JAA. These personnel, even if escorted, must receive, as a minimum, a briefing on site conditions, hazards, and emergency response procedures. Visitors must possess the appropriate level of OSHA training. The SUXOS will provide the visitor briefing. All visitors to the site will be escorted at all times. Visitors not complying with the above requirements will not enter the site.

4.5 Medical Surveillance

The Medical Surveillance Program is designed to track the physical condition of employees on a regular basis as well as survey pre-employment or baseline conditions prior to potential exposures. The employer (prime/subcontractor) is responsible for the medical surveillance of their employees. The employer (prime/subcontractor) must vouch for the medical eligibility of their employees.

4.5.1 Medical Examinations

Each employee must receive a baseline physical, which can be part of an annual medical monitoring program, prior to being permitted to enter the EZ. The content of the physical will be determined by the employer (prime/subcontractor), but should be based on National Institute for Occupational Safety and Health (NIOSH)/OSHA/U.S. Coast Guard (USCG)/U.S. Environmental Protection Agency's (EPA) Occupational Safety & Health Guidance Manual for Hazardous Waste Site Activities. The minimum medical monitoring requirements for work at the site are as follows:

- Complete medical and work histories
- Physical examination
- Pulmonary function tests (FVC and FEV1)
- Blood chemistry (CBC and SMAC 24)
- Urinalysis with microscopic examination
- Audiometric testing
- Eye examination and visual acuity
- Chest x-ray (as directed by the Occupational Physician)
- Electrocardiogram (as directed by the Occupational Physician)
- Other biological testing as prescribed by the Occupation Physician
- Serum lead
- Zinc protoporphyrin
- Arsenic

In addition to a baseline physical, employers (prime/subcontractors) must provide their employees a physical every 12 months.

Any employee found to have a medical condition that could directly or indirectly be aggravated by exposure to these site contaminants cannot be employed for the project.

4.5.2 Exposure Monitoring

A review of the site location and conditions has resulted in the determination that an Air Monitoring Plan (AMP) is not anticipated to be needed for execution of the MR and onsite construction support for this project. Should changes in project-specific site conditions warrant, a site-specific AMP will be developed.

4.5.3 Alcohol and Drug Abuse Surveillance Plan

CH2M HILL employees who perform or oversee MR operations are subject to the provisions of HSE-105, *Drug-Free Workplace*.

Subcontractors are responsible for ensuring that their employees who perform MR operations on CH2M HILL projects are on a drug abuse surveillance program that meets the requirements of HSE-105.

4.6 MEC Construction Support Procedures

4.6.1 Safety Support

A team of two UXO Technicians supervised by the CH2M HILL SUXOS will remain on site to provide construction support when construction operations recommence.

A UXO Technician will observe the excavation operation by standing in a safe area to the side of the excavator outside of the swing radius and will be responsible for examining the face of the excavation and the material as it is placed on a spoils pile or in the bed of a dump truck. The face of the excavation will be carefully observed to visually detect MEC before they are disturbed. The UXO Technician will take advantage of natural or placed protective structures to shield himself from the potential hazard of falling or projected debris. Another UXO Technician may be positioned at the final dump site to achieve a second inspection of the excavation spoils, if appropriate.

The UXO Technician(s) will communicate with the excavator operator via hand-held radios and hand signals to stop the excavation if suspected MEC are observed. When this happens, the excavator operator will immediately place the excavator bucket on the ground, shut down the excavator, and depart the site. The UXO Technicians will then examine the item to determine if it is MEC. If the item is determined to be MEC, it will be reported to the SUXOS.

UXO personnel will remain on site until all intrusive activities within the construction footprint are complete to a depth of 1 foot.

4.6.2 Subsurface Clearance in Support of Construction Activities

Safety Considerations

Subsurface clearance actions in support of construction activities will be accomplished in strict accordance with the HSP (Appendix B), Explosives Siting Plan (ESP) (Appendix D), and ESS (Appendix C). The UXO team should review these plans and any archival information available regarding the area of the proposed construction activities. The UXO team will determine the probable types of MEC that may be encountered and specific safety considerations. Prior to commencing subsurface clearance activities, the UXO team will provide a general work and safety briefing to all on site personnel. This briefing will address the following:

- Probable site hazards and site-specific safety considerations
- UXO safety support procedures
- Responsibilities and lines of authority for any MEC-related response
- Emergency response procedures

Underground Utilities

Utility clearance and/or excavation permits, if required, will be obtained prior to the commencement of any intrusive activities. The UXO Team is responsible for verifying that all necessary excavation permits are on site prior to commencing operations. In the event subsurface utilities are suspected in an excavation area, the UXO team will attempt to verify their location using geophysical survey instrumentation (only utilities with a ferrous content are detectable with a magnetometer). All located utilities should be marked with a series of pin flags to visually delineate their approximate subsurface routing.

Exclusion Zones

EZs will be established in accordance with the ESP (Appendix D) for all MEC clearance procedures (e.g., anomaly excavation, accessing and identification of MEC, MEC recovery, and MEC destruction). During these operations, all non-essential personnel will withdraw to a location outside the EZ. Essential personnel include only those UXO team personnel necessary to accomplish the specific MEC subsurface clearance task.

4.6.3 Area Preparation

Area preparation includes mosquito control, site layout, and reduction and/or removal of vegetation that may impede or limit the effectiveness of subsurface clearance actions. The anomaly avoidance procedures should be followed during area preparation. Teams working in areas not previously cleared of MEC will be accompanied by UXO qualified personnel.

Mosquito Control

Mosquito control will be completed by the City of Jacksonville Mosquito Control, schedule permitting, or by a local pest control company. The project site will be sprayed by airplane or fog truck.

Site Layout

Site surveys will be performed using a Real-Time Kinematic (RTK) Global Positioning System (GPS) or conventional Total Station Survey equipment. Each survey team will consist of a surveyor party chief and a surveyor technician. Stake locations will be checked by a UXO Technician with a handheld all-metals detection instruments (e.g., Minelabs Explorer II or comparable) that can detect both ferrous and non-ferrous metallic items prior to any stakes being driven. (The CAD systems found previously at the site were historically constructed of both ferrous and non-ferrous metals.)

Vegetation Removal

Vegetation removal will be accomplished with gas-powered string trimmers with saw blade attachments and ditch axes or, where appropriate, using a tractor equipped with a bush hog mower. The brush will be cut to a height of approximately 6 inches above ground surface to allow UXO Technicians to visually observe the ground surface during the mag and dig operations.

4.6.4 MEC Intrusive Operations

Intrusive operations to investigate anomalies suspected to be MEC, removal of vegetation piles, clearance of standing vegetation, and excavation of soil to a depth of 1 foot all require onsite construction support to reduce risk to site personnel.

Mag and Dig

Using this technique, a UXO Supervisor will oversee a MEC Clearance Team as they proceed back and forth across the grid, sweeping handheld all-metals detectors (e.g., Minelabs Explorer II or comparable), across their 5-foot wide sweep lane. The UXO Technicians will detect subsurface ferrous metal anomalies by observing the sound produced by the detector. Upon detecting an anomaly, the UXO Technician will immediately investigate by hand excavation. As an alternate method the anomaly may be marked with a pin flag to be excavated later.

The SUXOS will record the number and location of the pin flags on a grid sheet. After completing the subsurface geophysical survey, the MEC Excavation/Demolition Team will return to the grid, equipped with the grid sheet, and will excavate and investigate the anomalies.

Navigation within the grid will be performed using the survey land method to mark the boundary of the surveyed area. The spacing between members of the sweep line will not be larger than 5 feet, and the SUXOS will ensure that the team members cover the entire area assigned to them.

The advantages of a mag and dig operation are that it is an accepted and proven method and the equipment is relatively inexpensive and reliable. The disadvantages of this method are that it is labor intensive, not verifiable because there is no recorded data that can be examined later to verify the quality of the overall UXO Clearance Team, and the required attention to detail of the individual team members.

MEC Excavation

The MEC Excavation Team consists of one SUXOS and three UXO Technicians. The MEC Excavation Team will use hand tools to excavate all anomalies. While excavating, they will use handheld all-metals detectors (e.g. Minelabs Explorer II or comparable) to pinpoint the exact location of the anomaly and will also remove the scrap metal from the grid. The UXO qualified personnel will carefully hand excavate, using standard EOD hand excavation techniques, until the source of the anomaly is reached. The excavation team will uncover the item sufficiently to allow identification without shocking, jarring, or disturbing the item.

Inspect Existing Vegetation Piles for MEC

A team of four UXO Technicians, supervised by a SUXOS will inspect each of the existing vegetation piles at the site for MEC. The vegetation in the piles will be carefully lifted from the piles and checked for MEC using visual means assisted by a handheld all-metals detector (e.g. Minelabs Explorer II or comparable). UXO Technicians will communicate with the heavy equipment operator via hand-held radios and hand signals to stop the equipment if potential MEC are observed. When this happens, the operator will shut down the excavator and depart the site to a designated location. The UXO Technicians will then

examine the item to determine if it is MEC. Vegetation that has been inspected will be placed in trucks for removal from the site by the construction contractor or relocated and stockpiled for later removal by the construction contractor.

4.6.5 MEC Disposal

In the event an MEC item is identified at the site, the SUXOS will secure the site and notify the CH2M HILL PM, who in turn will notify the NAVFAC EFD SOUTH Remedial Project Manager (RPM) and FDEP representative. The SUXOS is responsible for completing the MEC Information form provided in Appendix F. The site will remain secured until disposal operations can be performed. Determination of appropriate safety distances will be in accordance with the approved ESP (Appendix D) and FAC Chapter 62-730.320(2e). Coordination with the FDEP for detonation of recovered MEC requires an Emergency Permit for Detonation. Examples of a completed advanced notification FDEP Emergency Permit for Detonation and a completed post-detonation notification FDEP Emergency Permit for Detonation are provided in Appendix E. If possible, the advanced notification FDEP Emergency Permit for Detonation will be used.

The safest and most expeditious methods of disposal will be utilized in every case. All demolition operations will be in compliance with TM 60A-1-1-31 and applicable/appropriate TM-60 Series publications, NAVSEA SW060-AA-MMA-010 Volume 1, NAVSEA OP 5 Volume 1, and the procedures outlined below.

Movement of UXO

Recovered MEC will not be moved unless it is safe to do so. The following rules are applicable for the disposal of MEC:

- Movement of UXO is only performed when a UXO Technician can make a positive identification that the munition is safe to move and have his/her identification verified by at least one other UXO Technician prior to movement.
- Fuzed UXO and UXO that is determined as not safe to move will be destroyed by blast-in-place (BIP) if the area can withstand a high-order detonation.
- MEC that is not safe to move must be treated in-place or moved using remote means.

Procedures if MEC Cannot be Destroyed Onsite

If the area cannot withstand a high-order detonation and the MEC is not safe to be moved, the MEC may be rendered safe by military EOD. If rendered safe or movement is not an option, then design and implementation of engineering controls to mitigate the effects of a high-order detonation must be affected. Coordination with and approval by NOSSA is required before detonating a MEC.

The use of a CDC is another option for disposal of recovered MEC to prevent environmental impacts from an open detonation. Use of a CDC would require an amendment to the approved ESP (Appendix D) and coordination with the FDEP for use of the CDC under an Emergency Permit for Detonation. The CDC contains all explosives contamination and residues with no release to the atmosphere, soil, or groundwater.

MEC Destruction

Handling and disposal of MEC is a hazardous process. The detonation of MEC will be done in accordance with the approved ESS (Appendix C), ESP (Appendix D), and FAC Chapter 62-730.320. The SUXOS and another qualified UXO Technician must agree on the positive identification of the item and the disposition of the item prior to implementing any disposal operations. If the area where the item is found is determined to be incapable of withstanding a high-order detonation, protective works, such as sandbags, dirt revetments, or trenches will be used. Engineering controls must be pre-approved by NOSSA or submitted to NOSSA for review and approval prior to being implemented. MEC must not be destroyed unless a positive identification can be made. In the event assistance is needed to make a positive identification, military EOD assistance will be requested as an emergency response.

Only the SUXOS and UXO Team members will be allowed within the EZ once the disposal operations have begun. The SUXOS will have overall control of the site. All UXO personnel will ensure safe work practices are observed.

When possible, detonations will be initiated electrically or with shock tube systems. This method offers the SUXOS the maximum amount of control over the detonation and allows the detonation to be aborted up to the instant of initiation. An MEC Disposal Checklist (provided in Appendix F) provides step-by-step checks to ensure that the demolition team has completed each step for detonation of MEC. The checklist provides procedures for preparation of the detonation charge.

The SUXOS is responsible for scheduling the detonation operations and for ensuring that all project personnel are accounted for before disposal operations begin.

The Disposal Team, comprised of the SUXOS and a UXO Technician, will inspect the location and condition of each MEC slated for detonation to ensure positive identification of the MEC and to determine net explosive weight (NEW) for calculation of safety distances.

Prior to initiation, the SUXOS will ensure that guards are stationed at the roadblocks, scan the hazard/fragmentation area with binoculars, and sound three distinct blasts on an air or vehicle horn. He will then scan the area again and initiate the demolition charge if all is clear.

In the event of a misfire, a 60-minute wait time will be observed. Then a new double-primed initiator will be prepared and used to initiate the charges. The Misfire Checklist (provided in Appendix F) will be completed by the UXO Disposal Team Supervisor and filed with the Field Daily Activity Logs.

During demolition activities, the SUXOS will have overall control of the site. An EZ will be established around the demolition site according to the ESP (Appendix D) and FAC Chapter 62-730.320(2e). Only the SUXOS, UXO Team, and UXO-qualified safety personnel will be allowed within the EZ once the disposal operations have begun. The military munitions safety personnel will ensure safe work practices are observed, and the UXO Technician III will perform the necessary steps to safely dispose of the military munitions. The following general procedures will be followed for all disposals by detonation:

- The UXO Team, comprised of the UXO Technician III and a UXO Technician II, will inspect the location, condition, and NEW of the military munitions to be disposed of.
- The UXO Technician III will ensure that permission to detonate explosives has been obtained from the SUXOS.
- The SUXOS will schedule the detonations and to ensure that all project personnel are accounted for before disposal operations begin.
- A minimum separation distance of 25 feet will be observed for initiators and main-charge explosives while at the disposal site.
- Upon arrival at the safe firing point, the UXO Team will lay out the firing wire. If several military munitions are located in close proximity to each other, a mainline/branchline shot may be used to destroy these military munitions simultaneously to increase the efficiency of the operation. The UXO Team will ensure that the total NEW of the military munitions to be destroyed does not increase the EZ minimum separation distance to a radius that is larger than has been evacuated.
- All detonations will be double-primed. The firing wire and initiators will be tested for continuity and the UXO Technician III will observe the UXO Technician II position the explosive charge against the military munition. The disposal shot may be tamped to minimize the effects of the detonation. However, never bury the initiators (blasting caps).
- The initiators will then be connected to the firing wire and secured to the end of the detonating cord or placed into the main charge.
- The UXO Technician III will then inspect the disposal shot and return to the safe firing point.

Post-demolition Operations

After successful initiation of the explosive charge, the UXO Team will conduct an inspection of the detonation site to ensure complete destruction of the military munitions. After verification that no more detonations will be required, an “all clear” notification will be sent out to all parties on the notification list.

The UXO Team will collect for disposal all sandbag fragments, large munition fragments, and other debris; and generally clean and restore the area.

Visible residual materials and/or impacted soil will be recovered from the site and managed, transported, and disposed of in accordance with Section 8.0 of this Work Plan Addendum.

4.6.6 Engineering Controls

Fragment or blast mitigation may be provided by an appropriate Department of Defense Explosive Safety Board (DDESB) approved engineering control. Typical engineering controls for intentional detonation include tamping and sandbags. The design of such an engineering control shall be based on the munition with the greatest fragmentation distance

(MGFD). The NEW used for the design of the engineering control will be the total NEW of all munitions plus the initiating explosives.

Sandbag Thickness for Intentional Detonations

The amount of sandbagging required to contain all fragmentation depends on the munition, and is described in Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions, HNC-ED-CS-S-98-7, August 1998.

Sandbag Enclosure Construction Method

The gradations and physical composition of sand for the sandbags are not critical, but should be at least typical of local construction practice for sand used in foundations and backfill. Minor inclusions of clay or soils materials are permitted. However, no rocks or stones will be placed in the sandbags.

Four walls of identical thickness will surround the munition. The sandbag walls will be stacked to maintain a clear standoff distance of 6 inches between the munition and the inside face of each wall. The interior face of each wall should be vertical but the exterior face can be built with a 1:6 slope (2 inches horizontal to 12 inches vertical). If a sloped outer face is used, the thickness of the wall at the top must be no less than the specified required thickness.

At a minimum, a double layer of sandbags will be used. For example, when a 12-inch thickness is required, the sandbags should be oriented so that two sandbags are necessary to achieve this thickness. The sandbags will be placed tightly against each other. All vertical joints will be staggered and there should be no clear line of sight from the munition to the exterior. As the wall is built, each new layer of sandbags will run in opposite direction to the layer below, so that the layers are interlocked.

After the walls are constructed to a height of 6 inches above the upper surface of the munition, the counter charge or other initiator will be placed on the shell. The counter charge should be located on the side of the munition. Sensitized detonating cord will lead through a polyvinyl chloride (PVC) pipe to the counter charge. The blasting cap used to initiate the detonating cord will not be attached until the sandbag enclosure has been completed and permission to fire has been granted.

A sheet of 3/4-inch thick Douglas fir (or equivalent) plywood will be cut to the dimensions of the cavity between the walls, plus 12 inches in each direction. The plywood sheet will then be centered on the walls so that it bears on 6 inches of each wall. The additional sandbags that make up the roof of the enclosure are then placed on top. As with the walls, the roof sandbags will be stacked with staggered horizontal joints and alternating directions in each layer. The exterior sides of the roof may also be vertical or have a 1:6 slope. The thickness of the sandbag roof above the plywood panel must be the same as the required wall thickness.

After the sandbag layers of the roof have been placed to the correct height, the enclosure is complete and the munition may be detonated.

4.6.7 MPPEH Procedures

Handling and disposal procedures for MPPEH are provided in Appendix G.

4.7 Explosives Management Plan

4.7.1 Acquisition

This Explosives Management Plan (EMP) provides details of the plan for management of explosives to support the project. The design of the project field effort specifies that explosives will be received on an as-needed basis. The quantity of delivered explosives will be adequate to complete the identified task without resulting in an unused portion. This plan was developed in accordance with MMRP MCX DID OE-005-03, local and state laws and regulations, Bureau of Alcohol, Tobacco, and Firearms (BATF) P 5400.7, DoD 6055.9-STD, Department of Transportation (DOT) regulations, and OPNAVINST 5530.13C.

The project MEC subcontractor will be prepared to procure commercial explosives from a local vendor who will deliver the materials to the site. The contractor and MEC subcontractor will coordinate with, and obtain approval from the CH2M HILL PM and SUXOS prior to bringing explosives onto the site. The MEC subcontractor will maintain a valid BATF user of HE permit. Explosives vendors cannot supply explosives without the required valid dealer BATF license. A copy of this dealer license will be maintained at the project site, and upon request, will be made available to any local, state, or federal authority.

The following explosives may be used during disposal of military munitions:

- Main charge HE such as TNT, Octahydro-1,3,5,7-tetramitro-1,3,5,7-tetrazine (HMX), C-4 (M112 blocks), or binary explosives that detonate at high velocities will be used to detonate military munitions.
- Jet perforators or similar prepackaged shaped charges will be used to explosively vent hard-cased munitions.
- Detonating cord will be used to construct mainline-branch line shots, to link multiple shots together, or to transmit the explosive train to the main charge explosive when the main charge is buried (tamped), underwater, or otherwise inaccessible.
- Electric and/or non-electric blasting caps will be used as initiators.
- NONEL tubing will be used to transmit the explosive train from the igniter to the demolition devices. Shock tube priming of explosives offers the instantaneous action of electric detonation without the risk of accidental initiation of the blasting cap (and the charge) by radio transmitters in the area, or by static electricity discharge. The explosion of the shock tube is totally contained within the plastic tubing.

4.7.2 Receipt

When commercial explosives are received, the explosives will be transported to the site by a commercial explosives carrier who is licensed and permitted. Explosives in unsealed boxes containing partial lots will be opened, and the contents of the box will be counted. Any discrepancies between the actual type and quantity of explosives received and the shipping documentation will be noted on the shipping documentation with the signatures of both the delivery driver and the individual authorized to receive the explosives. A legible copy will be filed on site. The authorized individual receiving the explosives will immediately inform the SUXOS of the discrepancy, who will in turn notify the CH2M HILL PM. In addition, the following apply:

- Explosives must be accounted for from initial delivery to the site until the item is expended or the contractor is relieved from accountability by the Contracting Officer.
- Individuals authorized to receive, issue, transport, and use explosives by contract position title and those individuals shall assume accountability by signing the receipt documents.

The SUXOS as the end user of explosives will certify in writing that the explosives were used for their intended purpose.

4.7.3 Transportation

Explosives will be delivered to the site by a licensed and permitted commercial explosives transporter. The MEC subcontractor will receive the appropriate materials and (if additional transportation is necessary) transport the explosives in an appropriately placarded vehicle.

4.7.4 Lost, Stolen, or Unauthorized Use of Explosives

If explosives are discovered to be lost, stolen, or used without authorization, the incident will be immediately reported to the SUXOS, who in turn, will then inform the CH2M HILL PM and Manager of the MR Team.

The license holder is required by law (27 CFR 55.30) to report the theft or loss of explosives to the BATF within 24 hours. In the event of such an occurrence, the following procedures will be followed:

- The magazine (if one is used onsite) will be secured, and the area will be sealed until the appropriate authorities complete their investigation.
- The license holder will make the appropriate notifications as per 27 CFR 55.30. These include calling BATF (800-424-9555) and the local law enforcement authorities.
- The license holder is responsible for completing and forwarding BATF Form 5400.5 (provided in Appendix F). This form will be completed by the SUXOS, and a copy will be provided to the UXOSO.

4.8 Explosives Siting Plan

The ESP is provided in Appendix D.

4.9 Site Safety and Health Plan

The HSP is provided in Appendix B.

5.0 Chemical Warfare Materiel

There is no history or evidence of CWM ever being used at the former NAS Cecil Field. However, in the event that suspected CWM is encountered, the following procedures will be followed:

- The discoverer will immediately notify the UXO Technician III.
- The UXO Technician III will immediately direct the work team to stop work and evacuate the site in an upwind direction. The initial EZ for CWM is 450 feet upwind in accordance with FM-9-15.
- The UXO Technician III will note the location of the suspected CWM to help with its identification and relocation.
- The UXO Technician III will designate a minimum of two UXO-qualified individuals to position themselves upwind as far as possible to prevent unauthorized personnel from accidental exposure.
- The UXO Technician III will immediately notify the SUXOS, who will in turn immediately notify the CH2M HILL PM. The PM will ensure the NAVFAC EFD SOUTH RPM and Corporate MEC Manager are notified as soon as possible.
- The NAVFAC EFD SOUTH RPM will coordinate notification of local and federal government agencies and request technical support from the U.S. Army. Note: Request for technical support for CWM may be initiated through the U.S. Army's 52nd Ordnance Group at Fort Gillem, GA (404) 469-3333.
- The SUXOS will account for all field personnel and notify the CH2M HILL PM.
- The SUXOS will ensure the area is secured until properly relieved by active duty EOD personnel, TEU, or local authority. The SUXOS will direct personnel to support such personnel as appropriate.
- Before work can resume, the site plans will be reviewed for adequacy in consideration of this newly discovered hazard.

6.0 Quality Management Program

The Quality Management Program details the QC procedures to be employed during project activities. The requirements and systems established herein are relevant and applicable to project work performed by CH2M HILL and its subcontractors. This site- and task-specific QC Plan supplements the general QC provisions provided in the NAS Cecil Field Basewide Work Plan (CH2M HILL, 1998).

6.1 Project QC Personnel and Responsibilities

The Project QC Manager is responsible for the execution of the project's construction QC system and communicates the on-site QA program policies, objectives, and procedures to the project personnel and Subcontractors during project meetings and informal discussions. The SUXOS will assist the Project QC Manager in monitoring, controlling, and documenting the quality of the on-site construction, survey, and remedial activities. All documentation related to the control of the quality of the project including analytical test results, inspections, material test results, and audits will be reviewed or prepared by the Project QC Manager. The Project QC Manager's duties include the following:

- Three phases of control inspections
- Control testing
- Document control
- Review of Submittals
- Completion inspection
- Records
- Audits and surveillance

The Project QC Manager will also coordinate with and assist the Navy representatives in the performance of QA audits and inspections.

QC for the field activities on this project will include two primary elements: 1) field observation/audits of personnel and procedures and 2) checking equipment and instruments (e.g. geophysical sensors, 2-way radios) for functioning and appropriate response prior to use. CH2M HILL will have a Project QC Manager assigned to the project having overall QC responsibility. The CH2M HILL SUXOS will have daily on site QC responsibilities. The Project QC Manager and SUXOS have yet to be determined; however, Project QC Manager appointment letters will be submitted for each prior to the commencement of field work.

The following outlines the specific QC responsibilities of the SUXOS and the Project QC Manager.

The SUXOS will be responsible for ensuring that:

- Safety briefings have been performed for all personnel each day prior to commencing site activities and documenting the activity.

- Communications equipment has been checked for operability at the start of each workday.
- Geophysical instruments are checked at the start of each day on standard items of the approximate size, shape and weight of the DMM and MPPEH found previously at the site to ensure proper functioning.
- All site personnel are adhering to the project HSP (Appendix B).
- Vegetation removal has been performed according to this Work Plan Addendum to ensure appropriate site conditions for mag and dig operations.
- UXO Technicians are outfitted with appropriate personal protective equipment (PPE) and low-metal content boots, and that all metallic items (e.g., belts, keys, cellular phones, etc.) are removed from their clothing prior to operating geophysical instruments.
- Procedures for checking existing vegetation piles are followed by UXO Technicians and the equipment operator.
- All equipment needing charging prior to use is properly connected to chargers and a charge is being applied.
- Documentation of on site activities is performed on a daily basis and copies provided to the CH2M HILL PM each day.
- Demolition activities strictly adhere to this Work Plan Addendum and the HSP.

The Project QC Manager will be responsible for the following:

- Review and verification of UXO personnel qualifications.
- At least one audit per week of each activity being performed that week.
- Auditing daily site documentation for completeness.
- Documentation of all audit results.
- Ensuring appropriate filing and storage of records.
- Documentation of QC issues.
- Providing written recommendations to the CH2M HILL PM for corrective actions within one workday of identifying any QC issue.

6.2 Project Records Maintenance

The Project QC Manager is responsible for overall management and control of project submittals.

The Project QC Manager is to establish and maintain an onsite project file for document control. The Project QC Manager is responsible for controlling access to the project file to ensure that records are not lost or misplaced. The purpose of this file is to maintain a

complete set of all documents, reports, certifications, and other records that provide information on project plans, contract agreements and project activities.

The Project QC Manager will complete a Submittal Register, provided in Appendix H, to document submittals in accordance with Appendix B of CH2M HILL's Contract Management Plan (CH2M HILL, 2003). CH2M HILL, the Navy, or others will approve submittals as identified in the Submittal Register. All approved submittals will be distributed by CH2M HILL to the appropriate Navy personnel (Contracting Officer [CO], Resident Officer in Charge of Construction [ROICC] [in duplicate], etc.), the project site, and the project file.

6.3 Surveying

This section describes survey control requirements to be followed during completion of the scope of work.

As stated in Section 3.1.3, the surveyed horizontal geographic position and state plane coordinates will be referenced to permanent or semi-permanent control points existing on the site and will be accurate to 0.25 meter, plus or minus. Horizontal control of Class one, third order or better will be established for all new semi-permanent and tertiary control points. Horizontal controls for graphic and non-graphic information are Mercator Projection, GRS 80, State Plane Coordinate System, North American Datum 1983, Lambert Zones 1 through 6 (or appropriate zone for region to be mapped). Vertical controls are Mean Sea Level, North American Vertical Datum, 1988. Data conversions from the metric system to the English system will use 1 meter = 39.37 inches exactly.

A boundary and location survey of MEC, Historic Properties, infrastructure improvements, utilities, and roadways will be performed to the maximum extent possible. The clearance boundaries will be surveyed and the perimeter corners of clearance areas defined with visible markers. The location of confirmed MEC items found during the clearance operations, any planimetric features, fence lines, other significant land features not shown on existing maps, and Historic Properties identified during the project will be surveyed.

Existing verified Geodetic Control points, updated to the World Geodetic System of 1984 Geocentric Reference System will be utilized for all horizontal and vertical controls used for surveying the project site.

The final survey map of the work area will be completed with one-meter contours and spot elevations surveyed every 30 meters. All spot elevations will have a horizontal accuracy of 0.25 meters with a vertical accuracy of 0.1 meters.

All location surveys of MEC will have a horizontal accuracy of one meter and a vertical accuracy (depth of MEC) of 0.25 meters.

6.4 Testing Requirements

This section describes equipment and construction testing; environmental analysis laboratories and their certifications; environmental sampling and analysis, and test control. The Testing Plan and Log is provided in Appendix H.

6.4.1 Equipment

Testing and maintenance of geophysical instruments, two-way radios and other equipment will be performed in accordance with manufacturer's specifications. Geophysical instruments will be checked in an Equipment Check Area (ECA) prior to use each day. Two items, one inert 20-mm projectile (or surrogate) and an empty CAD (or surrogate) will be buried at approximately 1 foot below the ground surface to ensure that these items can be detected to that depth each day prior to beginning operations. (Because the only MEC found or anticipated to be found at the site consist of DMM, it is not anticipated that individual MEC items will be found below 1-foot.). Records of these activities will be generated by the SUXOS and kept in the project files.

6.4.2 Identification and Certification of Testing Laboratories

The environmental testing laboratories utilized for this CTO project will function as a subcontractor, and have not yet been identified.

6.4.3 Construction

Construction testing is not planned for this CTO.

6.4.4 Environmental

Laboratories performing testing of environmental samples requiring definitive analysis will be approved by the National Voluntary Laboratory Accreditation Program (NVLAP), USACE, or Air Force Center for Environmental Excellence (AFCEE), and certified by the State of Florida.

6.4.5 Testing and Sampling

Soil, water, and solids will be sampled under the direction of CH2M HILL. Geophysical or geotechnical soil testing (grain size, standard proctor and compaction) is not and will not be performed. A Navy-, USACE-, or AFCEE- and FDEP-approved laboratory will be used for all chemical sample analyses.

6.4.6 Test Control

Environmental samples will be collected in accordance with EPA methods and procedures. Other controls will include, but are not limited to, maintaining a chain of custody; proper handling, packing, and shipping; and the use of qualified laboratories. The Project QC Manager will verify the following:

- Facilities and testing equipment are available and comply with testing standards.
- The field instruments are calibrated in accordance with manufacturers' recommendations.
- Recording forms, including all of the test documentation requirements, have been prepared and are accurate and complete.

6.4.7 Completion Inspection

Near the completion of all tasks associated with the scope of work, the Project QC Manager shall conduct a punch-out inspection of the work items to determine completion status and conformance. A punch list of items will be generated that also includes target dates for resolving any deficiencies. This punch list of items will be attached to the QC report on the day(s) of performing the inspections. The status of the items will be tracked via follow-up inspections.

The PM will notify the Navy that the project is ready for a pre-final inspection. The Navy shall perform this inspection to determine whether the project is complete and ready for acceptance. Should any items be identified, a punch list of items will be generated and tracked by the Project QC Manager. Upon satisfactory completion of the punch list, the PM will notify the Navy that the project is ready for the final inspection.

Advanced notice of at least 14 days shall be given to the Navy CO of the plan for conducting the final inspection. The status of the punch list items from the pre-final inspection will be reported, and a statement that pending items will be completed prior to the date of the final inspection. The PM, Project QC Manager, SUXOS, essential Subcontractor representatives, Navy representative(s) and others as determined by the Navy will attend the final inspection.

7.0 Sampling and Analysis Plan

This SAP describes the tasks and responsibilities with respect to the sampling and analysis associated with the work effort described in this Work Plan Addendum. CH2M HILL intends this document to be a site-specific guide for use by the field team while performing the project-required sampling and analysis. Any changes to the activities described in this SAP must be documented as an addendum to this SAP and approved by the PM and Project Chemist.

Samples will be collected in accordance with the United States Environmental Protection Agency (EPA) Region IV Environmental Investigative Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), 2001 and the FDEP Standard Operating Procedures for Field Activities, DEP-SOP-001/01, January 1, 2002. Where the two contradict, the more stringent will apply.

The sampling team will be qualified under the Navy Installation Restoration Chemical Data Quality Manual (IRCDQM), 1999 sampling requirements.

7.1 Data Quality Levels for Measurement Data

The data quality levels for each sampling task are listed in Table 7-1. The sampling events, the sampling and analytical requirements, along with the required level of quality and data packages are listed in Table 7-2. The quantitation, project action, accuracy, precision, and completeness limits by which the data will be evaluated will be provided by the selected laboratory and approved by CH2M HILL QA Chemist.

TABLE 7-1
Data Quality Levels

Sampling Activity	Data Quality Level Category
Solid Waste Characterization (offsite laboratory analyses)	Definitive
Liquid Waste Characterization (offsite laboratory analyses)	Definitive

A Navy-, USACE- or AFCEE-, and FDEP-approved laboratory will be used for all sample analyses. In addition, the laboratory will also follow FDEP SOPs for Laboratory Activities, DEP-DOP-002/01, January 1, 2002.

7.2 Sampling Objectives

The sampling objectives for this project will be as follows:

- Collect samples for solid waste characterization, as necessary.
- Collect samples for liquid waste characterization, as necessary.

TABLE 7-2
Sampling and Analysis Summary Table

Sample Task	Sample Point	Matrix	Sampling Frequency	Approx Sample No	Sampling Method (Note 1)	Sampling Equipment (Note 1)	TAT (Note 2)	Data Package Reqmnt	Required Analysis	Analytical Method	Holding Time	Sample Preservtn	Containers
Waste Characterization													
Disposal of Liquid Wastes	Drums	Water	One per Like Waste Stream	1	Composite (do not composite VOCs)	Bailer, drum thief or dip jar	14 Days	CH2M HILL Level B	TCL Volatiles	8260B	14 days	HCl pH< 2; Cool to 4°C	(2) 40 ml vial
									TCL Semi-volatiles	8270C	7 days ext; 40 days analysis	Cool to 4°C	(4) 1L amber glass
									TCL Pesticides	8081A	7 days ext; 40 days analysis		
									PCBs	8082	7 days ext; 40 days analysis		
									Herbicides	8151A	7 days ext; 40 days analysis		
									TAL Metals	6010B/7470A	6 months	HNO ₃ pH< 2; Cool to 4°C	(1) 500mL HDPE
									Corrosivity	9045	ASAP	Cool to 4°C	(1) 1 L Amber
									Ignitability	1010	ASAP		
Disposal of Solid Wastes	Drums or Roll-off Container	Soil/ Solids	One per Like Waste Stream	1	Composite 5 random grabs into 1 sample	SS Auger, SS Spoons, SS Bowl	14 days	CH2M HILL Level B	TCLP Volatiles	1311/8260B	14 day TCLP extr; 14 day analysis	Cool to 4°C	(1) 4 oz amber glass
									TCLP Semi-Volatiles	1311/8270C	14 day TCLP extr; 7 day extr; 40 day analysis		(3) 16 oz amber glass
									TCLP Pesticides	1311/8081A	14 day TCLP extr; 7 day extr; 40 day analysis		
									TCLP Herbicides	1311/8151A	14 day TCLP extr; 7 day extr; 40 day analysis		
									TCLP Metals	1311/6010A/7470	6 month TCLP extr; 6 month analysis Hg: 28 day TCLP extr; 28 day analysis		
									Ignitability	1010/1020	ASAP		
									Corrosivity	9045A	ASAP		

7.3 Waste Characterization Sampling

In the event that wastes are generated by MEC disposal or decontamination activities, the wastes will be sampled in the following manner and analyzed in accordance with Table 7-2. One sample will be collected per like waste stream (i.e., same matrix, contamination, and source) to perform characterization of the waste.

7.3.1 Solid Waste Sampling

It is estimated that one sample will be needed to perform characterization of the solid waste. Additional samples may be necessary pending the types of waste streams generated. The sample will be collected in the following manner and analyzed in accordance with Table 7-2.

1. From five randomly selected sample locations, use an auger, split spoon, or other similar device to collect several spoonfuls of the soil into a stainless steel bowl.
2. Homogenize the five samples by the quartering techniques using the stainless steel spoon.
3. Fill the appropriate sample jars completely full with the homogenized sample.
4. Close the jar, label, and package the sample for shipment to the laboratory.

7.3.2 Liquid Waste Sampling

It is estimated that one sample will be needed to perform characterization of the liquid waste. Additional samples may be necessary pending the types of waste streams generated. The sample will be collected in the following manner and analyzed in accordance with Table 7-2.

1. Using a bailer or dip jar, collect a water sample from its containment.
2. The sample containers for volatile analyses will be filled first. The 40-ml vials will be filled so that there is no headspace in each vial.
3. The sample containers for the remaining analyses will then be filled.
4. Label and package the samples for shipment to the laboratory.

7.4 Equipment Decontamination

Sampling methods and equipment have been selected to minimize decontamination requirements and the possibility of cross-contamination. The following procedures will be used for all sampling equipment used to collect routine samples undergoing trace organic or inorganic analyses.

Reusable sampling equipment will be decontaminated before the initial sample is collected and between sampling locations using the following procedure:

1. Clean with potable water and Alconox® or equivalent laboratory grade detergent using a brush, if necessary, to remove particulate matter and surface films.

2. Rinse thoroughly with potable water.
3. Rinse thoroughly with analyte-free water.
4. Rinse thoroughly with isopropanol (pesticide-grade). Do not rinse PVC or plastic items with isopropanol.
5. Rinse thoroughly with organic/analyte-free water.
6. Allow equipment to air dry completely.

7.5 Sample Documentation

Sampling documentation will include the following:

- Numbered Chain-of-Custody Reports
- Sample Log Book which includes the following information:
 - Name of laboratories and contacts to which the samples were sent, turnaround time (TAT) requested, and data results, when possible
 - Termination of a sample point or parameter and reasons
 - Unusual appearance or odor of a sample
 - Measurements, volume of flow, temperature, and weather conditions
 - Additional samples and reasons for obtaining them
 - Levels of protection used (with justification)
 - Meetings and telephone conversations held with NAVFAC EFD SOUTH, regulatory agencies, project manager, or supervisor
 - Details concerning any samples split with another party
 - Details of QC samples obtained
 - Sample collection equipment and containers, including their serial or lot numbers
 - Field analytical equipment, and equipment utilized to make physical measurements will be identified
 - Calculations, results, and calibration data for field sampling, field analytical, and field physical measurement equipment
 - Property numbers of any sampling equipment used, if available
 - Sampling station identification
 - Date and Time of sample collection
 - Description of the sample location
 - Description of the sample
 - Sampler(s)' name(s) and company
 - How the sample was collected
 - Diagrams of processes
 - Maps/sketches of sampling locations
 - Weather conditions that may affect the sample (e.g., rain, extreme heat or cold, wind, etc.)
- Sample Labels
- Custody Seals (minimum of two on each shipping container)

7.6 Field Quality Control

Field QC samples are not required for disposal sampling.

7.7 Analytical Methods

Samples will be collected for analytical methods summarized in Table 7-2.

Preliminary analytical results will be faxed to Bonnie Dahmani at the following fax number per the turn-around-times listed in Table 7-2 from day of sample receipt. The final hardcopy data and electronic file will be delivered to Kama White within 14 days of sample receipt.

Bonnie Dahmani

Laboratory Coordinator
CH2M HILL
115 Perimeter Center Place, Suite 700
Atlanta, GA 30346
770-604-9182 ext. 263
EFax: 678-579-8106

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8.0 Waste Management Plan

This Waste Management Plan addresses the characterization, onsite management, and T&D of waste generated during the MR and on-site construction support at the former NAS Cecil Field, Jacksonville, Florida. It is anticipated the following wastes will be generated during these activities:

- Aqueous waste (decontamination water)
- Treatment/Detonation residuals and/or soil impacted by MEC treatment/detonation
- MPPEH
- Spent or contaminated sampling equipment
- PPE
- Uncontaminated general construction debris (such as caution tapes, barricades, signs, packing materials).

Drums are the preferred method for storage of wastes generated during project activities.

8.1 Waste Characterization

Wastes generated from MEC treatment/detonation and decontamination will be characterized according to the SAP in Section 7.0 of this Work Plan Addendum. Waste characterization information will be documented on a waste profile form provided by the offsite treatment or disposal facility as part of the waste acceptance process.

All MPPEH will be inspected, demilitarized if necessary, certified and verified as free of explosive hazards and suitable for recycling. Handling and disposal procedures for MPPEH are provided in Appendix G.

Typically, uncontaminated wastes such as general construction debris will be characterized using process knowledge and generally will be classified as municipal solid waste.

8.2 Waste Profile

Waste characterization information will be documented on a waste profile form provided by the offsite treatment or disposal facility as part of the waste acceptance process. The profile will be reviewed and approved by the CH2M HILL Waste Coordinator prior to submission to the Navy for generator signature. Where generator certification and/or signature are required, Navy personnel shall provide. The signed profile will then be submitted to the disposal facility for acceptance approval.

The profile typically requires the following information including but not limited to:

- Generator (Navy) information including name, address, contact, and phone number

- Site name including street/ mailing address
- Process generating waste (e.g., MEC disposal)
- Source of contamination (e.g., MEC detonation)
- Historical use for area
- Waste composition (e.g., 95% soil, 5% debris)
- Physical state of waste (e.g., solid, liquid, etc.)
- Applicable hazardous waste codes

A facility-approved copy of the waste profile shall be received prior to scheduling of offsite transportation of the waste.

8.3 Waste Management

8.3.1 Waste Storage Time Limit

Hazardous wastes generated from treatment detonation-related activities will be removed from the site within 90 days from generation. Waste, debris, and wastewater that is characterized as non-hazardous will be removed from the site as soon as possible.

8.3.2 Labels

All containers/ drums, tanks, and roll-off boxes will have clearly visible labels. If analytical results indicate that the container contents are hazardous, the tank (or other container if the contents are transferred) will be labeled with a pre-printed “**Hazardous Waste**” label, which includes:

- Accumulation start date
- Generator Name: U.S. Navy
- EPA ID number for site
- Waste codes

For containers of less than 110 gallons, the manifest number must be on the label before transporting.

If analytical results indicate that the container contents are non-hazardous, the tank (or other container if the contents are transferred) will have pre-printed “**Non-Hazardous Waste**” labels that include the following information:

- Accumulation start date
- Generator Name: U.S. Navy
- Site EPA ID Number
- Waste-specific information (e.g., tank sludge)

Until the container contents have been characterized and classified, the pre-printed “**Analysis Pending**” label or “**Waste Material**” (or an equivalent label) will be used. This waste label will contain the equivalent information provided on a Hazardous Waste label, including:

- Accumulation start date
- Generator Name: U.S. Navy
- Site EPA ID Number
- Waste-specific information (e.g., petroleum contaminated soil)

8.3.3 Waste Management Area Requirements

Hazardous wastes will be segregated from non-hazardous wastes. Additionally, incompatible wastes (e.g., reactive and corrosive wastes) will be segregated. Wastes of the same matrix, contamination, and the same source may be aggregated to facilitate storage and disposal.

Wastes will be accumulated in an area identified and approved by the Navy. If an accumulation area is not designated, CH2M HILL will accumulate hazardous wastes in an area that is not accessible to the general public, and that can be secured.

Waste accumulation areas will contain appropriate emergency response equipment. The HSP identifies the specific emergency response procedures and equipment. Hazardous waste accumulation areas will include fire extinguishers (in areas where wastes are known or suspected to be flammable or ignitable), decontamination equipment, and an alarm system (if radio equipment is not available to all staff working in accumulation area). Spill control equipment (e.g., sorbent pads) will be available in the waste accumulation areas, and where liquids are transferred from one vessel to another.

All containers, drums, and tanks will be inspected upon arrival at the site for disrepair and any residual contamination or contents. If container contains waste upon arrival or is in disrepair, it will be immediately rejected and documented.

All wastes will be contained in a manner that prevents the spread of contamination. Unless the Navy has designated a specific waste storage area, wastes will be accumulated (and stored) near the project site. These waste storage areas are under CH2M HILL control.

Security/Contingency Planning

A barrier, such as barricade tape or temporary fencing, will be provided for hazardous waste accumulation areas, and for other waste storage areas that are accessible to the general public. All hazardous waste storage areas will also have signs to identify the areas and provide 24-hour emergency contacts and telephone numbers.

Drums (or other small containers)

The following procedures will be followed when using drums:

- All drums will be inspected and inventoried upon arrival onsite for signs of contamination and/or deterioration.
- Adequate aisle space (e.g., 30 inches) between drums will be provided to allow the unobstructed movement of personnel and equipment. A row of drums should be no more than two drums wide.
- Each drum will be provided with its own label, with labels visible.

- Drums will remain covered except when removing or adding waste to the drum. Covers will be properly secured at the end of each workday.
- Drums will be disposed of with the contents. If the contents are removed from the drums for offsite transportation and treatment or disposal, the drums will be decontaminated prior to re-use or before leaving the site or crushed and disposed appropriately.
- During onsite transport, drums of hazardous waste will be transported on wood pallets and secured together with non-metallic bonding.
- Drums containing liquid hazardous waste will be provided with secondary containment.

Portable Tanks

The following procedures will be followed when using portable tanks:

- Tanks will be inspected upon arrival onsite for signs of deterioration and contamination. Any tank arriving onsite with contents will be rejected.
- Tanks will be provided with covers.
- Each tank will be labeled, with labels visible.
- All tanks will be provided with secondary containment.

Roll-off Boxes

The following procedures will be followed when using roll-off boxes:

- Roll-off boxes will be inspected upon arrival onsite. Any roll-off box arriving onsite with contents will be rejected.
- Roll-off boxes for hazardous or excessively contaminated soils will be provided with disposable liners that will be disposed of as contaminated debris.
- When not in use, securely fastened covers will be installed on all roll-off boxes.
- Old labels will be removed, and new labels will be attached.
- Roll-off containers will be inspected by the transporter after removal of the liner and decontaminated in the event of evidence of liner failure.

Soil Stockpiles

The following procedures will be followed when using soil stockpiles:

- Contaminated or potentially contaminated soil stockpiles will be provided with secondary containment (i.e., a liner, and perimeter berm to prevent rupture and release or infiltration of liquids), and a cover, as appropriate. Stockpiles of “clean” soil will be covered as necessary to prevent wind and stormwater erosion.
 - Minimum 6-mil polyethylene sheeting will be used for liners and covers.

- The perimeter berm, typically hay bales placed beneath the liner, will be constructed to allow for collection of any liquids draining from the stockpile.
- Contaminated liquids that accumulate in the secondary containment will be pumped (or otherwise removed) to a container or tank.
- Covers and perimeter berms will be secured in-place when not in use and at the end of each workday, or as necessary to prevent wind dispersion or run-off from major precipitation events.
- Construction materials for the stockpiles that contact waste will be disposed of as contaminated debris.
- Accumulation start dates will be recorded on a log or a sign located at the stockpile.

Storage Piles

Where appropriate, construction debris and waste, or intact equipment may be accumulated in storage piles. All storage piles will be managed in such a manner as to maintain good housekeeping, and to prevent the spread of contamination.

- For contaminated materials, the storage piles will be provided with secondary containment as indicated for soil stockpiles. Damaged or leaking electrical or hydraulic equipment may not be stored in storage piles.
- For uncontaminated or decontaminated debris and waste, or intact equipment, the storage piles should be placed on a liner. These piles shall be covered as necessary to prevent stormwater run-on and run-off.

Inspection of Waste Storage Areas

Waste accumulation areas will be inspected for malfunctions, deterioration, discharges, and leaks that could result in a release. The following inspection schedule will be followed:

- At least weekly inspection of containers, tanks and roll-off containers (for leaks, signs of corrosion, or signs of general deterioration).
- At least weekly inspection of stockpiles (for liner and berm integrity).

Any deficiencies observed or noted during inspection will be rectified immediately. Appropriate measures may include transfer of waste from leaking container to new container, replacement of liner or cover, or repair of containment berm.

If operations will be suspended for more than 7 days, the regulatory compliance manager must be contacted and alternate inspection arrangements will be made. Prior to demobilization, all hazardous wastes will be removed from the site.

Inspections will be recorded in the daily QC Report and include any deficiencies and how issue was rectified. Copies of the report will be maintained onsite, and available for review.

8.4 Shipping Documentation

Prior to offsite disposal of any waste, CH2M HILL will provide the Navy with a waste approval package for each waste stream. This package shall include a waste profile naming the U.S. Navy as the generator of the waste, analytical summary table(s) applicable to the waste, Land Disposal Restriction (LDR) notification for any hazardous wastes, a completed example waste manifest, and any other applicable information necessary for the Navy to complete its review of the disposal package and signature as the generator. This package will be reviewed by the CH2M HILL Waste Coordinator prior to submission to the Navy.

The signed profile will then be submitted to the disposal facility for acceptance approval. Once the approval letter is received from the disposal facility, transportation will be scheduled.

Each load of waste will be manifested prior to leaving the site. At a minimum, the manifest form will include the following information:

- Generator information including name, address, contact, and phone number, EPA ID number
- Transporter information including name, address, contact and phone number, EPA ID number
- Facility information including name, address, phone number, EPA ID number
- Site name including street/ mailing address
- U.S DOT Proper Shipping Name (e.g., Hazardous Waste Solid, n.o.s., 9, UN 3077, PG III (D008))
- Type and number of container
- Quantity of waste (volumetric estimate)
- CTO or job number
- Profile number
- 24 hour Emergency phone number

Additionally, each shipment of waste will also have a haul/weight ticket. A LDR Notification/Certification is also required for **hazardous wastes**. This form also requires the generator signature and submission to the disposal facility with the profile.

The generator (Navy) and the transporter must sign the manifest prior to the load of waste leaving the site. A copy of the manifest will be retained on site and included with the daily QC Report. The original signed manifest will be returned to the address of the generator. The facility will provide a copy of this signed manifest, weight tickets, and certificates of disposal to CH2M HILL for the final report. The final report will include copies of the facility signed manifest, weight ticket, LDR (if applicable), and the Certificate of Disposal/Destruction/Recycle.

If the signed hazardous waste manifest from the designated offsite facility is not received within 35 days, CH2M HILL will contact the transporter or the designated facility to determine the status of the waste. If the signed hazardous waste manifest has not been received within 45 days, CH2M HILL, in coordination with the Navy, will issue an "Exception Report" to the state of Florida, as required under 40 CFR 262.42.

8.5 Transportation

Trucks and containers used to transport contaminated waste offsite will be inspected *prior* to loading for signs of deterioration and contamination. Any truck or container with contents/residues or in poor condition will be rejected.

Each transportation vehicle and load of waste will be inspected before leaving the site and documented. The quantities of waste leaving the site will be documented, at a minimum on the T&D Log. A contractor licensed for commercial transportation will transport non-hazardous wastes. In the event that wastes are hazardous, the transporter will have a USEPA Identification number, and will comply with transportation requirements outlined in 49 CFR 171-179 (DOT) and 40 CFR 263.11 and 263.31 (Hazardous Waste Transportation). A copy of the documentation indicating that the selected transporter has appropriate licenses will be received and approved by CH2M HILL prior to transport of any waste. Only a registered hazardous waste transporter will be used for the transportation of hazardous waste.

8.5.1 Transporter Responsibilities

The transporter will be responsible for weighing loads at a certified scale. For each load of material, weight measurements will be obtained for each full and empty container, dump truck, or tanker truck. Disposal quantities will be based on the difference of weight measurements between the full and empty container, dump truck, or tanker truck. Weights will be recorded on the waste manifest. The transporter will provide copies of weight tickets to CH2M HILL. The transporter will observe the following practices when hauling and transporting wastes offsite:

- Minimize impacts to general public traffic.
- Repair road damage caused by construction and/or hauling traffic.
- Cleanup waste spilled in transit.
- Line and cover trucks/trailers used for hauling contaminated waste to prevent releases and contamination.
- Decontaminate vehicles prior to re-use, other than hauling contaminated waste.
- Seal trucks transporting liquids.
- All personnel involved in offsite disposal activities will follow safety and spill response procedures outlined in the HSP.
- No materials from other projects will be combined with materials from the former NAS Cecil Field.

8.5.2 Waste Transportation and Disposal Log

The T&D Log is used to track waste from generation to final disposition. Wastes will be logged into the T&D Log the day waste is generated and placed into containers. Transportation of wastes will be inventoried the day of transportation from the site using the T&D Log. The final disposition of a waste will be documented on the T&D Log using the Certificate of Disposal. The blank T&D Log is attached in Appendix H.

8.6 Waste Disposal

Offsite treatment or disposal facilities will use the waste profile and supporting documentation (e.g., analytical results) to determine if they will accept a waste. The treatment or disposal facility will be responsible for providing a copy of the final waste manifest and for a certificate of treatment or disposal for each load of waste received. Wastes will be disposed as follows:

- Hazardous wastes (including environmental media) will be sent to a permitted, Resource Conservation and Recovery Act (RCRA) Subtitle C treatment, storage, or disposal facility.
- Non-hazardous wastes will be disposed in a facility permitted to accept the types and quantities of contamination (e.g., Subtitle D landfills).
- Uncontaminated, or decontaminated, construction and demolition debris may be sent to municipal landfills, or landfills designated for construction/demolition debris.

8.7 Security and Contingency Planning

Emergency response equipment including fire extinguishers, decontamination equipment and an alarm system (if radio equipment is not available to CH2M HILL) will be available at all waste and fuel storage areas. This equipment will either be provided at the waste storage area, or in personnel vehicles. Spill control equipment/material (e.g., sorbent pads) will be available in all waste and fuel storage areas and where liquids are transferred from one vessel to another.

Security will be provided in waste storage areas. Because the waste contents are unknown, a barrier, such as barricade tape or temporary fencing, should be provided. Additionally, signs will be posted at storage areas that are unmanned for more than 24 hours, identifying appropriate CH2M HILL personnel and phone numbers to contact in an emergency.

8.8 Records/Reporting

The following records and documents will be maintained:

- Transportation and offsite disposal records, including:
 - Profiles and associated characterization data
 - Manifests, LDR notifications/certifications, weight tickets, and other shipping records
 - Offsite facility waste receipts, certificates of disposal/destruction
- Inspection records

9.0 Environmental Protection Plan

The Environmental Protection Plan provided in the NAS Cecil Field Basewide Work Plan (CH2M HILL, 1998) provides general information on the appropriate requirements to be adhered to during the performance of the work at the former NAS Cecil Field. The following information is supplemental and specific to MR and on-site construction support.

9.1 Regulatory Drivers

- CERCLA
- RCRA
- FAC Chapter 62-730, Hazardous Waste

9.2 Spill Prevention and Control

The provisions for spill prevention and control establish minimum site requirements. All spills will be reported by CH2M HILL. Refer to the HSP for emergency response procedures and further reporting requirements.

9.3 Spill Prevention

All fuel, chemical, and waste storage areas will be properly protected from on- and offsite vehicle traffic. All tanks (including fuel storage and waste storage) must be equipped with secondary containment. These tanks must be inspected daily for signs of leaks.

Accumulated water must be inspected for signs of contamination (e.g., product sheen, discoloration, and odor) before being discarded. Fire protection provisions outlined in the HSP must be adhered to.

Chemical products must be properly stored, transferred, and used. Should chemical product use occur outside areas equipped with spill control materials, adequate spill control materials must be maintained at the local work area.

9.4 Spill Containment and Control

Spill control materials will be maintained in the support zone, at fuel storage and dispensing locations, and at waste storage areas. Incidental spills will be contained with sorbent and disposed of properly. Spilled materials must be immediately contained and controlled. Spill response procedures include:

- Immediately warn any nearby workers and notify supervisor.
- Assess the spill area to ensure that it is safe to respond.
- Evacuate area if spill presents an emergency.
- Ensure any nearby ignition sources are immediately eliminated.
- Stop source of spill.
- Establish site control for spill area.

- Use proper personal protective equipment in responding to spills.
- Contain and control spilled material through use of sorbent booms, pads, or other material.

9.5 Spill Cleanup and Removal

All spilled material, contaminated sorbent, and contaminated media will be cleaned up and removed as soon as possible. Contaminated spill material will be drummed, labeled, and properly stored until material is disposed of. Contaminated spill material will be managed as waste (see Waste Management Plan) and disposed of according to applicable, federal, state, and local requirements.

9.6 Additional Environmental Considerations

Additional environmental considerations are outlined in Section 9 of the ESS provided in Appendix C.

10.0 References

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USACE. October 2002 (Approval date). Data Item Description OE-005.03, "Explosives Management Plan."

Appendix A
Project Schedule

Activity ID	WBS	% Comp	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	2004			2005				
								NOV	DEC	JAN	FEB	MAR	APR	MAY	
CTO #0029 - Former NAS Cecil Field															
Subtotal		35		146	114	15SEP04A	12APR05								
PHASE 1															
Subtotal		100		5	0	15SEP04A	21SEP04A								
PHASE 1A															
Subtotal		100		5	0	15SEP04A	21SEP04A								
FUNDING AUTHORIZATION															
A2 100000	10.01	100	Project Authorization	0	0	15SEP04A									
CTO SETUP/SITE VISIT															
A210010290	10.01.02.90	100	CTO Setup	5	0	15SEP04A	21SEP04A								
A210010291	10.01.02.91	100	Site Visit Preparation	4	0	15SEP04A	20SEP04A								
A210010292	10.01.02.92	100	Perform Site Visit	1	0	21SEP04A	21SEP04A								
PHASE 2															
Subtotal		62		56	24	15SEP04A	03DEC04								
PHASE 2, TASK 1															
Subtotal		62		56	24	15SEP04A	03DEC04								
PROJECT MANAGEMENT															
A220010399	20.01.03.99	57	Project Management (Phase 2)	56	24	15SEP04A	03DEC04								
COST PROPOSAL PREPARATION															
A220010326	20.01.03.26	100	Develop Cost Estimate/Schedule	7	0	15SEP04A	23SEP04A								
A220010327		100	Submit Cost Proposal to Client	0	0		23SEP04A								
A2 20187		100	Negotiate CTO with Client	1	0	27SEP04A	27SEP04A								
A2 20199		100	Submit Final/Negotiated Estimate/Schedule	1	0	27SEP04A	27SEP04A								
A2 2000001		100	Phase 3 Award	0	0		27SEP04A								
BID PACKAGE PREP/AWARD															
A220010391	20.01.03.91	40	Prepare Bid Packages	10	6	25OCT04A	05NOV04								
A2 20150		0	Issue RFB to Subcontractors	0	0		08NOV04								
A220010393	20.01.03.93	0	Subcontractor Pre-Bid Meeting/Site Visit	1	1	15NOV04	15NOV04								
A2 20165		0	Subcontractor Bids Due	0	0		19NOV04								
A220010392	20.01.03.92	0	Evaluate Bid Packages	3	3	22NOV04	24NOV04								
A2 20188		0	Issue Letter of Intent to Award	0	0		24NOV04								
A2 20210		0	Award Subcontracts	0	0		24NOV04								
A2 20181		0	Submit Subcontractor Plans & Submittals	5	5	29NOV04	03DEC04								
A2 20189		0	Review Subcontractor Plans & Submittals	5	5	29NOV04	03DEC04								

Start Date	14SEP04		Early Bar
Finish Date	12APR05		Progress Bar
Data Date	29OCT04		Critical Activity
Run Date	16NOV04 14:21		

RAC4 - CO29 Sheet 1 of 2

**CTO #0029 - Former NAS Cecil Field
CTO COMPLETION SCHEDULE
NAVY RAC SOUTHERN DIVISION**



Activity ID	WBS	% Comp	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish	2004					2005				
								O	NOV	DEC	JAN	FEB	MAR	APR	MAY		
A2 20180		0	Subcontractor Plans Due	0	0		03DEC04										
A2 20211		0	Project Mobilization	0	0	06DEC04											
WORK PLANS PREPARATION																	
A220010301	20.01.03.01	0	Sampling and Analysis Plan	35	11	27SEP04A	12NOV04										
A220010304	20.01.03.04	0	Environmental Protection Plan	35	11	27SEP04A	12NOV04										
A220010306	20.01.03.06	0	Pollution Control Plan	35	11	27SEP04A	12NOV04										
A220010308	20.01.03.08	0	Site - Specific H&S Plan	35	11	27SEP04A	12NOV04										
A220010313	20.01.03.13	0	General Site Work Plan	35	11	27SEP04A	12NOV04										
A220010314	20.01.03.14	0	Quality Control Plan	35	11	27SEP04A	12NOV04										
A220010315	20.01.03.15	0	Transportation & Disposal Plan	35	11	27SEP04A	12NOV04										
A220010390	20.01.03.90	0	Hazardous Waste Mgmt Plan	35	11	27SEP04A	12NOV04										
A2 20290		0	Submit Draft Work Plans	0	0		12NOV04										
A2 20185		0	Southern Division WP Comment Period	8	8	15NOV04	24NOV04										
A2 20190		0	Incorporate WP Comments	3	3	29NOV04	01DEC04										
A2 20191		0	Submit Final WP to Southern Division	0	0		02DEC04										
A2 2095		0	Work Plan Approval Received	0	0		03DEC04										
PHASE 3																	
Subtotal		3		146	114	15SEP04A	12APR05										
ON CALL SUPPORT - DISCARDED MILITARY MUNITIONS																	
Subtotal		3		146	114	15SEP04A	12APR05										
PROJECT MANAGEMENT																	
A2PMAL0101	PM.AL.01.01	7	PMO	123	114	15SEP04A	12APR05										
A299220101	99.22.01.01	0	On-Site Field Management	45	45	06DEC04	08FEB05										
A299220102	99.22.01.02	0	Off-Site Project Management	90	90	06DEC04	12APR05										
MOBILIZATION & PREPARATORY WORK																	
A231019090	31.01.90.90	0	Mosquito Control	2	2	06DEC04	07DEC04										
ENGINEERING, SURVEY & QC																	
A231220410	31.22.04.10	0	Grid Layout Survey Services	3	3	07DEC04	09DEC04										
OE - CWM REMOVAL & DESTRUCTION																	
A231040102	31.04.01.02	0	Vegetation Removal with OE	5	5	13DEC04	17DEC04										
A231040107	31.04.01.07	0	Surface Sweep(MAG/FLAG/DIG)	5	5	15DEC04	21DEC04										
A231040108	31.04.01.08	0	Surface Sweep(Debris Pile Inspections)	6	6	22DEC04	30DEC04										
A231040109	31.04.01.09	0	On-call Support	25	25	04JAN05	08FEB05										
REPORTING																	
A231210605	31.21.06.05	0	Project Completion Report	45	45	09FEB05	12APR05										
A231210606		0	Submit Project Completion Report	0	0		12APR05										

Appendix B
Site Specific Health and Safety Plan

Site Health and Safety Plan

Munitions Response and On-site Construction Support for Discarded Military Munitions

Former Naval Air Station Cecil Field
Jacksonville, Florida

Revision No. 00

Contract No. N62467-01-D-0331
Contract Task Order No. 0029

Submitted to:



U.S. Naval Facilities
Engineering Command
Southern Division

Prepared by:



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November 2004

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2	Hazard Communication Program Forms
3	Self-Assessment Checklists
4	Behavior Based Loss Prevention Forms

1.0 Introduction

1.1 Site History and Project Description

According to the Environmental Baseline Survey (EBS) Report, Building 365 was a former earth covered weapons storage locker built in 1957 at the former NAS Cecil Field, Jacksonville, Florida. The building is a one-story cinderblock bunker that is divided into 10 individual storage areas. Building 365 was reported to store cartridge actuated devices (CADs) and was used as a ready service magazine to store munitions for flight operations at the former NAS Cecil Field. Building 365 is located west of Runway 18R, south of Buildings 373/104, and north of Building 366 (Figures 1-1 and 1-2). An access road runs along the west side of the building and a wooded area was formerly located to the west. The building and adjacent property were classified 1/White in the EBS report and had been previously found suitable to transfer with property transfer from the Navy to the Jacksonville Airport Authority (JAA) completed.

On Friday, September 10, 2004, eleven DMM items were found near Building 365 during clearing and grubbing operations of an approximate 5 acre area in support of an ongoing JAA construction project to expand the north apron aircraft taxiway. The DMM items consisted of a single unexploded ordnance (UXO) item (one 20-millimeter [mm] high explosive [HE] round consisting of cartridge case with percussion primer, not impinged; HE projectile unfired with the point detonating fuze sheared off) along with ten empty CADs. On September 21, 2004, the CH2M HILL Munitions Response Team visited the site and talked with one of the responding Explosive Ordnance Disposal (EOD) Technicians, who stated that the recovered 20mm round was in a safe condition and had been removed from the site for disposal.

The DMM find caused a work stoppage of the JAA construction project and prompted the need for munitions response and on-site construction support as a cautionary action to ensure that the presence of these discovered DMM items was unique to the area they were found and to protect human health and safety during completion of the construction project.

1.2 Project Objectives

The project objective is to provide munitions response and on-site construction support as a cautionary action to ensure that the presence of the discovered DMM items was unique to the area they were found and to protect human health and safety during completion of the construction project.

2.0 Staff Organization, Qualifications, and Responsibilities

All project personnel are responsible to the Senior UXO Supervisor (SUXOS) during fieldwork and will review, and become familiar with, the content of this project-specific SSHP. Project team personnel will comply with the hazard-specific instruction provided by the SUXOS. Any deviations from the procedures identified in the SSHP must be based on field conditions encountered and documented.

2.1 Project Manager

Michael Halil, P.E. is the project manager (PM). The PM is responsible for ensuring all activities performed at Cecil Field are conducted in accordance with contractual specifications and the approved Work Plan Addendum (WPA), and will also coordinate with Navy representatives. The PM is responsible for management of all operations conducted for the project, and will ensure that all personnel assigned to the project, including subcontractors, have reviewed appropriate sections of the WPA before any task associated with the project begins. The PM will monitor the budget and schedule to ensure availability of necessary personnel, equipment, subcontractors, and services, and will also participate in the development of the field program, evaluation of data, and reporting.

2.2 Senior UXO Supervisor (SUXOS)

The SUXOS will be the most senior UXO Technician onsite and, because of the limited scope of the project (on-site support only), will also serve as the UXO Safety Officer (UXOSO) and UXO Quality Control Specialist (UXOQCS). The SUXOS will directly control the operations of all personnel performing MEC activities. The SUXOS reports directly to the PM concerning technical MEC and operational issues but will report to the program level on all matters related to site safety and quality control. The SUXOS will implement the approved plans in the field and supervise all personnel on the project. The SUXOS has the authority to temporarily stop work to correct an unsafe condition or procedure. The SUXOS will meet or exceed the requirements required by Huntsville DID OE-025.02, Personnel/Work Standards for the SUXOS, UXOSO and UXOQCS positions.

2.3 UXO Technician II

UXO Technician II personnel will report directly to the SUXOS and are responsible for the safe and efficient performance of specific field tasks as assigned by the SUXOS. They are also responsible for complete familiarity with the WPA and for adherence to the procedures described in the WPA. A UXO Technician II has the authority to temporarily stop work in order to bring an unsafe condition or procedure to the attention of the SUXOS. Each UXO Technician

It will meet or exceed the requirements required by Huntsville DID OE-025.2, Personnel/Work Standards.

2.4 Project Field Personnel Responsibilities

2.4.1 General Responsibilities

All CH2M HILL project team field personnel are responsible to the SUXOS and will review, and become familiar with, the content of this SSHP. All project team personnel will comply with the hazard-specific instruction provided by the SUXOS. Any deviations from this SSHP must be based on field conditions encountered and must be well documented in the field notes.

2.4.2 SUXOS Responsibilities

The SUXOS has the specific responsibility for ensuring that all project team members, including subcontractors, comply with the SSHP. It is the SUXOS' responsibility to inform the subcontractors and other field personnel of any hazards as he/she becomes aware of them. Deviations from the SSHP must be based on field conditions encountered and thoroughly documented in the field logbook or notes. The SUXOS has the authority to monitor and correct CH2M HILL health and safety problems as noticed onsite. Additional SUXOS responsibilities include:

1. Following the SSHP;
2. Reporting to the PM any unsafe conditions or practices;
3. Reporting to the PM all facts pertaining to incidents that result in injury or exposure to toxic materials;
4. Reporting to the PM equipment malfunctions or deficiencies;
5. Providing site safety briefing for project team members;
6. Assisting the PM in documenting compliance with the SSHP;
7. Enforcing the "buddy system" as appropriate for site activities;
8. Posting location and route to the nearest medical facility, and arranging for emergency transportation to the nearest medical facility;
9. Posting the telephone numbers of local public emergency services (i.e., police and fire departments);
10. Stopping operations that threaten the health and safety of the project team or surrounding populace;
11. Observing project team members for signs of exposure, stress, or other conditions related to pre-existing physical conditions or site work activities.

2.5 Contacts

Table 2-1 contains the contact information for project personnel.

TABLE 2-1
Project Personnel Directory

Contact	Company
R. Scott Newman, Program Manager Scott Smith, Senior Project Manager Joe Giandonato, Contracts Administration Manager Richard Rathnow, Health and Safety Manager Theresa Rojas, QA/QC Manager	CH2M HILL Constructors, Inc 115 Perimeter Center Place, N.E. Suite 700 Atlanta, GA 30346-1278 770/604-9095
Michael Halil, Project Manager	CH2M HILL Constructors, Inc. 6219 Authority Avenue Jacksonville, FL 32221 904/777-4812 ext. 233 904/219-6277 (cell)
Candace Borden, CO	NAVFAC EFD SOUTH P.O. Box 190010 North Charleston, SC 29419-9010 843/820-5904
Richard Stanley, ACO	As above 843/820-5939
Jimmy Jones, COTR	As above 843/820-5544
Mark Davidson, RPM	As above 843/820-5526
Larry Blackburn, Environmental Programs Coordinator	Engineering Field Activity Southeast Environmental Programs Coordinator/Resident Officer in Charge of Construction P. O. Box 139, Building 13 NAS Jacksonville, FL 32212-0139 904/542-5571, ext. 260

2.6 Subcontractor Responsibilities

All subcontractors are responsible for their own health and safety programs and the health and safety of their own employees. This requirement is based on OSHA regulations, which recognize the employer-to-employee responsibility for health and safety. A copy of their written program must be submitted to CH2M HILL for review. In an effort to assist the subcontractors, and to comply with hazard communication requirements, CH2M HILL will provide a copy of this SSHP to each subcontractor for implementation by the subcontractor's employees.

3.0 Hazard Analysis and Risk Assessment

Reasonably anticipated potential hazards to personnel at the site include: MEC, other physical hazards (slips and trips [working on uneven surface], noise, working around heavy equipment, traffic, heat/cold, and sunburn); and infectious biological agents (snakes, spiders, insects, rodents, and plants). Each potential hazard and the potential for exposure are discussed below.

3.1 MEC

MEC are not anticipated to be encountered, however appropriate safety measures will be used during all fieldwork. The primary hazard associated with MEC is the possibility of injury as a result of an explosion. In the event an MEC item is identified at the site, the SUXOS will secure the site and notify the CH2M HILL PM, who in turn will notify the NAVFAC EFD SOUTH Remedial Project Manager (RPM). The site will remain secured until disposal operations can be performed. Determination of appropriate safety distances will be in accordance with the approved Explosives Siting Plan in the project WPA.

The safest and most expeditious methods of disposal will be utilized in every case. All demolition operations will be in compliance with TM 60A-1-1-31 and applicable/ appropriate TM-60 Series publications, NAVSEA SW060-AA-MMA-010 Volume 1, NAVSEA OP 5 Volume 1 and the procedures outlined in the project WPA.

3.2 Other Physical Hazards

Slips, trips (working on uneven surface), noise, working around heavy equipment, traffic, heat/cold, and sunburn generally constitute the physical hazards that may be encountered.

3.2.1 Slips, Trips, and Falls

Slipping hazards may exist due to uneven terrain or wet surfaces. Tripping hazards may be present from elevation changes, debris, poor housekeeping, or equipment. Collectively, these types of injuries account for nearly 50 percent of all occupational injuries and accepted disabling claims. Prevention requires alertness, following and enforcing proper procedures, and appropriate protective equipment.

3.2.2 Noise

Heavy construction equipment may generate hazardous levels of noise. Hearing protection with the appropriate noise reduction ratio (NRR) shall be worn in areas with high noise. A good rule of thumb to determine if hearing protection is needed is the inability to have a conversation at arm's length without raising voice levels.

3.2.3 Working Around Heavy Equipment

Vehicles, dump trucks, concrete trucks, cranes, backhoes, carts, and other construction equipment may be present at the site. When working near this equipment, stay alert to what the

equipment is doing, especially when a backup alarm is sounding. Maintain eye contact with operator at all times and wear an orange vest to increase visibility. Never enter the swing radius of articulating equipment and be aware of pinch points.

3.2.4 Traffic Control and Safety

Vehicular traffic, in the form of large trucks and other heavy equipment, may be present. It is important to be conscious of all vehicular traffic that may be present during conduct of field operations. If necessary, use caution tape, barricades, or safety cones to denote the boundaries of the work area and to alert vehicle operators to the presence of operations that are non-routine to them. Be careful when exiting the work area and especially when walking out from between parked vehicles to avoid vehicular traffic.

3.2.5 Sunburn

Working outdoors with the skin unprotected for extended periods of time can cause sunburn to the skin. Excessive exposure to sunlight is associated with the development of skin cancer. Project team members should take precautions to prevent sunburn by using sunscreen lotion and/or wearing hats and long-sleeved garments.

3.2.6 Heat Stress

The potential for heat stress is a concern when field activities are performed on warm, sunny days. Although the field work for this project is to be performed during some of the cooler months of the year, the project is located in Florida so site workers should be monitored for signs of heat stress on warmer days.

3.2.7 Sanitation

Sanitation has to do with promoting personal hygiene, protecting general public health, preserving the cleanliness of drinking water, and controlling sewage.

Adequate sanitation facilities will be located at the site.

Portable containers of drinking water will be provided and located at the site. The containers will be capable of being tightly closed and equipped with a tap. Drinking water will not be dipped from containers. The drinking water dispenser will be clearly marked as to the nature of the contents and will not be used for any other purpose.

For single service cups, there will be a sanitary container to hold the unused cups and a trash container for disposing of the used cups. Sanitary trash that is generated will be double-bagged and transported from the installation for disposal as solid waste.

3.3 Biological Hazards and Controls

Various insects, reptiles, and poison ivy/oak could potentially be encountered during the course of completing the work covered by this SSHP. Precautions will be taken by all on-site personnel to avoid prime snake and insect habitats, to protect one's self, and assist other personnel from attack or encounter.

WARNING
**AN ENCOUNTER WITH A POISONOUS SNAKE REQUIRES IMMEDIATE
PROFESSIONAL MEDICAL ATTENTION.**

3.3.1 Insect Bites

Mosquitoes, ants, bees, and wasps are considered to be the most common insects that may be encountered. Although their bite/sting is not considered life threatening, an allergic reaction to these bites/stings could occur. Avoid insect habitats whenever possible. If bitten/stung by insects, remove the stinger by gently scraping it out by using a credit card or driver license (do not use tweezers). Apply ice to the affected area. Instant ice packs are to be kept in the work area. If an insect bites/stings the worker, immediately apply an ice pack to the affected area, wash area with soap, and apply antiseptic. If an allergic reaction occurs, transport worker to the closest medical facility for treatment. Also, use protection against bacteria and other microbiota that could be present in the water and sediment. Be aware that mosquitoes are a common vector for human diseases.

3.3.2 Spiders and Other Insects

Almost all spiders produce toxic venoms, but their fangs are too small and weak to penetrate the skin, the venom is too weak, or the volume of venom is too small to pose a significant threat to humans. The black widow is the only spider found in the United States (U.S.) that is capable of routinely producing serious illness by its bite.

The female black widow typically is coal black and has a prominent, spherical abdomen that may be as large as 0.5 inch in diameter. A red or orange marking resembling an hourglass shape is present on the underside of the abdomen. The black widow weaves a coarse, crudely constructed web in dark corners, both indoors and out. They exist in secluded areas beneath objects, under toilet seats, in dark corners of buildings, windowsills, etc.

The black widow bite may feel like a pinprick, may produce a mild burning, or may not be noticed at all. Small puncture wounds, slight redness, or no visible marks may be found at the site of the bite. Within about 15 minutes painful muscle cramps develop at the point of the bite and rapidly spread to involve the entire body. Weakness and tremors may also be present.

Treatment for black widows consists of efforts to relieve the painful muscle spasms and antivenin for small children. No treatment at all should be directed to the site of the bite, with the possible exception of applying an ice cube to relieve pain. Incision and suction is damaging and useless, and should not be performed. Essentially, nothing can be done outside of a hospital. This applies to other types of spider bites too.

The brown recluse spider is one of six poisonous kinds of spiders in the U.S. It has long, skinny legs and is about 0.5 inch long overall. Its entire body is brown, except for a dark mark in the shape of a violin on its head.

When they are outside, they are typically found in piles of rocks, wood, or leaves. If they come inside, brown recluse spiders will go to dark closets, attics, or basements. They are non-aggressive and bite only when disturbed.

A person who gets bitten by a brown recluse spider may not notice anything at first or only feel a little sting at first. After about 4 to 8 hours, the sting will start to hurt a little more. It might

look like a bruise or might form a blister surrounded by a bluish-purple area that turns black or brown and becomes crusty after a few days.

If you ever think that you have been bitten by a brown recluse spider, **notify the SUXOS, immediately**. Brown recluse spider bites rarely kill people, but it is important to get medical attention as soon as possible. Wash the bite well with soap and water. You can also apply ice to the area, elevate it, and keep it still. If it is possible, catch and bring the spider to the medical center with you; this is important because it can sometimes be hard to diagnose a spider bite correctly. The spider may be killed before bringing it in, but be sure not to damage it beyond recognition.

3.3.3 Snakes

The most common poisonous snake is the rattlesnake (pit viper). Any snake that inflicts a bite should be precisely identified if possible. Many people are injured by unnecessary treatment for bites of nonpoisonous snakes. More significantly, a bite by a rattlesnake may produce very little reaction in the hours immediately after it occurs, when treatment is most effective. Only if the species of snake is known can optimal therapy be started without delay. Preferably, the snake should be killed and brought to a medical center with the person who was bitten so that the exact species can be determined.

Pit vipers are so named because they have a small pit located between the eye and the nostril, a feature found only in these poisonous species. The pit is an infrared sensing organ instrumental in detecting the small, warm-blooded animals these snakes eat. They have a characteristic triangle head and heavy body. Rattlesnakes belong to the pit viper family. If fangs are present, the snake is undoubtedly poisonous; however, searching for fangs is hazardous. If they have rattles, they are obviously rattlesnakes and poisonous. However, the absence of rattles is not a good indicator because the rattles can get broken off, or even shed with the skin.

The reaction following the bite (envenomation) from a pit viper is one of the best indications that the snake was poisonous and is the only indication that envenomation has occurred and treatment may be needed. This reaction begins within minutes after the bite, but is usually less marked after other pit viper bites. The severity of the reaction varies depending on the species of snake. The earliest symptom is pain or burning at the site of the bite, although some people experience relatively little pain. Shortly afterward the area begins to swell as fluid pours into the tissues. Bleeding usually produces a purple or green discoloration, but this change may take several hours to appear.

Following moderate envenomation, the swelling and discoloration extends farther from the site of the bite, large blisters containing clear or bloody fluid appear, and the regional lymph nodes (particularly in the armpit or the inguinal crease) become enlarged and tender. Severe envenomation is indicated by the development of a systemic reaction. The individual becomes weak and dizzy and develops signs of shock, particularly cold, clammy skin and a weak pulse.

When the individual can be hospitalized within 2 hours time, the only treatment needed is limiting the spread of the venom and immobilizing the extremity. No other measures, particularly incision and suction, should be attempted. Tourniquets are not recommended to help reduce the spread of the venom because they are rarely applied correctly and commonly do more harm than good. The immobilized extremity should be kept at the same level as the heart, and the individual must be transported to a hospital with as little effort on his or her part

as possible. No other treatment should be attempted. Wrapping should not be applied to the wound unless envenomation is known to be moderate or severe.

3.3.4 Lyme Disease Prevention

The prevention of Lyme disease is important during spring, summer, and fall months. Lyme disease is a bacterial infection transmitted by the bite of a deer tick. About 50 percent of deer ticks carry the Lyme disease bacteria.

To prevent the bite of a deer tick, avoid grassy areas when possible. Wear protective clothing (light colored) with long sleeves, and tuck pant cuffs inside socks. Apply repellent containing "Peamethrin" or "Deet" to clothing but **not directly on skin**. Make a habit of self-inspection after exposure to an area that may contain deer ticks.

- **Symptoms:** Headache, flu-like symptoms, a spreading ring-like rash, and swelling and joint pain
- **Tick removal:** Remove attached tick immediately. Use tweezers to grasp the tick's head near the skin and slowly pull straight out. If possible, save the tick for laboratory analysis.

Report any incident involving deer tick bites to the SUXOS.

3.3.5 Poisonous Plants

Contact with poisonous plants such as poison oak, poison ivy, and poison sumac can cause irritation with symptoms such as itching and inflammation, skin rash, swelling, and weeping sores. Contamination can occur through direct or indirect contact with any part of the plant or by exposure to smoke from burning plants. Contact with clothes that have been contaminated can also cause an allergic reaction.

3.3.5.1 Plant Identification

Poison ivy is a trailing or climbing woody vine or a shrub-like plant with leaves that are each divided into three broad, pointed leaflets. The leaflets are commonly dark glossy green on top and slightly hairy underneath. They produce small yellowish or greenish flowers followed by berry-like drupes.

Poison oak is a member of the same family as poison ivy and has very similar appearances. Poison oak has leaves divided into three leaflets and generally has three to seven distinct lobes. Typically, they are a shrubby-type plant that can grow to 8 feet in height, or sometimes can be a climbing plant.

3.3.5.2 Exposure Prevention

The best way to prevent exposure is the ability to recognize these plants, conduct an initial survey of the area to determine if the plants are present in the work area, and avoid contact with them.

If plants are located and work must be conducted in that area, have the plants removed if possible. If this is not possible, wear long-sleeved shirts, gloves, and a heavy material type pants. Remember not to touch contaminated clothing. There are products available on the

market that can be applied to exposed skin (similar to sunscreen products) prior to working around the plants.

3.3.5.3 Symptoms and Treatment

The first symptoms are reddening skin and itching. This usually occurs several hours after contact. Small watery blisters soon appear and itching becomes intense. In severe cases, large watery swellings appear and coalesce.

To care for poison plant contact, immediately wash the affected area thoroughly with soap and water. If a rash or weeping sore has already begun to develop, you may apply a boric acid solution, a paste of sodium bicarbonate (baking soda), and calamine or Caladryl lotion to help soothe the area. Antihistamines, such as Benadryl®, may also help dry up the sores.

A physician should be consulted in severe cases, if sensitive parts of the body, such as eyelids and face, or if the condition gets worse and effects large parts of the body.

4.0 Training Requirements

Prior to commencement of site activities, the PM will ensure that all employees engaged in site operations are informed of the nature and degree of exposure to hazards that are likely to result from participation in site operations. The SUXOS will accomplish this by ensuring that all site workers have received the appropriate OSHA and site-specific training prior to participating in site activities.

4.1 OSHA Training for General Site Workers

All employees involved in hazardous waste site activities receive 40 hours of OSHA HAZWOPER training. They must also have current HAZWOPER 8-Hour Refresher Training prior to working on the site. Any site worker entering the site will be required to have current HAZWOPER training.

4.2 OSHA HAZWOPER Manager and Supervisor Training

The on-site manager/supervisor, the SUXOS, will receive the same training as the general site workers for whom he/she is responsible. He/she will also receive an additional 8 hours of OSHA required supervisory training to enhance the ability to provide guidance and make informed decisions.

This additional training includes the following:

- Review of the SSHP;
- Review of the Corporate Safety and Health Program;
- Management of hazardous waste site cleanup operations;
- Management of site work zones;
- How to communicate with the media and the public;
- PPE selection and limitations;
- Spill containment; and
- Monitoring site hazards.

4.3 MEC Training

All UXO qualified personnel performing work involving decisions of safety and condition of MEC must be graduates of the Naval Explosive Ordnance Disposal School or Army Bomb Disposal School at Aberdeen, Maryland. UXO Technician I, II, or III may be qualified through an alternate DoD certified UXO training program. A copy of their certificate of graduation will be kept on file with the corporate MEC Safety Officer and MEC QC Manager. All UXO qualified personnel will meet or exceed the minimum requirements established, and verified by the U.S. Army Engineering and Support Center, Huntsville DID OE-025.02, Personnel Work Standards.

TABLE 4-1.
UXO Personnel Training and Experience Hierarchy

Position description	Training Required ^{a, b, c}	Minimum Years Of EOD/UXO Experience	Special requirements
SUXOS	a, b	10 years	Experience in all phases of UXO remediation and applicable safety standards
UXOQCS	a, b	10 years	Experience in all phases of UXO remediation and the transportation, handling, and storage of ordnance and explosives materials
SUXOS	a, b	15 years	Significant experience in all aspects of UXO remediation. Five years experience in supervisory positions.
UXO Technician III	a, b, or c	10 years	Prior military EOD and/or commercial UXO experience
UXO Technician II	a, b, or c	N/A	Prior military EOD experience
UXO Technician I	a, b, or c	5 years	Experience in UXO remediation/range clearance operations. Plus specific project/ordnance training
UXO Technician I	a, b, or c	0	Successfully completed approved course of instruction appropriate to this skill level
UXO Sweep Personnel	Equipment and site-specific training	N/A	Equipment and site-specific training. (Experience at this position is not required for UXO Technician I certification).

aGraduate of the Army Bomb Disposal School at Aberdeen, MD

bGraduate of the Naval EOD School

cGraduate of a DoD certified UXO Training Program

dFor computational purposes, 1 year is equal to 1,740 hours

EOD = Explosive Ordnance Disposal

This is the minimum experience requirement for designation. This is not an automatic designation, but reserved for those that have demonstrated the requisite knowledge, maturity, judgment, and are recommended by the contractor for recognition at the specified skill level.

4.4 UXO Personnel Training

All subcontract UXO personnel used on this project will be graduates of U.S. Naval School of Explosive Ordnance Disposal (EOD), the Army Bomb Disposal School at Aberdeen, MD, or a DoD certified UXO Training Program

The assigned UXO Personnel will have the required amount of experience to be in compliance with the qualification criteria established by the U.S. Army Corps of Engineers (USACE), Huntsville Engineering and Support Center (CEHNC) for performing MEC work.

4.5 MEC Awareness Training

MEC awareness training is an appropriate safety precaution for all personnel working on this project. MEC awareness consists of training in basic MEC characteristics, identification, and reporting procedures.

4.6 Daily Site Operations Briefing

The daily site operations briefings consist of providing a short overview of the daily operations to be performed, and who is responsible for their completion. This will be completed by the SUXOS prior to commencing operations each day. This briefing will include such items as:

- Expected weather conditions;
- General site hazards;
- MEC hazards;
- PPE required;
- Emergency evacuation procedures;
- Heat stress precautions;
- Buddy system procedures;
- A review of any safety violations from the previous day; and
- Any other significant events involving safety.

Additional briefings will be provided as needed concerning the use of safety equipment, emergency medical procedures, emergency assistance notification procedures, accident prevention, the work plan, and site orientation to ensure that accomplishment of the project can be carried out in a safe and effective manner. Daily site safety briefings will be recorded daily in the field notes.

4.7 Periodic Site Training

On the first workday of each work week/period, or more frequently if needed, a pertinent topic will be selected and elaborated upon by the SUXOS during the Tailgate Safety Briefing. These safety meetings will help ensure the safety and health of field personnel in the performance of regular work activities and in emergency situations. Safety meetings will be documented.

4.8 Visitors

Visitors to the site may include representatives from the Navy or JAA. These personnel, even if escorted, must receive, as a minimum, a briefing on site conditions, hazards, and emergency response procedures. Visitors must possess the appropriate level of OSHA training. The SUXOS will provide the visitor briefing. All visitors to the site will be escorted at all times. Visitors not complying with the above requirements will not enter the site.

4.9 Training Documentation

Copies of all project team training certifications and medical screening will be kept on file at the site field office for the duration of the project.

5.0 Personal Protective Equipment

The minimum required level of personal protection on the site at all times is modified Level D.

Level D PPE is a work uniform affording minimal protection, used for nuisance contamination only. Excluding the wearing of steel-toed shoes for magnetometer operators, personnel will wear Level D. The following Level D PPE will be required on the site:

- Leather-palmed gloves
- Safety glasses with side shields. Protective eye and face devices purchased after July 5, 1994, shall comply with American National Standards Institute (ANSI) Z87.1-1989, *American National Standard Practice for Occupational and Educational Eye and Face Protection*, which is incorporated by reference as specified in 29 CFR 1910.6.
- Hard hat, where head injury hazards are present. Protective helmets purchased after July 5, 1994, shall comply with ANSI Z89.1-1986, *American National Standard for Personnel Protection-Protective Headwear for Industrial Workers-Requirements*, which is incorporated by reference as specified in 29 CFR 1910.6, or shall be demonstrated to be equally effective.
- Hearing protection, where required by high noise levels (when operating in areas where normal conversation cannot be heard at a distance of 3 feet).
- Leather work boots. Leather work boots consist of leather uppers that extend up past the ankle.
- Cotton work clothes.

6.0 Medical Surveillance Requirements

Medical surveillance of employees will be conducted in accordance with the requirements of OSHA 29 CFR 1910.120(f), 29 CFR 1910.134(b)(10), and other established guidelines. Personnel to be included in the Medical Surveillance Program will be those who perform hazardous waste operations that may potentially expose the worker to hazardous substances or other significant safety and health threats. All personnel on the project site, excluding visitors, and those not actually engaged in production on the project or performing hazardous waste operations that may potentially expose the worker to hazardous substances or other significant safety and health threats, will be part of the Medical Surveillance Program.

The purposes of the Medical Surveillance Program are to:

- Assess the individual's health status prior to participation in hazardous waste operations; determine the individual's ability to perform work assignments requiring the use of PPE and clothing;
- Establish baseline data for comparison to future medical data in order to provide a means of monitoring a worker's health status;
- Establish facilities and procedures for emergency and non-emergency medical treatment;
- Establish procedures for maintenance and storage of medical and exposure records.

Baseline and annual health assessments have been conducted for all workers participating in site operations to determine the worker's ability to perform hazardous waste operations in a safe and healthful manner. The PM, in conjunction with the SUXOS, will ensure that all health assessments are current and documented. Copies of health assessment records for all site workers will be maintained in the project trailer in accordance with OSHA 29 CFR 1910.120(d).

6.1 Emergencies and Non-Emergency Medical Treatment

The medical treatment facility for use at this site will be:

Baptist Medical Center
800 Prudential Dr. Jacksonville, FL
(904) 202-2000

For emergencies: The employee first recognizing the need for emergency medical treatment will immediately notify the SUXOS by the fastest means available. By no means should the injured person be left alone. The SUXOS will follow the established emergency procedures for acquiring emergency medical assistance.

For Non-Emergency Medical Treatment, contact the SUXOS. The SUXOS will evaluate the problem, provide minor first aid, and monitor for any changes. The SUXOS will document non-emergency incidents.

6.2 Record Keeping

Physician statements, exposure records, and associated information for employees involved in MEC operations at the site will be maintained in the site field office for the duration of site operations. When the site work is complete, the records will be retained by CH2M HILL. In accordance with OSHA 29 CFR 1910.20(d), all records, whether maintained by the employer or by the examining physician, will be kept on file for a period of 30 years beyond an employee's termination.

7.0 Site Control Measures

7.1 General Site Control Information

The CH2M HILL Project Team will adhere to and comply with security and other project control measures with respect to safety concerns during the conduct of all field activities. CH2M HILL will comply with all obligations and constraints routinely expected at DoD installations. As the contractor, it is CH2M HILL's responsibility to ensure that fire extinguishers are in each vehicle and that **at no time** will persons, including subcontractor personnel working in the limited area, possess fire-/flame-producing items or articles such as matches, torches, or lighters. No weapons will be carried at any time by contractor team members.

7.2 Communications

Communication between project team members will consist of verbal communications, hand signals, and communication with portable radios.

7.3 Work Practices

Safe work practices are part of ensuring a safe and healthful working environment. These practices are standardized for all field activities, and it is the responsibility of CH2M HILL and subcontractor employees to follow safe work practices when conducting field activities. Safe work practices to be employed during the entire progress of fieldwork are as follows:

1. The **"BUDDY SYSTEM"** will be used and enforced at all times while working onsite.
2. All fieldwork in the site will be conducted under UXO escort.
3. Set up, assemble, and check out all equipment for integrity and proper function before starting work activities.
4. Do not use faulty or suspect equipment.
5. Check in and out with the SUXOS upon arrival and departure from the site.
6. Notify the SUXOS immediately if there is an accident that causes an injury or illness.

8.0 Emergency Response and Contingency Procedures

8.1 General Information

In the event of an emergency onsite, the SUXOS will direct the necessary course of action. It may be necessary for the SUXOS to depend on the other on-site personnel for assistance.

The nearest medical assistance center is the Baptist Medical Center. A map showing the route to the hospital is included in the following section.

The SUXOS is trained in first aid and cardiopulmonary resuscitation (CPR). A first-aid kit and fire extinguisher are located in his/her support vehicle.

The emergency shut-off switch for heavy equipment, will be identified, and all field personnel working in the area will be informed of its location and function during the site safety briefing.

8.2 Hospital Route

Driving directions from Cecil Field to Baptist Medical Center are as follows:

Zoom
 In
 1
 2 street
 3
 4 city
 5
 6
 7
 8 state
 9
 10 country
 Zoom
 Out

Clicking on Map:
 ● Zoom in & Re-Center
 ○ Re-Center Only

Directions [Show Turn by Turn Maps](#)

1.	Start on FL-134 (at NORMANDY BLVD & 103RD ST in JACKSONVILLE) - go < 0.1 mi
2.	Bear L on FL-228 - go 2.9 mi
3.	Turn L on CHAFFEE RD S - go 2.8 mi
4.	Bear R to take I-10 EAST - go 10.0 mi
5.	Take ramp onto I-95 SOUTH - go 1.2 mi
6.	Take exit #350B - go 0.4 mi
7.	Turn L on PRUDENTIAL DR - go 0.1 mi
8.	Arrive at 800 PRUDENTIAL DR, JACKSONVILLE , on the L

What's this?
SmartViewSM

See locations on this map:

- Restaurants
- Hotels
- ATMs
- Gas Stations
- More

9.0 Accident Prevention

9.1 Pre-Emergency Planning

The SUXOS will perform the applicable pre-emergency planning tasks before starting field activities and coordinates emergency response with on-site parties, the facility, and local emergency service providers as appropriate. These tasks include:

- Review the facility emergency and contingency plans where applicable.
- Determine what on-site communication equipment is available (e.g., two-way radio, air horn, etc.).
- Determine what off-site communication equipment is needed (e.g., nearest telephone, cellular phone, etc.).
- Confirm and post emergency telephone numbers, evacuation routes, assembly areas, and route to hospital; communicate the information to on-site personnel.
- Review changed site conditions, on-site operations, and personnel availability in relation to emergency response procedures.
- Designate one vehicle as the emergency vehicle; place hospital directions and map inside; keep keys in ignition during field activities.
- Inventory and check site emergency equipment, supplies, and potable water.
- Communicate emergency procedures to the project team.
- Rehearse the emergency response plan before site activities begin, including driving route to the medical center.
- Brief new workers on the emergency response plan.
- The SUXOS will evaluate emergency response actions and initiate appropriate follow-up actions.

10.0 Emergency Equipment and First Aid Requirements

10.1 Emergency Equipment and Supplies

The SUXOS should mark the locations of emergency equipment on the site map and post the map, as illustrated in Table 10-1.

TABLE 10 -1
Sample Supply List and Locations

Emergency Equipment and Supplies	Location
20-lb (or two 10-lb) fire extinguisher (A, B, and C classes)	Support Zone/Heavy Equipment
First aid kit	Support Zone/Field Vehicle
Eye wash	Support & Decontamination Zone/Field Vehicle
Potable water	Support & Decontamination Zone/Field Vehicle
Blood borne pathogen kit	Support Zone/Field Vehicle
Additional equipment (specify)	N/A

10.2 Incident Response

In case of emergency, actions to be taken include the following:

- Shut down operations and evacuate the immediate work area.
- Notify appropriate response personnel.
- Account for personnel at the designated assembly area(s).
- Assess the need for site evacuation, and evacuate the site as warranted.
- Instead of implementing a work-area evacuation, note that small fires or spills posing minimal safety or health hazards may be controlled.

10.3 Emergency Medical Treatment

The procedures listed below may also be applied to non-emergency incidents. Injuries and illnesses must be reported to the Project Manager and Project Health & Safety Manager within 4 hours of occurrence. If there is doubt about whether medical treatment is necessary, or if the injured person is reluctant to accept medical treatment, contact the medical consultant. During non-emergencies, follow these procedures as appropriate.

- Notify appropriate emergency response authorities listed in Section 10.7 (e.g., 911).
- The SUXOS will assume charge during a medical emergency until the ambulance arrives or until the injured person is admitted to the emergency room.
- Prevent further injury.

- Initiate first aid and CPR where feasible.
- Get medical attention immediately.
- Make certain that the injured person is accompanied to the emergency room.
- When contacting the medical consultant, give your name and telephone number, the name of the injured person, the extent of the injury or exposure, and the name and location of the medical facility where the injured person was taken.
- Report incident as outlined in Section 10.6.

10.4 Evacuation

- Evacuation routes and assembly areas (and alternative routes and assembly areas) are specified on the site map.
- Evacuation route(s) and assembly area(s) will be designated by the SUXOS before work begins.
- Personnel will assemble at the assembly area(s) upon hearing the emergency signal for evacuation.
- The SUXOS and a “buddy” will remain onsite after the site has been evacuated (if safe) to assist local responders and advise them of the nature and location of the incident.
- The SUXOS will account for all personnel in the on-site assembly area.
- A designated person will account for personnel at alternate assembly area(s).
- The SUXOS will write up the incident as soon as possible after it occurs and submit a report to the Project Manager.

10.5 Evacuation Signals

Table 10-2 provides some samples of possible evacuation signals.

TABLE 10-2
Evacuation Signals

Signal	Meaning
Grasping throat with hand	Emergency-help me
Thumbs up	OK; understood
Grasping buddy's wrist	Leave area now
Continuous sounding of horn	Emergency; leave site now

10.6 Incident Notification and Reporting

For any accident meeting the definition of **Recordable Occupational Injuries or Illnesses or Significant Accidents**, the Southern Division, NAVFAC Contracting Officer and Navy

Technical Representative (NTR) shall be notified by the HSM or Program Manager soon as practical, **but not later than four hours after occurrence**. All other incidents must be reported to Southern Division, NAVFAC within 24 hours of incident occurrence.

Therefore in order for the incident to be assessed for reportability purposes it is imperative that according to CCI requirements, **all personal injuries, near-misses, or property damage incidents involving CCI or subcontractor project personnel be reported IMMEDIATELY to the HSM** Rich Rathnow/ORO, Program Manager Scott Newman/ATL, or CCI Corporate HSM Angelo Liberatore/ATL at the numbers identified in the emergency contact attachment contained in this plan.

The Site Manager or designee must **report the following incident information to the HSM immediately** after incident occurrence:

- Date and time of mishap
- Project name and project number
- Name and worker classification
- Extent of known injuries
- Level of medical attention
- Injury cause

A written incident investigation shall be performed and submitted to the HSM within 24 hours of incident occurrence by the completing the Incident Report, Near Loss Investigation and Root Cause Analysis provided in the HSP Attachments.

In fires, explosions, or chemical releases, actions to be taken include the following:

- Shut down CCI operations and evacuate the immediate work area.
- Notify appropriate response personnel.
- Account for personnel at the designated assembly area(s).
- Assess the need for site evacuation, and evacuate the site as warranted.

Instead of implementing a work-area evacuation, note that small fires or spills posing minimal safety or health hazards may be controlled.

10.7 Emergency Contacts

24-hour CH2M HILL Emergency Beeper – 888/444-1226

Medical Emergency – 911

Facility Medical Response #:
Local Ambulance #:

CH2M HILL- Medical Consultant

Dr. Jerry H. Berke, M.D., M.P.H.
Health Resources
600 West Cummings Park, Suite 3400
Woburn, MA 01801-6350
781/938-4653
800/350-4511
(After hours calls will be returned within 20 minutes)

Fire/Spill Emergency -- 911

Facility Fire Response #:
Local Fire Dept #:

Local Occupational Physician**Security & Police – 911**

Facility Security #:
Local Police #:

Navy RAC Program Manager

Name: ScottSmith/ATL
Phone: 770/604-9095

Utilities Emergency

Water:
Gas:
Electric:

Navy RAC Health and Safety Manager (HSM)

Name: Rich Rathnow/ORO
Phone: 865/483-9005 (Office); 865/607-6734 (Cell)
865/531-2933 (Home)

Site Health and Safety Specialist (SHSS)

Name:
Phone:

CH2M HILL Human Resources Department

Name: Nancy Orr/COR
Phone: 303/771-0952

Project Manager

Name: Sam Naik
Phone: (770) 604-9095

Corporate Human Resources Department

Name: John Monark/COR
Phone: 303/771-0900

Federal Express Dangerous Goods Shipping

Phone: 800/238-5355

Emergency Number for Shipping Dangerous Goods

Phone: 800/255-3924

CH2M HILL Worker's Compensation and Auto Claims

Sterling Administration Services
Phone: 800/420-8926 After hours: 800/497-4566

Report fatalities AND report vehicular accidents involving pedestrians, motorcycles, or more than two cars.

Contact the Project Manager. Generally, the Project Manager will contact relevant government agencies.

Facility Alarms:**Evacuation Assembly Area(s):****Facility/Site Evacuation Route(s):****Hospital Name/Address:**

Baptist Medical Center

Hospital Phone #: Hospital Phone #:

(904) 202-2000

Directions to Hospital

See map in section 8.2

11.0 Logs, Reports, And Record Keeping

The implementation of the SSHP will be documented to ensure employee participation and protection. In addition, the regulatory requirements will be met for record keeping on training, medical surveillance, injuries and illnesses, exposure monitoring, health risk information, and respirator fit-tests.

12.0 Behavior Based Loss Prevention

A Behavior Based Loss Prevention System (BBLPS) is a system to prevent or reduce losses using behavior-based tools and proven management techniques to focus on behaviors or acts that could lead to losses.

The four basic Loss Prevention tools that will be used on EE&S CH2M HILL projects to implement the BBLPS include:

- Activity Hazard Analysis (AHA)
- Pre-Task Safety Plans (PTSP)
- Loss Prevention Observations (LPO)
- Loss and Near Loss Investigations (NLI)

The Site Supervisor serves as the Site Health and Safety Specialist (SHSS) and is responsible for implementing the BBLPS on the project site. When a separate individual is assigned as the SHSS, the SHSS is delegated authority from the Site Supervisor to implement the BBLPS on the project site, but the Site Supervisor remains accountable for its implementation. The Site Supervisor/Safety Coordinator shall only oversee the subcontractor's implementation of their AHAs and PTSPs processes on the project.

12.1 Activity Hazard Analysis

An Activity Hazard Analysis (AHA) defines the activity being performed, the hazards posed and control measures required to perform the work safely. Workers are briefed on the AHA before doing the work and their input is solicited prior, during and after the performance of work to further identify the hazards posed and control measures required.

Activity Hazard Analysis will be prepared before beginning each project activity posing H&S hazards to project personnel using the AHA form provided in Attachment 4. The AHA shall identify the work tasks required to perform each activity, along with potential H&S hazards and recommended control measures for each work task. In addition, a listing of the equipment to be used to perform the activity, inspection requirements and training requirements for the safe operation of the equipment listed must be identified.

An AHA shall be prepared for all field activities performed by CH2M HILL and subcontractor during the course of the project by the Site Supervisor/SHSS. The Project-Specific and General Hazards of the SSHP, the Hazard Analysis Table (Table 12-1), and applicable CH2M HILL Standards of Practice (SOPs) should be used as a basis for preparing CH2M HILL AHAs.

CH2M HILL subcontractors are required to provide AHAs specific to their scope of work on the project for acceptance by CH2M HILL. Each subcontractor shall submit AHAs for their field activities, as defined in their Work Plan/scope of work, along with their SSHP. Additions or changes in CH2M HILL or subcontractor field activities, equipment, tools or material to perform work or additional/different hazard encountered that require additional/different hazard control measures requires either a new AHA to be prepared or an existing AHA to be revised.

TABLE 12-1
Task Hazard Analysis

(Refer to Section 2 of HSP for hazard controls)

Potential Hazards	Task Breakdown									
	Survey	Vegetation Removal	Anomaly Detection and Intrusive Investigation	Inspecting Existing Vegetation Piles for MEC	Construction Support	Disposal of Recovered MEC	Disposition of MPPEH	Waste Characterization Sampling	Decontamination	T&D of Generated Wastes
Ordnance Explosives (HS-610)	X	X	X	X	X	X	X	X	X	X
Manual Lifting (HS-112)	X	X	X	X	X	X	X	X	X	X
Fire Prevention (HS-208)			X		X					X
Electrical Safety (HS-206)					X					
Lockout /Tagout (HS-310)					X					
Ladders & Stairs(HS-214)										X
Compressed Gas Cylinders			X		X					
Buried Utilities		X	X	X	X					
Excavations (HS-307)		X	X	X	X					
Fall Protection (HS-308)										X
Heavy Equipment (HS-306)			X		X					X
Confined Space Entry (HS-203)										
Concrete & Masonry Work (HS-302)										
Cranes and Hoisting (HS-303)		X	X							X
Demolition (HS-305)										
Scaffolding(HS-311)					X					
Steel erection (HS-312)										
Welding and cutting (HS-314)					X					
Aerial Lifts (HS-301)										
Hand & Power Tools (HS-210)	X	X	X	X	X	X	X	X	X	X
Forklifts (HS-309)										X
Drilling (HS-204)			X							
Noise (HS-108)	X	X	X		X					X
Pressurized Lines/Equipment			X							
Pressure Washing/Equip Decon									X	
Vacuum Truck/Pumping Operations										
Suspended Loads										X
Vehicle Traffic										X
Haul Truck Operations										
Visible Lighting	X	X	X	X	X	X	X	X	X	X
Mechanical Guarding Hazards										
Asbestos Hazard										
Lead Hazard			X							
Chemical Hazard-Dermal/Inhalation			X					X	X	X
Dust Hazard (Silica/Metals)		X	X	X						
Fire/Explosion Hazards			X	X						

12.2 Pre-Task Safety Plans

Daily safety meetings are held with all project personnel in attendance to review the hazards posed and required H&S procedures/ AHAs, that apply for each day's project activities. The PTSPs serve the same purpose as these general assembly safety meetings, but the PTSPs are held between the crew supervisor and their work crews to focus on those hazards posed to individual work crews. At the start of each day's activities, the crew supervisor completes the PTSP, provided in Attachment 4, with input from the work crew, during their daily safety meeting. The day's tasks, personnel, tools and equipment that will be used to perform these tasks are listed, along with the hazards posed and required H&S procedures, as identified in the AHA. The use of PTSPs, better promotes worker participation in the hazard recognition and control process, while reinforcing the task-specific hazard and required H&S procedures with the crew each day. The use of PTSPs is a common safety practice in the construction industry.

12.3 Loss Prevention Observations

Loss Prevention Observations (LPOs) shall be conducted by Site Supervisor/SHSS for specific work tasks or operations comparing the actual work process against established safe work procedures identified in the project-specific SSHP and AHAs. LPOs are a tool to be used by supervisors to provide positive reinforcement for work practices performed correctly, while also identifying and eliminating deviations from safe work procedures that could result in a loss. Site Supervisor/SHSS shall perform at least one LPO each week for a tasks/operations addressed in the project-specific SSHP or AHA. The Site Supervisor/SHSS shall complete the LPO form in Attachment 6 for the task/operation being observed.

12.4 Loss/Near Loss Investigations

Loss/Near Loss Investigations shall be performed for the all CH2M HILL and subcontractor incidents involving:

- Person injuries/illnesses and near miss injuries
- Equipment/property damage
- Spills, leaks, regulatory violations
- Motor vehicle accidents

The cause of loss and near loss incidents are similar, so by identifying and correcting the causes of near loss causes, future loss incidents may be prevented. The following is the Loss/Near Loss Investigation Process:

- Gather all relevant facts, focusing on fact-finding, not fault-finding, while answering the who, what, when, where and how questions.
- Draw conclusions, pitting facts together into a probable scenario.
- Determine incident root cause(s), which are basic causes on why an unsafe act/condition existed.
- Develop and implement solutions, matching all identified root causes with solutions.

- Communicate incident as a Lesson Learned to all project personnel.
- Filed follow-up on implemented corrective active action to confirm solution is appropriate.

Site Supervisors/SHSS shall perform an incident investigation, as soon as practical after incident occurrence during the day of the incident, for all Loss and Near Loss Incidents that occur on the project. Loss and Near Loss incident investigations shall be performed using the following incident investigation forms provided in Attachment 4:

- Incident Report Form (IRF)
- Incident Investigation Form
- Root Cause Analysis Form

All Loss and Near Loss incident involving personal injury, property damage in excess of \$1,000 or near loss incidents that could have resulted in serious consequences shall be investigated by completing the incident investigation forms and submitting them to the PM and HSM within 24 hours of incident occurrence. A preliminary Incident Investigation and Root Cause Analysis shall be submitted to the Project Manager and HSM within 24 hours of incident occurs. The final Incident Investigation and Root Cause Analysis shall be submitted after completing a comprehensive investigation of the incident.

13.0 Approval

This site-specific Health and Safety Plan has been written for use by CH2M HILL only. CH2M HILL claims no responsibility for its use by others unless that use has been specified and defined in project or contract documents. The plan is written for the specific site conditions, purposes, dates, and personnel specified and must be amended if those conditions change.

13.1 Original Plan

Written By:

Date:

Approved By: Rich Rathnow

Date:



13.2 Revisions

Revisions Made By:

Date:

Revisions to Plan:

Revisions Approved By:

Date:

Attachment 1

Employee Signoff Form

Attachment 2

Hazard Communication Program Forms

CHEMICAL-SPECIFIC TRAINING FORM

Location:	Project # :
SHSS:	Trainer:

TRAINING PARTICIPANTS:

NAME	SIGNATURE	NAME	SIGNATURE

REGULATED PRODUCTS/TASKS COVERED BY THIS TRAINING:

The HCC shall use the product MSDS to provide the following information concerning each of the products listed above.

- Physical and health hazards
- Control measures that can be used to provide protection (including appropriate work practices, emergency procedures, and personal protective equipment to be used)
- Methods and observations used to detect the presence or release of the regulated product in the workplace (including periodic monitoring, continuous monitoring devices, visual appearance or odor of regulated product when being released, etc.)

Training participants shall have the opportunity to ask questions concerning these products and, upon completion of this training, will understand the product hazards and appropriate control measures available for their protection.

Copies of MSDSs, chemical inventories, and CH2M HILL's written hazard communication program shall be made available for employee review in the facility/project hazard communication file.

Attachment 3

Project Activity Self-Assessment Checklists/Permits

**Hand and Power Tools
Earth Moving Equipment**

CH2MHILL

H&S Self-Assessment Checklist – HAND AND POWER TOOLS

This checklist shall be used by CH2M HILL personnel **only** and shall be completed at the frequency specified in the project’s SSHP/FSI^[TLK1].

This checklist is to be used at locations where: 1) CH2M HILL employees are exposed to hand and power tool hazards and/or 2) CH2M HILL provides oversight of subcontractor personnel who are exposed to hand and power tool hazards.

SSC or DSC ^[TLK2] may consult with subcontractors when completing this checklist, but shall not direct the means and methods of hand and power tool use nor direct the details of corrective actions. Subcontractors shall determine how to correct deficiencies and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) shall be corrected immediately or all exposed personnel shall be removed from the hazard until corrected.

Completed checklists shall be sent to the HS&E Staff for review.

Project Name: _____	Project No.: _____
Location: _____ PM: _____	
Auditor: _____ Title: _____ Date: _____	
This specific checklist has been completed to:	
<input type="checkbox"/> Evaluate CH2M HILL employee exposure to hand and power tool hazards.	
<input type="checkbox"/> Evaluate a CH2M HILL subcontractor’s compliance with hand and power tool requirements.	
Subcontractors Name: _____	

<p>Check “Yes” if an assessment item is complete/correct.</p> <p>Check “No” if an item is incomplete/deficient. Deficiencies shall be brought to the immediate attention of the subcontractor. Section 3 must be completed for all items checked “No.”</p> <p>Check “N/A” if an item is not applicable.</p> <p>Check “N/O” if an item is applicable but was not observed during the assessment.</p> <p>Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HS-50.</p>
--

<u>SECTION 1</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>N/O</u>
SAFE WORK PRACTICES (3.1)				
1. All tools operated according to manufacturer’s instructions and design limitations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. All hand and power tools maintained in a safe condition and inspected and tested before use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Defective tools are tagged and removed from service until repaired.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. PPE is selected and used according to tool-specific hazards anticipated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Power tools are not carried or lowered by their cord or hose.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Tools are disconnected from energy sources when not in use, servicing, cleaning, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Safety guards remain installed or are promptly replaced after repair.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Tools are stored properly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cordless tools and recharging units both conform to electrical standards and specifications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Tools used in explosive environments are rated for such use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Knife or blade hand tools are used with the proper precautions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Consider controls to avoid muscular skeletal, repetitive motion, and cumulative trauma stressors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CH2MHILL

H&S Self-Assessment Checklist - HAND AND POWER TOOLS

<u>SECTION 2</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>N/O</u>
GENERAL (3.2.1)				
13. PPE is selected and used according to tool-specific hazards anticipated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Tools are tested daily to assure safety devices are operating properly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Damaged tools are removed from service until repaired.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Power operated tools designed to accommodate guards have guards installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Rotating or moving parts on tools are properly guarded.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Machines designed for fixed locations are secured or anchored.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Floor and bench-mounted grinders are provided with properly positioned work rests.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Guards are provided at point of operation, nip points, rotating parts, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Fluid used in hydraulic-powered tools is approved fire-resistant fluid.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELECTRIC-POWERED TOOLS (3.2.2)				
22. Electric tools are approved double insulated or grounded and used according to SOP HS-23.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Electric cords are not used for hoisting or lowering tools.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Electric tools are used in damp/ wet locations are approved for such locations or GFCI installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Hand-held tools are equipped with appropriate on/off controls appropriate for the tool.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Portable, power-driven circular saws are equipped with proper guards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ABRASIVE WHEEL TOOLS (3.2.3)				
27. All employees using abrasive wheel tools are wearing eye protection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. All grinding machines are supplied with sufficient power to maintain spindle speed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Abrasive wheels are closely inspected and ring-tested before use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Grinding wheels are properly installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Cup-type wheels for external grinding are protected by the proper guard or flanges.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Portable abrasive wheels used for internal grinding are protected by safety flanges.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Safety flanges are used only with wheels designed to fit the flanges.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Safety guards on abrasive wheel tools are mounted properly and of sufficient strength.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PNEUMATIC-POWERED TOOLS (3.2.4)				
35. Tools are secured to hoses or whip by positive means to prevent disconnection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. Safety clips or retainers are installed to prevent attachments being expelled.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Safety devices are installed on automatic fastener feed tools as required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. Compressed air is not used for cleaning unless reduced to < 30 psi, with PPE, and guarded.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Manufacturer's safe operating pressure for hoses, pipes, valves, etc. are not exceeded.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. Hoses are not used for hoisting or lowering tools.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. All hoses >1/2-inch diameter have safety device at source to reduce pressure upon hose failure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. Airless spray guns have required safety devices installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. Blast cleaning nozzles are equipped with operating valves, which are held open manually.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Supports are provided for mounting nozzles when not in use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. Air receiver drains, handholes, and manholes are easily accessible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Air receivers are equipped with drainpipes and valves for removal of accumulated oil and water.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Air receivers are completely drained at required intervals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. Air receivers are equipped with indicating pressure gauges.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. Safety, indicating, and controlling devices are installed as required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. Safety valves are tested frequently and at regular intervals to assure good operating condition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION 2 (continued)

Yes No N/A N/O

LIQUID FUEL-POWERED TOOLS (3.2.5)

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 51. Liquid fuel-powered tools are stopped when refueling, servicing, or maintaining. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 52. Liquid fuels are stored, handled, and transported in accordance with SOP HS-21 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 53. Liquid fuel-powered tools are used in confined spaces in accordance with SOP HS-17. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 54. Safe operating pressures of hoses, valves, pipes, filters, and other fittings are not exceeded. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

POWDER-ACTUATED TOOLS (3.2.6)

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 55. Only trained employee operates powder-actuated tools. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 56. Powder-actuated tools are not loaded until just prior to intended firing time. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 57. Tools are not pointed at any employee at any time. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 58. Hands are kept clear of open barrel end. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59. Loaded tools are not left unattended. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 60. Fasteners are not driven into very hard or brittle materials. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 61. Fasteners are not driven into easily penetrated materials unless suitable backing is provided. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 62. Fasteners are not driven into spalled areas. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 63. Powder-actuated tools are not used in an explosive or flammable atmosphere. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 64. All tools are used with correct shields, guards, or attachments recommended by manufacturer. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

JACKING TOOLS (3.2.7)

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 65. Rated capacities are legibly marked on jacks and not exceeded. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 66. Jacks have a positive stop to prevent over-travel. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 67. The base of jacks are blocked or cribbed to provide a firm foundation, when required. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 68. Wood blocks are place between the cap and load to prevent slippage, when required. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 69. After load is raised, it is cribbed, blocked, or otherwise secured immediately. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 70. Antifreeze is used when hydraulic jacks are exposed to freezing temperatures. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 71. All jacks are properly lubricated. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 72. Jacks are inspected as required. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 73. Repair or replacement parts are examined for possible defects. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 74. Jacks not working properly are removed from service and repaired or replaced. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

HAND TOOLS (3.2.8)

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 75. Wrenches are not used when jaws are sprung to the point of slippage. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 76. Impact tools are kept free of mushroomed heads. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 77. Wooden handles of tools are kept free of splinters or cracks and are tightly fitted in tool. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

This checklist shall be used by CH2M HILL personnel **only** and shall be completed at the frequency specified in the project's SSHP/FSI.

This checklist is to be used at locations where: 1) CH2M HILL employees are potentially exposed to the hazards of earthmoving equipment operations, 2) CH2M HILL employees are operating earthmoving equipment, and/or 3) CH2M HILL provides oversight of a subcontractor operating earthmoving equipment.

The CH2M HILL Safety Coordinator may consult with subcontractors operating earthmoving equipment when completing this checklist, but shall not direct the means and methods of equipment operations nor direct the details of corrective actions. Earthmoving equipment subcontractors shall determine how to correct deficiencies and we must carefully rely on their expertise. Items considered to be imminently dangerous (possibility of serious injury or death) shall be corrected immediately or all exposed personnel shall be removed from the hazard until corrected.

Project Name: _____	Project No.: _____
Location: _____	PM: _____
Auditor: _____	Title: _____ Date: _____

This specific checklist has been completed to:

- Evaluate CH2M HILL employee exposures to earthmoving equipment hazards (complete Section 1).
- Evaluate CH2M HILL employees operating earthmoving equipment (complete entire checklist).
- Evaluate CH2M HILL subcontractor's compliance with earthmoving equipment safety requirements (complete entire checklist).

Subcontractors Name: _____

Check "Yes" if an assessment item is complete/correct.

Check "No" if an item is incomplete/deficient. Deficiencies shall be brought to the immediate attention of the earthmoving equipment subcontractor. Section 3 must be completed for all items checked "No."

Check "N/A" if an item is not applicable.

Check "N/O" if an item is applicable but was not observed during the assessment.

Numbers in parentheses indicate where a description of this assessment item can be found in Standard of Practice HSE-27.

SAFE WORK PRACTICES (3.1)	<u>SECTION 1</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>N/O</u>
1. Personnel maintaining safe distance from operating equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Positioning personnel in close proximity to operating equipment is avoided		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Personnel wearing high-visibility and/or reflective vests when close to operating equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Personnel approach operating equipment safely		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Personnel riding only in seats of equipment cab and using seat belts		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Personnel not positioned under elevated portions of equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Personnel not positioned under hoisted loads		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Personnel not hoisted by equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Personnel do not to approach equipment that has become electrically energized		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Personnel wearing appropriate PPE, per SSHP/FSI		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EQUIPMENT SAFETY REQUIREMENTS PRIOR TO OPERATING EQUIPMENT (3.2.1)	<u>SECTION 2</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>N/O</u>
11. Only qualified and authorized personnel operating equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Daily safety briefing/meeting conducted with equipment operators		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Daily inspection of equipment conducted and documented		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Modifications and attachments used approved by equipment manufacturer		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Backup alarm or spotter used when backing equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Operational horn provided on bi-directional equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Seat belts are provided and used		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Rollover protective structures (ROPS) provided		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Braking system capable of stopping full payload		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Headlights and taillights operable when additional light required		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Brake lights in operable condition		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Cab glass provides no visible distortion to the operator		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. All machine guards are in place		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Hauling equipment (dump trucks) provided with cab shield or canopy		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Dump truck beds provided with positive means of support during maintenance or inspection		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Dump truck operating levers provided with latch to prevent accidental dumping		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Air monitoring conducted per SSHP/FSI for hazardous atmospheres		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EQUIPMENT PLACEMENT (3.2.2)					
28. Equipment position on firm/level surface, outriggers used		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Location of underground utilities identified		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Safe clearance distance maintained while working under overhead power lines		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Safe distance is maintained while traveling under power lines		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Warning system used to remind operator of excavation edge		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Unattended equipment visibly marked at night		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Tools lowered/parking brake set when not in use, wheels chocked when parked on incline		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EQUIPMENT OPERATION (3.2.3)					
35. Equipment operated on safe roadways and grades		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. Equipment operated at safe speed		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Operators maintain unobstructed view of travel path		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. Equipment not operated during inclement weather, lightning storms		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Equipment started and moved safely		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. Operators keep body parts inside cab during operation		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. Vehicle occupants in safe position while loading/unloading		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. Signal person visible to operator when required		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. Equipment used for hoisting done according to equipment manufacturer specifications		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Lifting and hauling capacities are not exceeded		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EQUIPMENT MAINTENANCE (3.2.4)					
45. Defective components repaired immediately		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Suspended equipment or attachments supported prior to work under or between		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Lockout/tagout procedures used prior to maintenance		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. Tires on split rims removed using safety tire rack or cage		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. Good housekeeping maintained on and around equipment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EXCAVATING AT HAZARDOUS WASTE SITES (3.2.5)					
50. Waste disposed of according to SSHP/FSI		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51. Appropriate decontamination procedures being followed, per SSHP/FSI		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Attachment 4

Behavior Based Loss Prevention System Forms

**Activity Hazard Analysis
Pre-Task Safety Plans
Loss Prevention Observation
Incident Report and Investigation**

PRINT

SIGNATURE

Supervisor Name: _____

Date/Time: _____

Safety Officer Name: _____

Date/Time: _____

Employee Name(s): _____

Date/Time: _____

Project: _____ Location: _____ Date: _____

Supervisor: _____ Emergency Number(s): _____

Brief Job Descriptions:

1. _____
2. _____
3. _____
4. _____
5. _____

List Specific Tasks for the Jobs (Match number from above).

1. _____
2. _____
3. _____
4. _____
5. _____

Tools/Equipment required for Tasks, (ladders, scaffolds, fall protection, cranes/rigging, heavy equipment, power tools)match number from above:

1. _____
2. _____
3. _____
4. _____
5. _____

Potential H&S Hazards, including chemical, physical, safety, biological and environmental (Check all that apply and review exposures as they will be encountered in the tasks above):

<input type="checkbox"/> Chemical burns/contact	<input type="checkbox"/> Trench, excavations, cave-ins	<input type="checkbox"/> Ergonomics
<input type="checkbox"/> Pressurized lines/equipment	<input type="checkbox"/> Overexertion	<input type="checkbox"/> Chemical splash
<input type="checkbox"/> Thermal burns	<input type="checkbox"/> Pinch points	<input type="checkbox"/> Poisonous plants/insects
<input type="checkbox"/> Electrical	<input type="checkbox"/> Cuts/abrasions	<input type="checkbox"/> Eye hazards/flying projectile
<input type="checkbox"/> Weather conditions	<input type="checkbox"/> Spills	<input type="checkbox"/> Inhalation hazard
<input type="checkbox"/> Heights/fall > 6'	<input type="checkbox"/> Overhead Electrical hazards	<input type="checkbox"/> Heat/cold stress
<input type="checkbox"/> Noise	<input type="checkbox"/> Elevated loads	<input type="checkbox"/> Water/drowning hazard
<input type="checkbox"/> Explosion/fire	<input type="checkbox"/> Slips, trip and falls	<input type="checkbox"/> Heavy equipment
<input type="checkbox"/> Radiation	<input type="checkbox"/> Manual lifting	<input type="checkbox"/> Aerial lifts/platforms
<input type="checkbox"/> Confined space entry	<input type="checkbox"/> Welding/cutting	<input type="checkbox"/> Demolition

Other Potential Hazards (Describe):

PRE-TASK SAFETY PLAN

Hazard Control Measures (Check all that apply):

PPE ___ Thermal/lined ___ Eye ___ Dermal/hand ___ Hearing ___ Respiratory ___ Reflective vests ___ Flotation device	Protective Systems ___ Sloping ___ Shoring ___ Trench box ___ Barricades ___ Competent person ___ Locate buried utilities ___ Daily inspections	Fire Protection ___ Fire extinguishers ___ Fire watch ___ Non-spark tools ___ Grounding/bonding ___ Intrinsically safe equipment	Electrical ___ Lockout/tagout ___ Grounded ___ Panels covered ___ GFCI/extension cords ___ Power tools/cord inspected
Fall Protection ___ Harness/lanyards ___ Adequate anchorage ___ Guardrail system ___ Covered opening ___ Fixed barricades ___ Warning system	Air Monitoring ___ PID/FID ___ Detector tubes ___ Radiation ___ Personnel sampling ___ LEL/O2 ___ Other	Proper Equipment ___ Aerial lift/ladders/scaffolds ___ Forklift/ Heavy equipment ___ Backup alarms ___ Hand/power tools ___ Crane w/current inspection ___ Proper rigging ___ Operator qualified	Welding & Cutting ___ Cylinders secured/capped ___ Cylinders separated/upright ___ Flash-back arrestors ___ No cylinders in CSE ___ Flame retardant clothing ___ Appropriate goggles
Confined Space Entry ___ Isolation ___ Air monitoring ___ Trained personnel ___ Permit completed ___ Rescue	Medical/ER ___ First-aid kit ___ Eye wash ___ FA-CPR trained personnel ___ Route to hospital	Heat/Cold Stress ___ Work/rest regime ___ Rest area ___ Liquids available ___ Monitoring ___ Training	Vehicle/Traffic ___ Traffic control ___ Barricades ___ Flags ___ Signs
Permits ___ Hot work ___ Confined space ___ Lockout/tagout ___ Excavation ___ Demolition ___ Energized work	Demolition ___ Pre-demolition survey ___ Structure condition ___ Isolate area/utilities ___ Competent person ___ Hazmat present	Inspections: ___ Ladders/aerial lifts ___ Lanyards/harness ___ Scaffolds ___ Heavy equipment ___ Cranes and rigging	Training: ___ Hazwaste ___ Construction ___ Competent person ___ Task-specific (THA) ___ Hazcom

FieldNotes: _____

Supervisor signature: _____

Date: _____

Project: _____ _____	Supervisor: _____ _____	Date: _____ _____
Task/Operation Observed: _____ _____ _____ _____		Job Title of Worker Observed: _____ _____ _____
Background Information/comments: _____ _____ _____ _____		Task Hazard Analysis completed for task (Y/N): _____
Positive Observations/Safe Work Procedures 1. _____ _____ 2. _____ _____ 3. _____ _____ 4. _____ _____		
Questionable Activity/Unsafe Condition Observed 1. _____ _____ 2. _____ _____ 3. _____ _____		
Observed Worker's Comment(s) 1. _____ _____ 2. _____ _____ 3. _____ _____ 4. _____ _____		

Supervisor's Corrective Actions Taken:

1. _____

2. _____

3. _____

4. _____

CH2MHILL

Loss Investigation Report Form

Employer Information

Company Name: _____

Project Name: _____ Project Number: _____

Project Location: _____

CHIL Project? Yes No

Task Location: _____

Job Assignment: _____ Business Group: _____

Preparer's Name: _____ Preparer's Employee Number: _____

Near Loss Incident Specific Information

Date of Incident: _____ Time of Incident: _____ a.m./p.m.

Location of incident:

Company premises

Field

In Transit

Other: _____

Address where the incident occurred: _____

Equipment Malfunction : Yes No

Activity was a Routine Task: Yes No

Describe any property damage: _____

Specific activity the employee was engaged in when the incident occurred: _____

All equipment, materials, or chemicals the employee was using when the incident occurred: _____

Describe the specific incident and how it occurred:

Describe how this incident may have been prevented:

Contributing Factors (Describe in detail why incident occurred):

Date employer notified of incident: _____ To whom reported: _____

Witness Information (First Witness)

Name: _____
Employee Number (for CH2M HILL employees): _____
Address: _____
City: _____
Zip Code : _____
Phone: _____

Witness Information (Second Witness)

Name: _____
Employee Number (for CH2M HILL employees): _____
Address: _____
City: _____
Zip Code: _____
Phone : _____
Additional information or comments: _____

COMPLETE ROOT CAUSE ANALYSIS FORM

Root Cause Analysis Form

Root Cause Analysis (RCA)							
----------------------------------	--	--	--	--	--	--	--

Lack of skill or knowledge Lack of or inadequate operational procedures or work standards Inadequate communication of expectations regarding procedures or work standards Inadequate tools or equipment	Correct way takes more time and/or requires more effort Short cutting standard procedures is positively reinforced or tolerated Person thinks there is no personal benefit to always doing the job according to standards Uncontrollable
--	---

RCA #	Solution(s): How to Prevent Loss From Occurring	RC ¹	CF ²	Corrective Action Lead	Due Date	Completion Date	Date Verified

¹ RC = Root Cause; ² CF = Contributing Factors (check which applies)

Investigation Team Members		
-----------------------------------	--	--

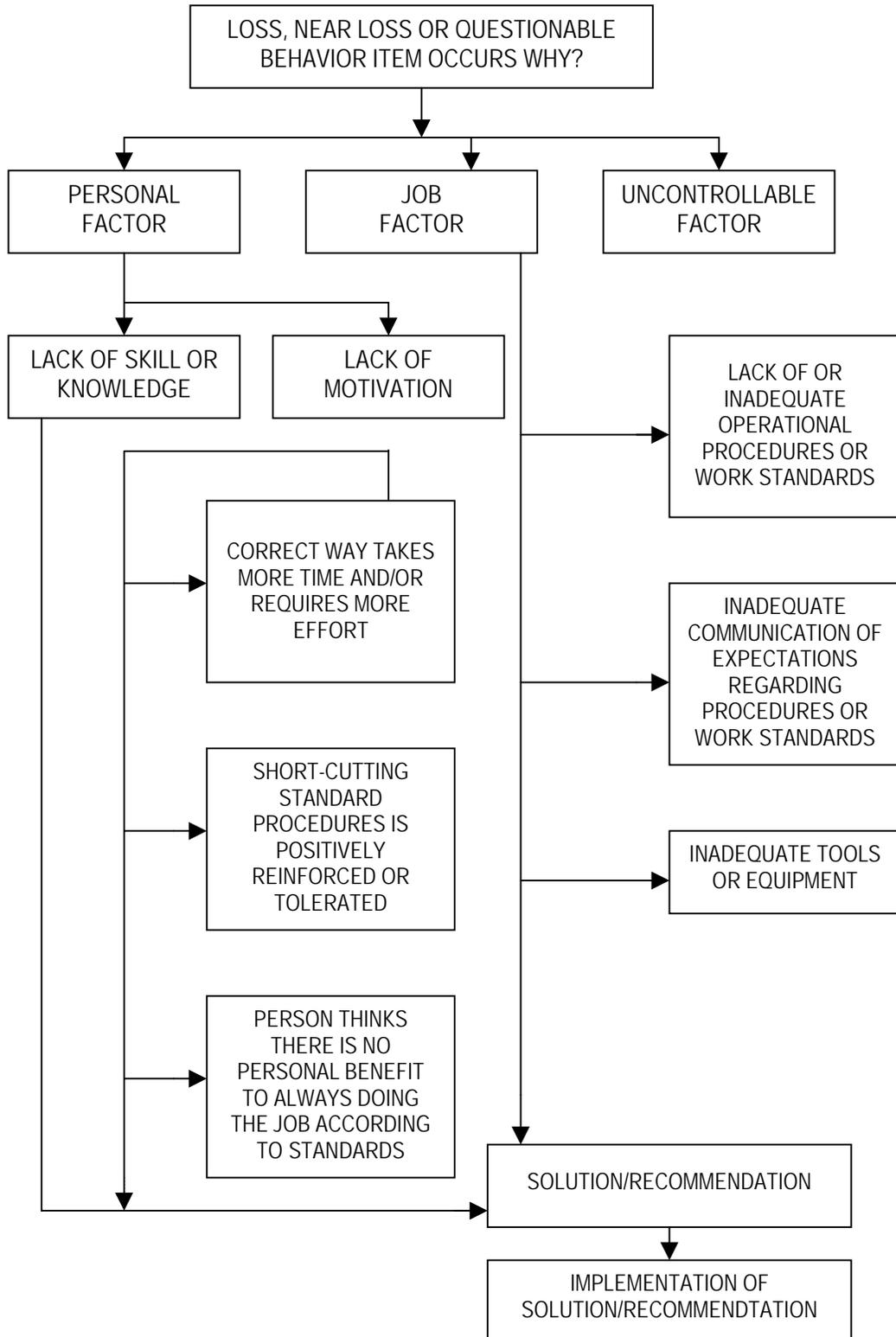
Name	Job Title	Date

Results of Solution Verification and Validation
--

Reviewed By		
--------------------	--	--

Name	Job Title	Date

Root Cause Analysis Flow Chart



Determination of Root Cause(s)

For minor losses or near losses the information may be gathered by the supervisor or other personnel immediately following the loss. Based on the complexity of the situation, this information may be all that is necessary to enable the investigation team to analyze the loss, to determine the root cause, and to develop recommendations. More complex situations may require the investigation team to revisit the loss site or re-interview key witnesses to obtain answers to questions that may arise during the investigation process.

Photographs or videotapes of the scene and damaged equipment should be taken from all sides and from various distances. This point is especially important when the investigation team will not be able to review the loss scene.

The investigation team must use the Root Cause Analysis Flow Chart to assist in identifying the root cause(s) of a loss. Any loss may have one or more "root causes" and "contributing factors". The "root cause" is the primary or immediate cause of the incident, while a "contributing factor" is a condition or event that contributes to the incident happening, but is not the primary cause of the incident. Root causes and contributing factors that relate to the *person* involved in the loss, his or her peers, or the supervisor should be referred to as "personal factors". Causes that pertain to the *system* within which the loss or injury occurred should be referred to as "job factors".

Personal Factors

Lack of skill or knowledge

Correct way takes more time and/or requires more effort

Short-cutting standard procedures is positively reinforced or tolerated

Person thinks that there is no personal benefit to always doing the job according to standards

Job Factors

Lack of or inadequate operational procedures or work standards.

Inadequate communication of expectations regarding procedures or standards

Inadequate tools or equipment

The root cause(s) could be any one or a combination of these seven possibilities or some other "uncontrollable factor". In the vast majority of losses, the root cause is very much related to one or more of these seven factors. Uncontrollable factors should be used rarely and only after a thorough review eliminates "all" seven other factors.

Incident Report Form

Fax completed form to:

425.462.5957

CH2M HILL Seattle Office

Attention: Corporate HS&E Department

Type of Incident (Select at least one)

- | | | |
|---|--|--|
| <input type="checkbox"/> Injury/Illness | <input type="checkbox"/> Property Damage | <input type="checkbox"/> Spill/Release |
| <input type="checkbox"/> Environmental/Permit Issue | <input type="checkbox"/> Near Miss | <input type="checkbox"/> Other |

General Information (Complete for all incident types)

Preparer's Name: _____ Preparer's Employee Number: _____
Date of Report: _____ Date of Incident: _____ Time of Incident: _____ am/pm

Type of Activity (Provide activity being performed that resulted in the incident)

- | | | |
|--|--|--|
| <input type="checkbox"/> Asbestos Work | <input type="checkbox"/> Excavation Trench-Haz Waste | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Confined Space Entry | <input type="checkbox"/> Excavation Trench-Non Haz | <input type="checkbox"/> Process Safety Management |
| <input type="checkbox"/> Construction Mgmt- Haz Waste | <input type="checkbox"/> Facility Walk Through | <input type="checkbox"/> Tunneling |
| <input type="checkbox"/> Construction Mgmt - Non-Haz Waste | <input type="checkbox"/> General Office Work | <input type="checkbox"/> Welding |
| <input type="checkbox"/> Demolition | <input type="checkbox"/> Keyboard Work | <input type="checkbox"/> Wetlands Survey |
| <input type="checkbox"/> Drilling-Haz Waste | <input type="checkbox"/> Laboratory | <input type="checkbox"/> Working from Heights |
| <input type="checkbox"/> Drilling-Non Haz Waste | <input type="checkbox"/> Lead Abatement | <input type="checkbox"/> Working in Roadways |
| <input type="checkbox"/> Drum Handling | <input type="checkbox"/> Motor Vehicle Operation | <input type="checkbox"/> WWTP Operation |
| <input type="checkbox"/> Electrical Work | <input type="checkbox"/> Moving Heavy Object | |

Location of Incident (Select one)

- Company Premises (CH2M HILL Office: _____)
- Field (Project #: _____ Project/Site Name: _____ Client: _____)
- In Transit (Traveling from: _____ Traveling to: _____)
- At Home

Geographic Location of Incident (Select region where the incident occurred)

- | | | |
|------------------------------------|------------------------------------|---|
| <input type="checkbox"/> Northeast | <input type="checkbox"/> Southwest | <input type="checkbox"/> Asia Pacific |
| <input type="checkbox"/> Southeast | <input type="checkbox"/> Corporate | <input type="checkbox"/> Europe Middle East |
| <input type="checkbox"/> Northwest | <input type="checkbox"/> Canadian | <input type="checkbox"/> Latin America |

If a CH2M HILL subcontractor was involved in the incident, provide their company name and phone number: _____

Describe the Incident (Provide a brief description of the incident): _____

Injured Employee Data (Complete for Injury/Illness incidents only)

If CH2M HILL employee injured

Employee Name: _____ Employee Number: _____

If CH2M HILL Subcontractor employee injured

Employee Name: _____ Company: _____

Injury Type

- Allergic Reaction
- Amputation
- Asphyxia
- Bruise/Contusion/Abrasion
- Burn (Chemical)
- Burn/Scald (Heat)
- Cancer
- Carpal Tunnel
- Concussion
- Cut/Laceration
- Dermatitis
- Dislocation

- Electric Shock
- Foreign Body in eye
- Fracture
- Freezing/Frost Bite
- Headache
- Hearing Loss
- Heat Exhaustion
- Hernia
- Infection
- Irritation to eye
- Ligament Damage

- Multiple (Specify) _____
- Muscle Spasms
- Other (Specify) _____
- Poisoning (Systemic)
- Puncture
- Radiation Effects
- Strain/Sprain
- Tendonitis
- Wrist Pain

Part of Body Injured

- Abdomen
- Ankle(s)
- Arms (Multiple)
- Back
- Blood
- Body System
- Buttocks
- Chest/Ribs
- Ear(s)
- Elbow(s)
- Eye(s)
- Face
- Finger(s)
- Foot/Feet

- Hand(s)
- Head
- Hip(s)
- Kidney
- Knee(s)
- Leg(s)
- Liver
- Lower (arms)
- Lower (legs)
- Lung
- Mind

- Neck
- Nervous System
- Nose
- Other (Specify) _____
- Reproductive System
- Shoulder(s)
- Throat
- Toe(s)
- Upper Arm(s)
- Upper Leg(s)
- Wrist(s)

Multiple (Specify) _____

Nature of Injury

- Absorption
- Bite/Sting/Scratch
- Cardio-Vascular/Respiratory System Failure
- Caught In or Between
- Fall (From Elevation)
- Fall (Same Level)
- Ingestion

- Inhalation
- Lifting
- Mental Stress
- Motor Vehicle Accident
- Multiple (Specify) _____
- Other (Specify) _____

- Overexertion
- Repeated Motion/Pressure
- Rubbed/Abraded
- Shock
- Struck Against
- Struck By
- Work Place Violence

Initial Diagnosis/Treatment Date: _____

Type of Treatment

- Admission to hospital/medical facility
- Application of bandages
- Cold/Heat Compression/Multiple Treatment
- Cold/Heat Compression/One Treatment
- First Degree Burn Treatment
- Heat Therapy/Multiple treatment
- Multiple (Specify) _____

- Heat Therapy/One Treatment
- Non-Prescriptive medicine
- None
- Observation
- Other (Specify) _____

Prescription- Multiple dose

- Prescription- Single dose
- Removal of foreign bodies
- Skin Removal
- Soaking therapy- Multiple Treatment
- Soaking Therapy- One Treatment
- Stitches/Sutures
- Tetanus
- Treatment for infection
- Treatment of 2nd /3rd degree burns
- Use of Antiseptics - multiple treatment
- Use of Antiseptics - single treatment
- Whirlpool bath therapy/multiple treatment
- Whirlpool therapy/single treatment
- X-rays negative
- X-rays positive/treatment of fracture

Number of days doctor required employee to be off work: _____
Number of days doctor restricted employee's work activity: _____
Equipment Malfunction : Yes No Activity was a Routine Task: Yes No
Describe how you may have prevented this injury: _____

Physician Information

Name: _____
Address: _____
City: _____
Zip Code: _____
Phone: _____

Hospital Information

Name: _____
Address: _____
City: _____
Zip Code: _____
Phone: _____

Property Damage (Complete for Property Damage incidents only)

Property Damaged: _____ Property Owner: _____
Damage Description: _____
Estimated Amount: \$ _____

Spill or Release (Complete for Spill/Release incidents only)

Substance (attach MSDS): _____ Estimated Quantity: _____
Facility Name, Address, Phone No.: _____
Did the spill/release move off the property where work was performed?: _____
Spill/Release From: _____ Spill/Release To: _____

Environmental/Permit Issue (Complete for Environmental/Permit Issue incidents only)

Describe Environmental or Permit Issue: _____
Permit Type: _____
Permitted Level or Criteria (e.g., discharge limit): _____
Permit Name and Number (e.g., NPDES No. ST1234): _____
Substance and Estimated Quantity: _____
Duration of Permit Exceedence: _____

Verbal Notification (Complete for all incident types)(Provide names, dates and times)

CH2M HILL Personnel Notified: _____
Client Notified: _____

Witnesses (Complete for all incident types)

Witness Information (First Witness)

Name: _____
Employee Number (CH2M HILL): _____
Address: _____
City: _____
Zip Code: _____
Phone: _____

Witness Information (Second Witness)

Name: _____
Employee Number (CH2M HILL): _____
Address: _____
City: _____
Zip Code: _____
Phone : _____

Additional Comments:

NEAR LOSS INVESTIGATION FORM

Employer Information

Company Name: _____

Project Name: _____ Project Number: _____

Project Location: _____

CHIL Project? Yes No

Task Location: _____

Job Assignment: _____ Business Group: _____

Preparer's Name: _____ Preparer's Employee Number: _____

Near Loss Incident Specific Information

Date of Incident: _____ Time of Incident: _____ a.m./p.m.

Location of incident:

Company premises Field In Transit Other: _____

Address where the incident occurred: _____

Equipment Malfunction : Yes No Activity was a Routine Task: Yes No

Describe any property damage: _____

Specific activity the employee was engaged in when the incident occurred:

All equipment, materials, or chemicals the employee was using when the incident occurred:

Describe the specific incident and how it occurred:

Describe how this incident may have been prevented:

Contributing Factors (Describe in detail why incident occurred):

Date employer notified of incident: _____ To whom reported: _____

NEAR LOSS INVESTIGATION FORM

Witness Information (First Witness)

Name: _____
Employee Number (for CH2M HILL employees): _____
Address: _____
City: _____
Zip Code : _____
Phone: _____

Witness Information (Second Witness)

Name: _____
Employee Number (for CH2M HILL employees): _____
Address: _____
City: _____
Zip Code: _____
Phone : _____

Additional information or
comments: _____

Appendix C
Explosives Safety Submission

Draft Final

Explosives Safety Submission

**for Munitions Response and
On-Site Construction Support for
Discarded Military Munitions
Former Naval Air Station Cecil Field
Jacksonville, Florida**

**Contract No. N62467-01-D-0331
Contract Task Order No. 0029**

Prepared for



**U.S. Navy Facilities Engineering Command,
Southern Division**

Prepared by



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October 2004

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Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
CAD	cartridge actuated device
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CH2M HILL	CH2M HILL Constructors, Inc.
CFR	Code of Federal Regulations
CTO	Contract Task Order
DMM	Discarded Military Munitions
DRMO	Defense Reutilization and Marketing Office
EBS	Environmental Baseline Survey
ECA	Equipment Check Area
EO	Executive Order
EOD	Explosive Ordnance Disposal
ESQD	Explosives Safety Quantity-Distance
ESS	Explosives Safety Submission
EZ	Exclusion Zone
HE	High Explosive
HERO	Hazards of Electromagnetic Radiation to Ordnance
IBD	Inhabited Building Distance
JAA	Jacksonville Airport Authority
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MGFD	Munition with the Greatest Fragmentation Distance
mm	millimeter(s)
MMRP-CX	Military Munitions Response Program Center of Expertise
MPPEH	Material Potentially Presenting an Explosive Hazard
MRS	Munitions Response Site
NAS	Naval Air Station
NAVFAC EFD SOUTH	U.S. Naval Facilities Engineering Command, Southern Division
NAVSEA	Naval Sea Systems Command
NOSSA	Naval Ordnance Safety and Security Activity
OSHA	Occupational Safety and Health Act
PTR	Public Transportation Routes
QA	Quality Assurance
QC	Quality Control
Q-D	Quantity-Distance
RPM	Remedial Project Manager
SUXOS	Senior UXO Supervisor
TCRA	Time Critical Removal Action
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Corps of Engineers, Huntsville Center
UXO	Unexploded Ordnance

SECTION 1

Project Summary

This Explosives Safety Submission (ESS) is in support of Munitions Response and On-Site Construction Support to locate and remove Munitions and Explosives of Concern (MEC) at the former Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. The munitions response action for MEC is being implemented by CH2M HILL Constructors, Inc. (CH2M HILL) for the U.S. Naval Facilities Engineering Command, Southern Division (NAVFAC EFD SOUTH), under Response Action Contract No. N62467-01-D-0331, Contract Task Order (CTO) No. 0029.

1.1 Munitions and Explosives of Concern

The area covered by this ESS was designated a Munitions Response Site (MRS) by the Naval Ordnance Safety and Security Activity (NOSSA) after receipt of a MRS Identification and Notification Report submitted by NAVFAC EFD SOUTH on September 16, 2004.

On Friday, September 10, 2004, one Discarded Military Munition (DMM) and 10 expended cartridge actuated devices (CADs) were found near Building 365. The items were discovered during clearing and grubbing operations of an approximately 5-acre area in support of an ongoing Jacksonville Airport Authority (JAA) construction project to expand the north apron aircraft taxiway. The DMM consisted of one 20-millimeter (mm) round consisting of cartridge case with percussion primer, not impinged; high explosive (HE) projectile unfired with the point detonating fuze sheared off. On September 21, 2004, the CH2M HILL Munitions Response Team visited the site and talked with one of the responding Florida Air National Guard Explosive Ordnance Disposal (EOD) Technicians. The EOD Technician stated that the recovered 20mm round was in a safe condition and had been removed from the site for disposal.

The DMM find caused a work stoppage of the JAA construction project and prompted the need for additional MEC support. The additional support is a cautionary action to ensure that the presence of the discovered DMM was unique to the area where it was found and to protect human health and safety during completion of the construction project.

1.2 Conclusions from Previous Studies and Reports of Ordnance Contamination

According to the Environmental Baseline Survey (EBS) Report, Building 365 was a former earth covered weapons storage locker built in 1957 at the former NAS Cecil Field, Jacksonville, Florida. The building is a one-story cinderblock bunker that is divided into 10 individual storage areas. Building 365 was reported to store CADs and was used as a ready service magazine to store munitions for flight operations at the former NAS Cecil Field. Building 365 is located west of Runway 18R, south of Buildings 373/104, and north of Building 366 (Figure 1-1). An access road runs along the west side of the building and a

wooded area was formerly located to the west. The building and adjacent property were classified in the EBS report as "1/White", an area where no release or disposal of hazardous substances or petroleum products occurred (including any migration of these substances from adjacent areas). The building had been previously found suitable to transfer with property transfer from the Navy to the JAA completed.

The construction site was not a known or suspected MRS until discovery of DMM on September 10, 2004 and the probability of encountering MEC has been determined to be low based on a risk assessment that was submitted with an ESS Waiver Request on September 27, 2004.

1.3 Suspected Type and Amount of Ordnance Contamination

No munitions disposal operations are known to have taken place in or near the construction site. It is likely that the recovered DMM (one unfired fixed 20mm projectile and cartridge case) was discarded by person or persons unknown and no additional munitions are suspected to be on the construction site.

1.4 Planned Future Use of Property

Future use of the property is industrial. The property has already been transferred from Navy control to JAA.

1.5 Remediation Goals

Based on site specific information, the remedial goal is to remove MEC to a depth of one foot. The MRS has no history of having been used as a range and only DMM are expected to be encountered. No evidence has been discovered that suggest that DMM may have been buried on this site. To date, the only DMM discovered has been on the surface. A munitions response from the ground surface to a depth of one-foot followed by on-site construction support are proposed to provide assurance for construction personnel. CH2M HILL intends to perform a mag & dig operation and provide on-site construction support on the construction footprint to reduce the risk that DMM will be encountered during construction activities. On-site construction support will be provided for all intrusive construction activities to be performed at the site and for removal of the vegetation piles. No digital geophysical mapping is proposed due to the condition of the site. Approximately 80% of the vegetation has been uprooted and is in piles. Removal of the remaining trees and piles will effectively complete the clearance requirements.

1.6 Munitions Response Action Planned

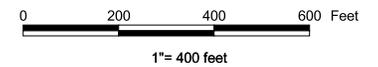
The munitions response action planned for this project is the detection and removal of MEC from the ground surface to a depth of one-foot (based on site specific information) followed by on-site construction support. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, this action would be classified as a Time Critical Removal Action (TCRA).

FIGURE 1-1
VICINITY MAP



LEGEND

- Structures
- PERMANENT
 - DEMOLITION
- Roads
- Installation Area



SECTION 2

Maps

In addition to the map presented as Figure 1-1, the maps listed below have been provided.

2.1 Regional Map

Figure 2-1 is a regional map showing the State of Florida and the location of the former NAS Cecil Field.

2.2 Activity Map

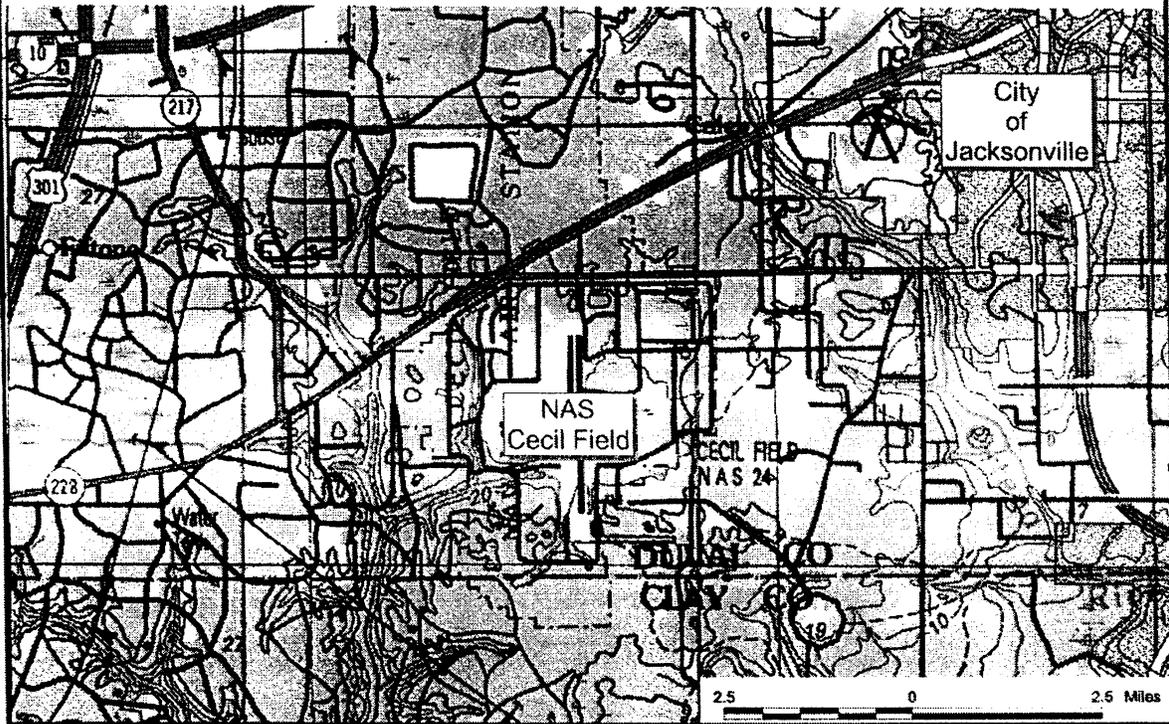
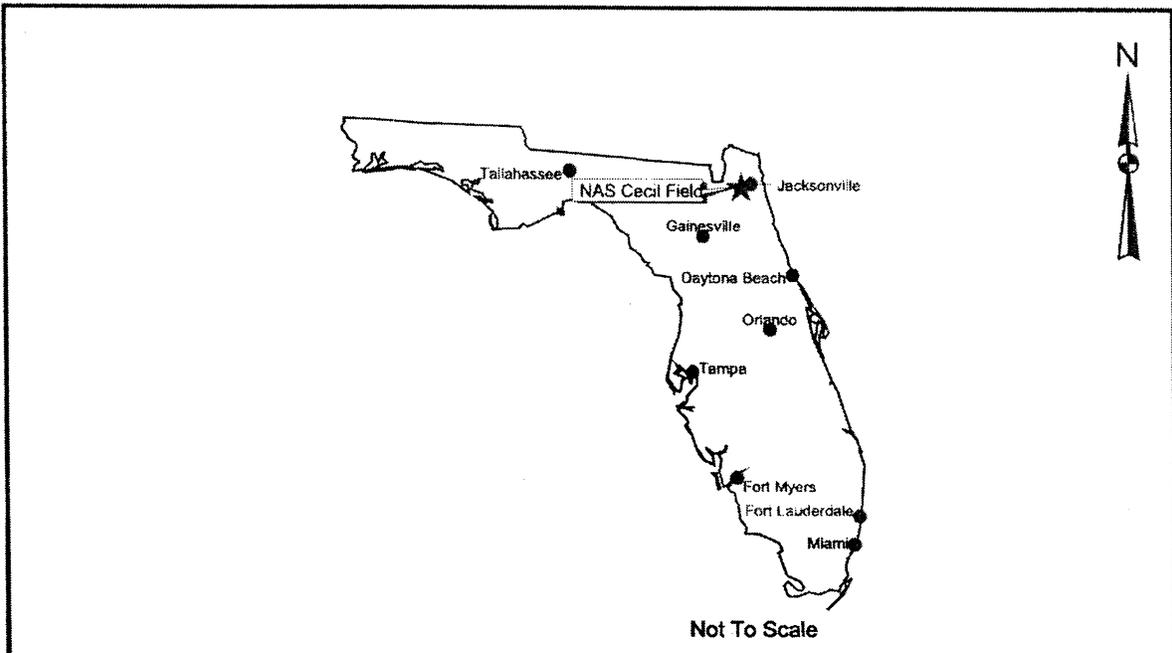
Figure 2-2 is an activity map showing the MRS covered by this submission within the former NAS Cecil Field.

2.3 Quantity Distance (Q-D) Map

Figure 2-3 is a map of the construction site and depicts the explosive safety quantity distance (ESQD) arcs around the work area.

2.4 Soil Sampling Map

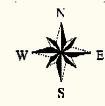
No soil sampling has been conducted or is proposed.



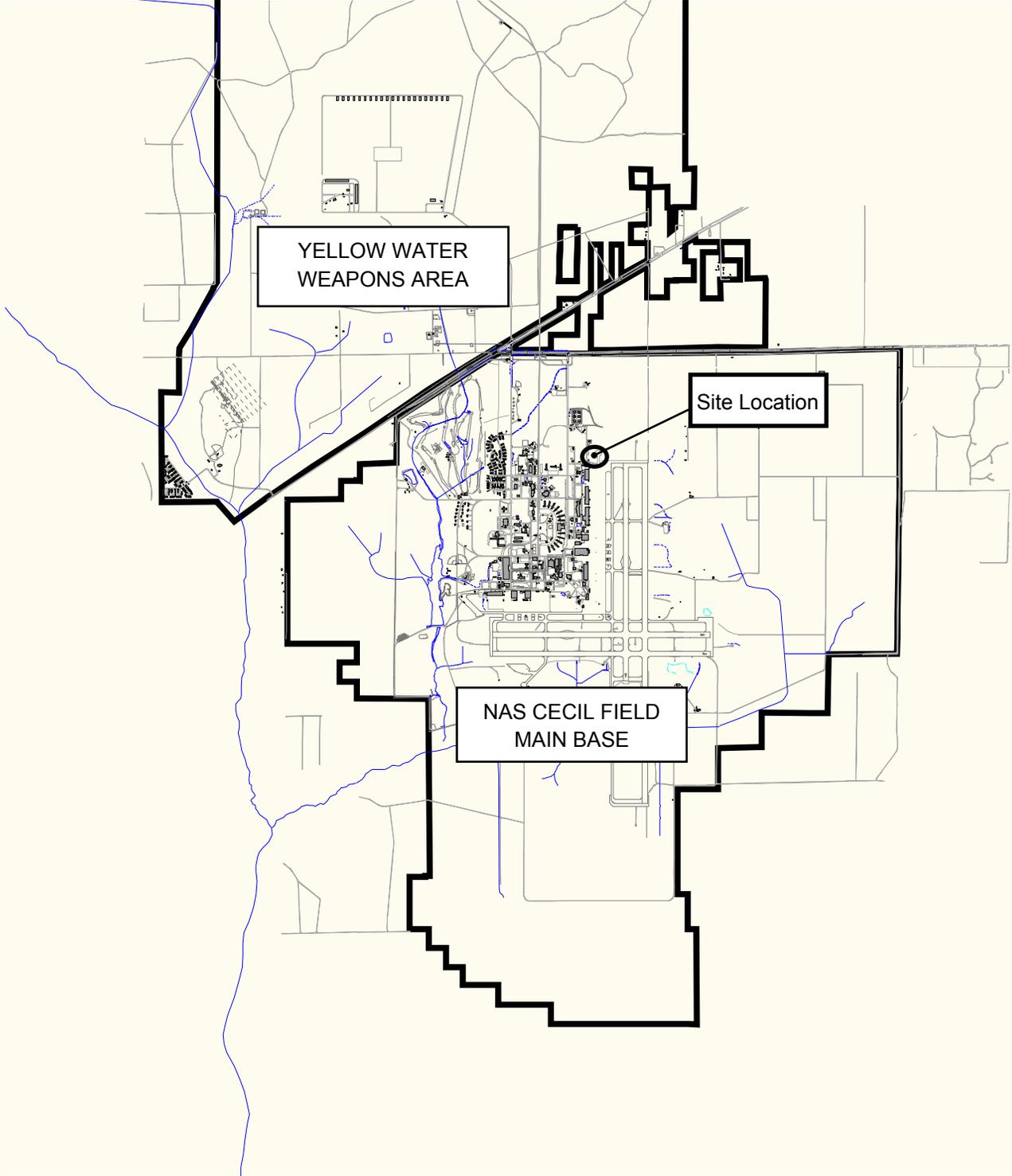
DRAWN BY MJJ	DATE 30 Jun 02
CHECKED BY <i>US</i>	DATE <i>9/10/02</i>
COST/SCHEDULE-AREA	
SCALE AS NOTED	



FIGURE 2-1
REGIONAL MAP
NAS CECIL FIELD

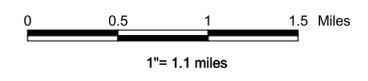


**FIGURE 2-2
ACTIVITY MAP
NAS CECIL FIELD**



LEGEND

- Structures
- PERMANENT
 - DEMOLITION
- Roads
- Installation Area

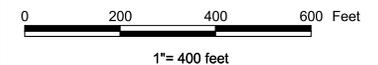


**FIGURE 2-3
QUANTITY DISTANCE
MAP**



LEGEND

- Structures
- PERMANENT
 - DEMOLITION
 - Roads
 - Installation Area



-818, 339, and 334; uninhabited and used to test jet engines by JTS; personnel in buildings only during testing

-885 (and two adjacent buildings to north and south) uninhabited and used as HAZMAT storage lockers by NADEP

-1845; inhabited NADEP aircraft maintenance hangar. North end has masonry block and brick walls with a flat built-up roof system and has no openings in the direction (north) of the MRS. Openings to the east and west can be restricted to prevent personnel from entering the EZ.

SECTION 3

Amount and Type of MEC

This section presents information about the amount and type of MEC anticipated at the site. In addition, the Munition with the Greatest Fragmentation Distance (MGFD) is identified for the site. The MGFD will be used to establish safe distances for project activities and locations based upon the amount of explosives and the anticipated fragmentation distance for the munition.

As stated in Section 1, the following items were found at the site during construction activities:

- DMM - One 20-mm HE round consisting of cartridge case with percussion primer, not impinged. No additional discoveries are expected.
- Material Potentially Presents an Explosive Hazard (MPPEH) - Ten expended CADs. It is expected that an additional unknown quantity of expended CADs will be discovered.

3.1 Munitions Greatest Fragmentation Distance

The MGFD anticipated to be encountered at the site is a 20-mm HE round. According to Table 13-2 in OP 5 Volume 1 (NAVSEA, 2003), the maximum fragment throw range for a 20-mm projectile is 320 feet. If, during the course of this project, a live MEC item with a greater fragmentation range is encountered, the ESQD arcs will be adjusted and an amendment to this ESS will be prepared.

An initial exclusion zone (EZ) of 236 feet based on Table 7-9 in OP 5 Volume 1 (NAVSEA, 2003) will be used during MEC removal operations with an initial EZ of 320 feet based on Table 13-2 in OP 5 Volume 1 (NAVSEA, 2003) used for intentional detonations. The EZs will be modified if MEC other than 20-mm HE rounds are discovered and an amendment to this ESS will be prepared.

3.2 Maximum Credible Event for Explosive Soil

No explosive soil is suspected or known to be on this MRS.

3.3 Maximum Credible Event for Buildings

No explosive operating buildings are included in this submission.

3.4 Description and Status of MRS Not Covered

There are no known or suspected MRS located in the vicinity covered by this submission.

SECTION 4

Start Date

Mobilization and site work will be conducted as soon as approval of this ESS is received.

SECTION 5

Frostline

Because of the climatic conditions in Florida, the site does not have a frostline and has not experienced frost heave. Therefore, this section is not applicable.

SECTION 6

Response Techniques

This section describes the techniques used to detect, recover, and dispose of any MEC discovered at the site during the project, and discusses associated elements of the field work.

The proposed work approach is to determine whether additional MEC are present at the site through a mag & dig operation and then, once cleared, to recommence construction operations with on-site construction support. The following general steps will be taken:

- Spraying of site for control of heavy mosquito population.
- Emplacement of a 100x100-foot grid system tied to a permanent site monument.
- Removal of vegetation in wooded area of site.
- Mag & dig operation to detect and investigate anomalies potentially related to MEC.
- On-site construction support.
- Dispose of MEC/MPPEH.

On-site construction support will be provided during all activities that involve intrusive work.

6.1 Type of Geophysical Detection Equipment

Only handheld geophysical metal detectors will be used at the site. Because the CADs found at the site were historically constructed of both ferrous and non-ferrous metals, an all-metals detector, the Minelabs Explorer II, will be used for the mag & dig and on-site construction support operations. The Minelabs Explorer II is approved by the U.S. Army Corps of Engineers, Huntsville Center (USAESCH), Military Munitions Response Program Center of Expertise (MMRP-CX) for use on munitions response projects. The MMRP-CX has a program for testing geophysical instruments that meets the substantial requirements of the Navy Hazards of Electromagnetic Radiation to Ordnance (HERO) Program.

6.2 Methods to Verify Detection Capabilities

Geophysical instruments will be checked in an Equipment Check Area (ECA) prior to use each day. Two items, one inert 20-mm projectile (or surrogate) and an empty CAD (or surrogate) will be buried at approximately one-foot below the ground surface to ensure that these items can be detected to that depth each day prior to beginning operations. (Because the only MEC found or anticipated to be found at the site consist of DMM, it is not anticipated that individual MEC items will be found below one-foot.)

6.3 Anomaly Discrimination

Because of the site limitations, no digital geophysical mapping or anomaly discrimination is proposed.

6.4 Detection Method

6.4.1 Detection Procedures

6.4.1.1 Vegetation Removal Detection

Vegetation removal will be accomplished with gas-powered string trimmers with saw blade attachments and ditch axes or, where appropriate, using a tractor equipped with a bush hog mower. The brush will be cut to a height of approximately six inches above ground surface to allow Unexploded Ordnance (UXO) Technicians to visually observe the ground surface during the mag & dig operations. MEC avoidance will be performed during vegetation removal. This includes visual observation of the ground surface by UXO Technicians prior to and during vegetation removal and instrument-assisted detection using a Minelabs Explorer II all metals detector. The instrument will be used to check inside heavy vegetation (e.g. a thick bush) where it is not possible for the Technician to visually check the area.

6.4.1.2 Mag & Dig

The MRS will be divided into lanes five feet wide marked by string. A UXO Technician will use the Minelabs Explorer II all metals detector for surveying within the survey lane. When a subsurface anomaly is detected, another UXO Technician will mark and later excavate the anomaly to determine if it presents a MEC hazard.

6.4.2 Selection Criteria and Rationale

As discussed above, CADs found at the site were historically constructed of both ferrous and non-ferrous metals, thus an instrument having the ability to detect both ferrous and non-ferrous metals is required. A digital geophysical mapping survey of the site is not appropriate because the presence of large piles of vegetation across the site (from grubbing activities prior to finding the DMM) makes a full-coverage survey impractical. All existing vegetation piles at the site will be carefully inspected to ensure that MEC are not present prior to moving the vegetation onto trucks for removal from the site. The inspection will include visual observation of the piles and instrument-assisted detection using a Minelabs Explorer II all metals detector where visual observation is not possible.

6.4.3 Quality Assurance and Quality Control (QA/QC)

QA/QC for the field activities on this project will include two primary elements: (1) field observation/audits of personnel and procedures and (2) checking equipment and instruments (e.g. geophysical sensors, 2-way radios) for functioning and appropriate response prior to use.

As described in Section 6.2, geophysical instruments will be checked in an ECA prior to use each day.

6.4.4 Personnel Qualifications

All MEC operations personnel will be qualified in accordance with terms outlined by U.S. Department of Labor Employment Standards Administration Wage Hour Division for UXO Personnel and U.S. Army Corps of Engineers (USACE), 2004, Data Item Description OE-025.02, "Personnel/Work Standards."

6.5 Disposition of MEC and Related Scrap

In the event an MEC item is identified at the site, the Senior UXO Supervisor (SUXOS) will secure the site and notify the CH2M HILL Project Manager, who in turn will notify the NAVFAC EFD SOUTH Remedial Project Manager (RPM). The site will remain secured until disposal operations can be performed.

Arrangements for delivery of explosives to countercharge discovered MEC have been made with a local explosives distributor and the explosives will be delivered within 24 hours. The SUXOS and a UXO Technician III will evaluate the recovered MEC and existing ESQD Arcs to ensure that that disposal by detonation can be safely effected. If insufficient ESQD Arcs exist, a plan using engineering controls will be developed and expeditiously submitted by email to NOSSA for review and approval prior to executing disposal by detonation operations. Based on the MGF and distances to the nearest Inhabited Building Distance (IBD)/Public Transportation Routes (PTR), it is anticipated that the only engineering controls that will be needed are sand bags. Disposal will be conducted in accordance with EODB 60A 1-1-31, OP 5 Volume I, and NAVSEA SW060-AA-MMA-010 Volumes I and II. Engineering controls will conform with DDESB TP-16.

MPPEH and Munitions Debris (MD) will be inspected, demilitarized if necessary, certified, and verified as free of explosive hazards prior to being transported to the nearest Defense Reutilization and Marketing Office (DRMO) for disposition. Discussions are underway with DRMO to establish protocols for disposition of munitions related scrap metal.

SECTION 7

Explosives Safety Quantity-Distance

This section contains information about the minimum ESQD requirements for the site.

The area where mag & dig operations are to be performed will have an EZ established based on the MGFDF prior to operations beginning in the area. The area is shown on the ESQD map (Figure 2-3).

Coordination of all work activities at the MRS with the JAA and Federal Aviation Authority (FAA) air traffic controller, NAVFAC EFD SOUTH, and the Resident Officer in Charge of Construction (ROICC) Project Office will be the responsibility of the CH2M HILL Project Manager and SUXOS. In addition, any required intentional detonations, including approach, timing, and required public notification, will be coordinated by the CH2M HILL Project Manager and SUXOS through the JAA and FAA air traffic controller, NAVFAC EFD SOUTH, and ROICC Project Office.

7.1 Munitions Response Sites

No MRS other than the one in this submission (shown on Figures 2-2 and 2-3) is known. Only one UXO Team conducting mag & dig operations and providing on-site construction support will be employed inside the EZ.

7.1.1 IBD

There are several buildings located near the MRS. Inhabited buildings are discussed below:

- Building 373: Located within the EZ is uninhabited and used for temporary storage by JAA of non-hazardous materials.
- Building 365: Located within the EZ is an earth covered ready service magazine used by Boeing. The structure is currently empty.
- Building 366: Located within the EZ is uninhabited and used for temporary storage by Boeing of non-hazardous materials.
- Building 818: Located within the EZ is uninhabited except when used for testing jet engines.
- Building 824: Located within the EZ is uninhabited and used for temporary storage by a contractor.
- Building 1845: Located partially within the southern edge of the EZ is an inhabited aircraft maintenance hanger. The north end of the hangar has masonry block and brick walls with a flat built-up roof system and no openings in the direction (north) of the MRS. Openings to the east and west can be restricted to prevent personnel from entering the EZ. Enacted restrictions will not adversely impact personnel should an emergency exist within the building because no exits are located on the north side of the building.

7.1.2 PTR Distance

There are several roads and aircraft taxiways near and within the EZ of the MRS. These are discussed below:

Loop Road: Runs north and south adjacent to the MRS within the EZ. The road is secured from the north by a locked gate. The southern end of Loop Road intersects with Skymaster Drive and the aircraft parking apron next to Building 1845. A locked gate at the intersection of Loop Road and Skymaster Drive prevents access from the west. Access from the aircraft parking apron and taxiway will be secured by barriers and access restricted by air traffic control.

Skymaster Drive: Runs east and west from Loop Road and extends into the EZ of the MRS in the southwest corner. Barriers and signs will be used to restrict access to the MRS.

7.2 Magazines

No storage of explosives or MEC on site is planned. Arrangements for delivery of explosives to countercharge discovered MEC have been made with a local explosives distributor and the explosives will be delivered within 24 hours. Once the explosives materials are on site they will immediately be prepared and used without storage.

7.3 Planned or Established Treatment Areas

In the event an MEC item is identified at the site, the SUXOS will secure the site and notify the CH2M HILL Project Manager, who in turn will notify the NAVFAC EFD SOUTH RPM. The site will remain secured until disposal operations can be performed.

7.3.1 Planned or Established Demolition Area

There are no planned or established MEC detonation areas.

7.3.2 Exclusion Zone

Table 7-1 provides the basis of determining the EZ for the expected munitions response operations at the former NAS Cecil Field.

TABLE 7-1
Determining Sizes of Exclusion Zones

Operation	Basis for Determining Size of Exclusion Zone	Minimum Separation Distance (for Nonessential Personnel)	Safe Separation Distance (for Other UXO Teams)
Excavation Activities	Unintentional Detonation	236 feet (IBD for ESQD*), 142 feet (PTR for ESQD*) (Safe Separation Distance)	200 feet
Detonation of MEC at MRS Max. <1 lb NEW)	Intentional Detonation	320 feet (IBD for ESQD**)	320 feet**

* Based on OP 5 Volume 1, Table 7-9.

** Based on OP 5 Volume 1, Table 13-2.

The SUXOS and a UXO Technician III will evaluate the recovered MEC and existing ESQD Arcs to ensure that disposal by detonation can be safely effected. If insufficient ESQD Arcs exist, a plan using engineering controls will be developed and expeditiously submitted by email to NOSSA for review and approval prior to executing disposal by detonation operations. Based on the MGF and distances to the nearest IBD/PTR, it is anticipated that the only engineering controls that will be needed are sandbags. Disposal will be conducted in accordance with EODB 60A 1-1-31, OP 5 Volume I, and NAVSEA SW060-AA-MMA-010 Volumes I and II. Engineering controls will conform with DDESB TP-16.

SECTION 8

Offsite Disposal

No offsite disposal of MEC is expected.

Environmental Considerations

9.1 Environmental Regulatory Considerations

The Navy will conduct this MEC response action under the CERCLA framework, as is consistent with Department of Defense policy. OPNAVINST 8020.14, *Department of the Navy Explosives Safety Policy* (OPNAV, 1999), requires that all response actions involving real property known or suspected to contain military munitions have approved plans and/or appropriate documentation in accordance with an established process.

In addition, the response action is taken under the delegated authority of the Office of the President of United States by Executive Order (EO) 12580. This EO authorizes the Navy to conduct and finance removal actions. This removal action is also appropriate based on several of the applicable factors under 40 Code of Federal Regulations (CFR) Part 300.415(b)(2). The Navy is the lead agency for this action, and NAVFAC EFD SOUTH is the contracting agency responsible for completing the response action.

The response action will be conducted in accordance with the following health and safety regulations and requirements, in addition to the MEC-specific regulations and requirements to be provided in the project Work Plan:

- 29 CFR, Occupational Safety and Health Act (OSHA) Regulations: Construction (29 CFR 1926) and General Industry (29 CFR 1910), applicable sections
- USACE, 2003, EM 385-1-1, *Safety – Safety and Health Requirements*

Section 121(d) of CERCLA requires that remedial actions implemented at CERCLA sites attain any federal or more stringent state environmental standards, requirements, criteria, or limitations that are determined to be Applicable or Relevant and Appropriate Requirements (ARARs). Potential ARARs for the MEC response action at the site have been developed as part of the planning process and will be discussed in detail in the Work Plan (CH2M HILL, in preparation).

9.2 Ecological and Cultural Environmental Conditions

No endangered species or plants are known or suspected to be on the MRS. No cultural sites are known or suspected to be on the MRS.

SECTION 10

Technical Support

CH2M HILL is the MEC contractor for this submission. The nearest EOD Team that is available for technical support and/or emergency response is the Navy EOD Detachment at Mayport, Florida.

SECTION 11

Land Use Restrictions

Proposed land use is unrestricted use with no land use controls.

SECTION 12

Public Involvement

The NAS Cecil Field Restoration Advisory Board, consisting of public citizens from the local community and impacted stakeholders, will be kept updated by the NAVFAC EFD SOUTH RPM of the site conditions, proposed removal plan, and progress of the removal action.

Appendix D
Explosives Siting Plan

REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (REV. 5-2001)

PART I

INSTRUCTIONS IN NAVFACINST 11010.45

SECTION A – INSTALLATION SUBMISSION

1. To: Naval Ordnance Safety and Security Activity (N7)			2. From: Southern Division, Naval Facilities Engineering Command		
3. Program Year: 2004	4. Cost (\$000):	5. Type Funding	6. Activity UIC	7. Date: 10/14/2004	
8. Category Code and Project Title: Munitions Response and On-Site Construction support for location and removal of Discarded Military Munitions at the Former Naval Air Station, Cecil Field, Jacksonville, Florida				9. Project Number N/A	
10. Type of Project: <input type="checkbox"/> New Construction <input type="checkbox"/> Relocation of Structure <input checked="" type="checkbox"/> Other <input type="checkbox"/> Change Use <input type="checkbox"/> Maintenance and/or Repairs <input type="checkbox"/> Addition to Existing Facility <input type="checkbox"/> Repair by Replacement <input type="checkbox"/> Major Modification to Existing Facility <input type="checkbox"/> Demolition			11. Type of Request: <input type="checkbox"/> Airfield Safety Site Approval <input checked="" type="checkbox"/> Explosives Site/Safety Certification <input type="checkbox"/> EMR Site Approval <input type="checkbox"/> Resubmittal or Standard Site Approval (No Safety Criteria Involved)		
12. Project Description Munitions response and on-site construction support to locate and remove munitions and explosives of concern (MEC) as part of a Time-Critical Removal Action (TCRA) at the former Naval Air Station (NAS) Cecil Field near Building 365. The area covered by this Explosive Siting Plan (ESP) was designated a Munitions Response Site (MRS) by the Naval Ordnance Safety and Security Activity (NOSSA) after receipt of a MRS Identification and Notification Report submitted by the Naval Facilities Engineering Command, Southern Division on September 16, 2004. The construction site was not a known or suspected munitions response site until discovery of discarded military munitions (DMM) on September 10, 2004 and the probability of encountering MEC has been determined to be low based on a risk assessment that was submitted with an ESS Waiver Request on September 27, 2004. On Friday, September 10, 2004, one Discarded Military Munition (DMM) and ten expended cartridge actuated devices (CADs) were found near Building 365. The items were discovered during clearing and grubbing operations of an approximately 5 acre area in support of an ongoing Jacksonville Airport Authority (JAA) construction project to expand the north apron aircraft taxiway. The DMM consisted of one 20-millimeter (mm) round consisting of cartridge case with percussion primer, not impinged; high explosive (HE) projectile unfired with the point detonating fuze sheared off. Siting of Potential Explosive Site (PES) is limited to the project work area at the former NAS Cecil Field where MEC and Material Potentially Presenting an Explosive Hazard (MPPEH) may be recovered. This site was previously transferred for unrestricted use to the Jacksonville Airport Authority (JAA) and is being prepared for construction of a industrial building and taxi area for aircraft.					
13. <u>4</u> Sets of Project Maps Attached			14. <u>4</u> Sets Part II Division(s) <u>A</u> Attached		

SECTION B – EFD REVIEW

1. Name/Code/Phone No. of Reviewer/E-Mail Address:		2. Date Received:
3. Evaluation:		
4. Safety Review Requested: (check appropriate box(es)) <input checked="" type="checkbox"/> NOSSA <input type="checkbox"/> DDESB <input type="checkbox"/> SPAWAR <input type="checkbox"/> NAVAIR <input type="checkbox"/> CNO <input type="checkbox"/> OTHER		5. Date Forwarded:
6. Date of Safety Certification: <u>NOSSA</u> <u>DDESB</u> <u>SPAWAR</u> <u>NAVAIR</u> <u>CNO</u> <u>OTHER</u>		

SECTION C – FINAL SITE APPROVAL ACTION

1. Approvals: <input type="checkbox"/> Site Approved <input type="checkbox"/> Site Disapproved <input type="checkbox"/> Deferred/Returned <input type="checkbox"/> Explosives Safety Certification Approved <input type="checkbox"/> Explosives Safety Certification DISAPPROVED <input type="checkbox"/> Interim Construction Waiver Approved		2. Certification Identification:	
		3. Remarks	
4. Other Approvals <input type="checkbox"/> Airfield Safety Waiver Required Required <input type="checkbox"/> Final Explosives Safety Review Required		5. Approving Official:	6. Date:

REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (REV. 5-2001)

PART II DIVISION A-EXPLOSIVES SAFETY

INSTRUCTIONS IN NAVFACINST 11010.45

1. NEW/Class/Division/ESQD arcs* of project:
 - a. Construction Work Area: NEW <0.1 lb based on MGF (20mm HE projectile); Class/ Hazard Division (HD) 1.1; ESQD Arc 236-ft IBD. The location of the area is shown in Figure 2-3 in the attached list.
 - b. Detonation Area: NEW <0.1 lb based on MGF (20mm HE projectile); Class/ Hazard Division (HD) 1.1; ESQD Arc 320-ft IBD. The location of the area is the same as the Construction Work Area as shown in Figure 2-3 in the attached list.

In the event an MEC item is identified at the site, the Senior UXO Supervisor (SUXOS) will secure the site and notify the CH2M HILL Project Manager, who in turn will notify the NAVFAC Southern Division RPM. The site will remain secured until disposal operations can be performed.

Arrangements for delivery of explosives to countercharge discovered MEC have been made with a local explosives distributor and will be delivered within 24 hours. The SUXOS and a UXO Technician III will evaluate the recovered MEC and existing ESQD Arcs to ensure that disposal by detonation can be safely effected. If insufficient ESQD Arcs exist a plan using engineering controls will be developed and expeditiously submitted by email to NOSSA for review and approval prior to executing disposal by detonation operations. Based on the MGF and distances to the nearest IBD/PTR, it is anticipated that the only engineering controls that will be needed are sand bags. Disposal will be conducted in accordance with EODB 60A 1-1-31, OP 5 Volume I, and NAVSEA SW060-AA-MMA-010 Volumes I and II. Engineering controls will conform with DDESB TP-16.

Security measures will be implemented during MEC/MPPEH-related operations during the project.

2. CNO Waivers and Exemptions: N/A

3. Personnel (numbers):

Munitions Response/On-Site Construction Support: Five contractor personnel will be exposed during munitions response and on-site construction support.

MEC Disposal by Detonation Operations (If Required): Four contractor personnel will be exposed during detonation operations.

	Proposed	Existing
Military:		
Civilian:	5	
Other:		
Total:	5	

4. Facility Number/Type	<u>Personnel</u>	<u>NEW</u>	<u>Class/Division</u>	Distance* <u>Actual/Required</u>
On-Site Construction Work Area	5	<1.0 lb	1.1	400 feet/320 feet

5. Siting Rationale: The location of the munitions response/on-site construction support area has been determined by the requirements of the current construction footprint and the discovery of DMM. An exclusion zone of 320-ft based on OP 5 Volume I, Table 13-2 for the 20mm HE projectile is depicted on Figure 2-3 and encompasses Loop Road, Skymaster Drive, Buildings 373, 365, 366, 824, 361, 362, 1847, 334, 339, and 885, and 1845 surrounding the construction footprint. Access to the work site is restricted by fencing and security patrols. Buildings 373, 365, 366, 824, 361, 362, 1847, 334, 339, and 885 are not inhabited buildings and are used as storage or abandoned awaiting destruction. (See Figure 2-3 for IBD and PTR)

Loop Road is located to the west of the work site and is a secured road with no traffic.

Skymaster Drive to the south and west of the work site will have security measures implemented to prevent access to the exclusion zone.

The aircraft taxiway, parking area, and vehicle parking all located next to Building 818 and 1845 will have security measures implemented to prevent access to the exclusion zone.

Building 1845 is an inhabited aircraft maintenance hanger located partially within the southern edge of the exclusion zone. The north end of the hangar has masonry block and brick walls with a flat built-up roof system and has no openings in the direction (north) of the MRS. Openings to the east and west can be restricted to prevent personnel from entering the EZ.

Building 818 is a jet engine test cell located within the exclusion zone and is unoccupied except during testing, which can be coordinated not to interfere with MEC operations.

* Distance from project. Specify IB (Inhabited Building); IL (Intraline); IM (Intermagazine); PTR (Public Transportation Route); B (Barricaded); UB (Unbarricaded)

6. Signature of Public Works/Base Civil Engineer (Name/Code) Incl E-Mail Address

9. Signature of Explosive Safety Officer/Installation Safety Officer Incl. E-Mail Address

Ben Redmond Ben.Redmond@ch2m.com

7. Telephone Numbers:

8. Date:

10. Telephone Numbers:

11. Date:

()
DSN

() 865.384.5511
DSN

September 8, 2004

Draft Final

Explosives Siting Plan

**for Munitions Response and
On-Site Construction Support for
Discarded Military Munitions
Former Naval Air Station Cecil Field,
Jacksonville, Florida**

**Contract No. N62467-01-D-0331
Contract Task Order No. 0029**

Prepared for



**U. S. Navy Facilities Engineering Command
Southern Division**

Prepared by



**115 Perimeter Center Place, NE.
Suite 700
Atlanta, GA 30346**

October 2004

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Acronyms and Abbreviations

ATF	U.S. Bureau of Alcohol, Tobacco, and Firearms
BIP	blow(n)-in-place
CH2M HILL	CH2M HILL Constructors, Inc.
CAD	cartridge actuated device
CTO	Contract Task Order
DDESB	U.S. Department of Defense Explosives Safety Board
DMM	Discarded Military Munitions
DoD	U.S. Department of Defense
EOD	Explosive Ordnance Disposal
EBS	Environmental Baseline Survey
ESP	Explosives Siting Plan
ESQD	Explosives Safety Quantity-Distance
EZ	Exclusion Zone
FAA	Federal Aviation Authority
HE	high explosives
IBD	Inhabited Building Distance
JAA	Jacksonville Airport Authority
lb	pound(s)
MEC	Munitions and Explosives of Concern
MGFD	Munition with the Greatest Fragmentation Distance
mm	millimeter(s)
MPPEH	Material Potentially Presenting an Explosive Hazard
MRS	Munitions Response Site
NAS	Naval Air Station
NAVFAC EFD SOUTH	U.S. Naval Facilities Engineering Command, Southern Division
NAVSEA	U.S. Naval Sea Systems Command
NEW	Net Explosives Weight
NOSSA	Naval Ordnance Safety and Security Activity
OP 5	Ordnance Publication 5
Q-D	Quantity-Distance (quantity of explosive material and distance separations)
ROICC	Resident Officer in Charge of Construction
SUXOS	Senior UXO Supervisor
TCRA	Time Critical Removal Action
UXO	Unexploded Ordnance

SECTION 1

Introduction

This Explosives Siting Plan (ESP) is prepared in support of Munitions Response and On-Site Construction Support to locate and remove Munitions and Explosives of Concern (MEC) and materials that may present a potential explosive hazard (MPPEH) at the former Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. This ESP is also included as Chapter 4 in the Munitions Response and On-Site Construction Support for Discarded Military Munitions (DMM) Work Plan for the Time Critical Removal Action (TCRA) and is supplemented by the project Explosives Safety Submission. The munitions response action for MEC is being implemented by CH2M HILL Constructors, Inc. (CH2M HILL) for the U.S. Naval Facilities Engineering Command, Southern Division (NAVFAC EFD SOUTH), under Response Action Contract No. N62467-01-D-0331, Contract Task Order (CTO) No. 0029.

The ESP presents the site-specific requirements for establishing Explosives Safety Quantity-Distance (ESQD) arcs for the following:

- The removal and disposal of MEC items that may be discovered during the TCRA at the former NAS Cecil Field
- Detonation of discovered DMM on the project site

1.1 Site Description, Background, and History

According to the Environmental Baseline Survey (EBS) Report, Building 365 was a former earth covered weapons storage locker built in 1957 at the former NAS Cecil Field, Jacksonville, Florida. The building is a one-story cinderblock bunker that is divided into 10 individual storage areas. Building 365 was reported to store cartridge actuated devices (CADs) and was used as a ready service magazine to store munitions for flight operations at the former NAS Cecil Field. Building 365 is located west of Runway 18R, south of Buildings 373/104, and north of Building 366 (Figure 1-1). An access road runs along the west side of the building and a wooded area was formerly located to the west. The building and adjacent property were classified in the EBS report as "1/White", an area where no release or disposal of hazardous substances or petroleum products occurred (including any migration of these substances from adjacent areas). The building had been previously found suitable to transfer with property transfer from the Navy to the Jacksonville Aviation Authority (JAA) completed.

On Friday, September 10, 2004, a single DMM item and 10 MPPEH items were found near Building 365. The items were found during clearing and grubbing operations of an approximately 5 acre area in support of an ongoing JAA construction project to expand the north apron aircraft taxiway. The DMM was a single 20-millimeter (mm) round consisting of cartridge case with percussion primer, not impinged and high explosive (HE) projectile unfired with the point detonating fuze sheared off. The MPPEH were expended CADs. On September 21, 2004, the CH2M HILL Munitions Response Team visited the site and talked with one of the responding Florida Air National Guard Explosive Ordnance Disposal (EOD)

Technicians. The EOD Technician stated that the recovered 20-mm round was in a safe condition and had been removed from the site for disposal. The DMM find caused a work stoppage of the JAA construction project and prompted the need for additional MEC support. The additional support is a cautionary action to ensure that the presence of the discovered DMM was unique to the area where it was found and to protect human health and safety during completion of the construction project.

1.2 Purpose of this Plan

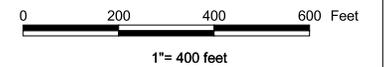
This ESP provides explosives safety criteria for planning and siting explosives operations that will be performed by CH2M HILL and its subcontractors during the munitions response and on-site construction support to locate and remove MEC and MPPEH that may be discovered during the TCRA at the Munitions Response Site (MRS) located at the former NAS Cecil Field. The purpose of this ESP is to obtain U.S. Department of Defense Explosives Safety Board (DDESB) site approval for the inhabited building distance (IBD) excavation exclusion zone (EZ) for the explosives removal action in the vicinity of Building 365 and for the IBD deliberate detonation exclusion zone for this work area.

FIGURE 1-1
VICINITY MAP



LEGEND

- Structures
- PERMANENT
 - DEMOLITION
- Roads
- Installation Area



SECTION 2

Explosives Siting Plan

This section presents the site-specific requirements for siting the munitions response and on-site construction support for locating and removing MEC that may be discovered. Safety criteria for planning and siting explosives operations were developed in accordance with the following:

- U.S. Department of Defense (DoD), 1991, 4160.21-M-1, *Defense Demilitarization Manual*
- DoD, 1997, 4165.26M, *Contractors Safety Manual for Ammunition and Explosives*
- DoD, 2004, 6055.9-STD, *DoD Ammunition and Explosives Safety Standards, Rewrite Version, Revision 4*
- Naval Sea Systems Command (NAVSEA), 2003, Ordnance Publication 5 (OP 5) Volume 1, *Ammunition and Explosives Ashore: Safety Regulations for Handling, Storing, Production, Renovation, and Shipping of Ammunition and Explosives Ashore, Seventh Revision, Change 2*
- NAVSEA, 2001, SWO20-AF-ABK-010, *Motor Vehicle Driver and Shipping Inspector's Manual for Ammunition, Explosives, and Related Hazardous Materials*
- U.S. Department of the Navy, Chief of Naval Operations, 1999, OPNAVINST 8020.14, *Department of the Navy Explosives Safety Policy*
- DDESB, 2003, Technical Paper 16, *Methodologies for Calculating Primary Fragment Distances*
- Naval Ordnance Safety and Security Activity (NOSSA), 2004, Instruction 8020.15, *Military Munitions Response Oversight Program*

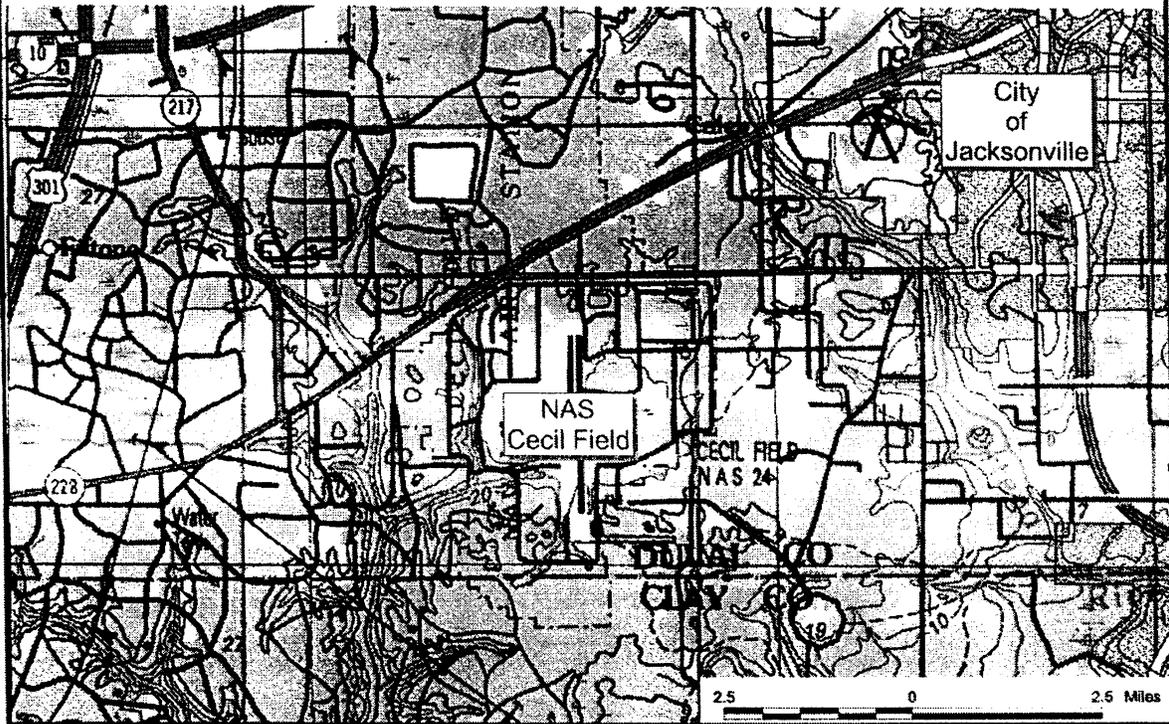
Detailed descriptions of the determination of minimum separation distances (ESQD arcs), EZs, and the establishment of explosives operations areas are presented in this ESP.

2.1 Explosives Operations Areas

During the TCRA, work will be conducted at the following areas where MEC, MPPEH, and explosives may be exposed to the public:

- The construction work area, where vegetation removal and soil excavation may unearth abandoned or discarded MEC and MPPEH (Figures 1-1, 2-1, 2-2, and 2-3).
- Detonation Area for Blow-In-Place (BIP) disposal operations of recovered live MEC for a maximum NEW of <1 lb (Figure 2-3).

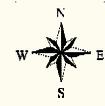
In each of these areas, an EZ with a minimum separation distance based on an ESQD arc will be established to protect the public in the event of intentional and/or unintentional detonation. Only personnel essential to the project will be permitted in each EZ. Essential personnel are generally considered to be Unexploded Ordnance (UXO)-qualified personnel.



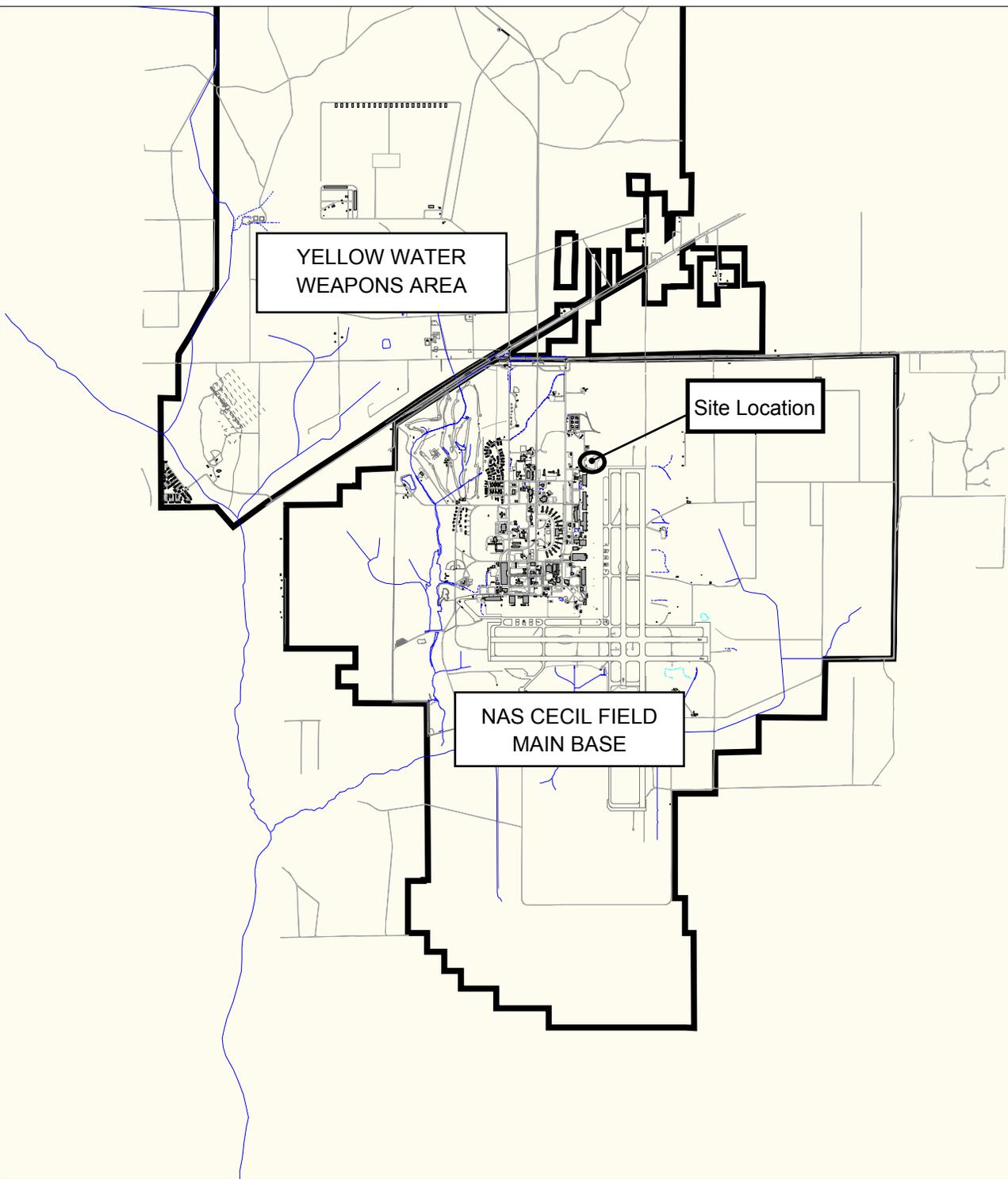
DRAWN BY MJJ	DATE 30 Jun 02
CHECKED BY <i>US</i>	DATE <i>9/10/02</i>
COST/SCHEDULE-AREA	
SCALE AS NOTED	



FIGURE 2-1
REGIONAL MAP
NAS CECIL FIELD

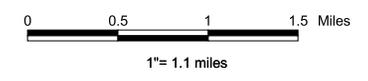


**FIGURE 2-2
ACTIVITY MAP
NAS CECIL FIELD**



LEGEND

- Structures
- PERMANENT
 - DEMOLITION
- Roads
- Installation Area



**FIGURE 2-3
QUANTITY DISTANCE
MAP**



Other personnel such as heavy equipment operators or technicians needed to support specialized equipment, if their presence is essential to a project task, will be allowed in an EZ while conducting their work under the supervision of UXO-qualified personnel.

Minimum separation distances for non-detonation activities and for unintentional and intentional detonation activities are discussed below. Safe separation distances for qualified UXO teams can be reduced based on the Munition with the Greatest Fragmentation Distance (MGFD) and the K40 overpressure distance. Table 2-1 summarizes basic activities that will be conducted in MEC-related areas and the basis for determining the appropriate EZ minimum separation distances.

TABLE 2-1
Determining Sizes of Exclusion Zones

Operation	Basis for Determining Size of Exclusion Zone	Minimum Separation Distance (for Nonessential Personnel)	Safe Separation Distance (for Other UXO Teams)
Excavation Activities	Unintentional Detonation	236 feet (IBD for ESQD*), 142 feet (Public Transportation Route for ESQD*) Safe Separation Distance)	200 feet
Detonation of MEC at MRS Max. <1 lb NEW)	Intentional Detonation	320 feet (IBD for ESQD**)	320 feet**

* Based on OP 5 Volume 1, Table 7-9.

** Based on OP 5 Volume 1, Table 13-2.

2.1.1 Minimum Separation Distances for Non-Detonation Activities

Certain activities in work areas will require EZs even though no explosive detonation is planned. For example, unintentional detonation of ordnance items could potentially occur during soil excavation or vegetation removal. Although this situation is unlikely because of the rigorous use of safety procedures, an EZ is required as a precaution to protect nonessential personnel. Minimum separation distances for nonessential personnel during operations onsite will be determined based on the MGFD and the guidance published in DDESB Technical Paper 16 (DDESB, 2003) and OP 5 Volume 1 (NAVSEA, 2003), or the K40 distance as calculated in accordance with OP 5 Volume 1 (when engineering controls are used).

The MGFD for the former NAS Cecil Field MRS is the 20-mm HE projectile. The calculated fragment distance for the 20mm projectile without engineering controls is presented in Table 2-2.

TABLE 2-2
Calculated Fragment Distance for the 20mm Projectile

Munition ^a	Hazardous Fragment Distance ^b (feet)	Maximum Fragment Distance ^c (feet)	K40 Overpressure Distance ^d (feet)
20mm projectile	320	320	200

^a Fragment hazard distances will be recalculated based on the NEW, in the event that different munitions items are found.

^b OP 5 Volume 1, Table 13-2 (NAVSEA, 2003), and DDESB Technical Paper 16 (DDESB, 2003): the distance at which fragments do not exceed a hazardous fragment density of one hazardous fragment per 600 square feet, where a hazardous fragment is defined as a fragment having an impact energy of 58 ft-lb or greater.

^c OP 5 Volume 1, Table 13-2, and DDESB Technical Paper 16: the maximum distance at which a fragment of the munition may travel based on munition design specifications and maximum trajectories.

^d As calculated in accordance with OP 5 Volume 1, Table 13.2, and DDESB Technical Paper 16: the distance at which blast overpressure exposure from Hazard Division 1.1 explosives is less than 0.90 psi—the lower end of the permissible exposure level for inhabited buildings and administrative and housing areas per DoD, 2004, 6055.9-STD, *DoD Ammunition and Explosives Safety Standards*, Rewrite Version, Revision 4. Determined from the formula: $40 \times \text{NEW}^{1/3}$.

2.1.2 Planned or Established MEC Demolition Areas

No planned or established MEC demolition area is located on the MRS. In the event MEC is discovered it will be disposed of by BIP procedures in accordance with EODB 60A-1-1-31, NAVSEA OP 5 Volume I, and NAVSEA SW060-AA-MMA-010 Volumes I and II.

2.2 Footprint Operating Areas

The location of the MRS work area and the safety arc is shown in Figure 2-3.

2.2.1 Blow-in-Place Areas

When MEC and/or MPPEH are discovered and are not safe to transport, and the area can withstand a high-order detonation, these materials will be disposed of by detonation where found, or BIP. Engineering controls for blast/fragment mitigation may be required, including the evacuation of personnel and protection of property; construction of protective works such as trenching, barricades, or buttresses to protect fixed facilities; and/or tamping the shot with earth and sand to reduce fragmentation. The UXO personnel will follow the protection procedures for personnel and property and determine the best methods to be used, and will advise the Senior UXO Supervisor (SUXOS) of any coordination or assistance required to effect final disposal. Only pre-approved DDESB-approved engineering controls will be used.

The danger area will be marked off and evacuated. Any required BIP, including approach, timing, and required public notification, will be coordinated through the JAA and Federal Aviation Authority (FAA) air traffic controller, NAVFAC EFD SOUTH, and the Resident Officer in Charge of Construction (ROICC) Project Office.

2.2.2 In-Grid Consolidated Shots

Recovered MEC and MPPEH that are safe to move may be relocated within the MRS work area to provide additional ESQD if needed.

2.2.3 MRS Work Areas

MEC-related activities within the MRS work area have the potential for an unintended detonation and require the placement of engineering controls for mitigation of potential blasts and fragmentation.

2.2.4 Collection Points

Collection points will be areas within the MRS work area where recovered MEC and MPPEH that are safe to move are temporarily accumulated pending disposal by detonation. Collection points will contain a sand-filled wooden box with a lockable lid.

2.2.5 Explosives Storage Magazines

No storage of explosives or MEC on site is planned. Arrangements for delivery of explosives to countercharge discovered MEC have been made with a local explosives distributor and the explosives will be delivered within 24 hours. Once the explosives materials are on site they will immediately be prepared and used without storage.

2.2.6 Explosives Safety Quantity-Distance

The applicable ESQD criteria for siting explosives operations areas at the site are specified in Chapter 7 of OP 5 Volume 1 (NAVSEA, 2003), and are listed in Table 2-3. The location of the site is shown in Figure 2-3, with the appropriate ESQD arc included. Security measures will be implemented until all ordnance has been disposed of or demilitarized.

TABLE 2-3
Explosives Safety Quantity-Distance Criteria

Facility Number/Type	Personnel	Maximum NEW	Class/ Division	Distance Actual/Required
MRS Work Area	5	<1 lb	1.1	400 feet/320 feet
Detonation Area	4	<1 lb	1.1	400 feet/320 feet

2.2.7 Physical Security

Access to the MRS will be controlled by use of locked gates, barriers, and security guards to prevent entry of unauthorized personnel during munitions response operations.

2.3 Transportation

2.3.1 Onsite Transportation Procedures

Explosives will be delivered by a local and licensed explosives distributor to the MRS Work Area as needed and will be immediately prepared and used to perform detonation of recovered MEC.

2.3.2 Vehicle Requirements

Vehicles transporting explosives on the project site must comply with the following requirements:

- Vehicles transporting explosives must be marked with appropriate placards when carrying all Class 1 explosives.
- All vehicles transporting explosives must be equipped with reliable communications, a first-aid kit, and two 10-lb type-BC fire extinguishers.
- Vehicles transporting explosives must be inspected daily when in use, and the inspections must be documented using a Motor Vehicle Inspection Form.
- A vehicle used to transport explosives must have a non-sparking bed liner, and all explosive loads must be covered prior to departure.

SECTION 3

References

The following references were consulted during the preparation of this ESP. Not all are cited in the text.

CH2M HILL. October 2004. *Explosives Safety Submission for On-Site Construction Support for Location and Removal of Discarded Military Munitions during the Time-Critical Removal Action at the Former Naval Air Station Cecil Field, Jacksonville, Florida*. Prepared for Southern Division, Naval Facilities Engineering Command.

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Appendix E

Example Florida Department of Environmental Protection Emergency Permits for Detonation

- Example Advanced Notification Emergency Permit
- Example Post-detonation Notification Emergency Permit



Jeb Bush
Governor

Reading

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

April 15, 2004

Mr. Burton R. Summerfield, Chief
Health and Environmental Division
John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

SUBJECT: Emergency Permit for Kennedy Space Center
EPA ID Number FL6 800 014 585
Emergency Permit 0026028-HE-002

Dear Mr. Summerfield:

Enclosed is Permit Number 0026028-HE-002 to allow the thermal treatment and disposal of 23 Booster Separation Motors.

Please call John Griffin at (850) 245-8785 if you have any questions.

Sincerely,

Tim J. Bahr, Administrator
Hazardous Waste Regulation

TJB/jg

Enclosure

Cc: John Armstrong, DEP/Federal Facilities
Tom Lubozynski, DEP/Orlando
Don Webster, EPA/Atlanta



Jeb Bush
Governor

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

BEFORE THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

In Re:
Request for an Emergency Permit by
Mr. Burton R. Summerfield, Chief
Health and Environmental Division
John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

Date: April 15, 2004

Permit Number: 0026028-HE-002

FINAL ORDER

BY THE DEPARTMENT:

On March 18, 2004, the Department received a request from Burton R. Summerfield of the John F. Kennedy Space Center (KSC) for an emergency permit to allow the thermal treatment and disposal of waste. The treatment of the waste will be carried out by the 45th Space Wing Range Safety Office, 45 CES/CED Explosive Ordnance Disposal (EOD) Unit, NASA Explosive Safety Manager, and the KSC/Air Force, Launch Operation and Support Contractor at Schwartz Road Landfill, Kennedy Space Center, Florida. The waste, 23 Booster Separation Motors (BSMs), is an unstable chemical with explosive and shock-sensitive characteristics, which could create an imminent danger to persons handling the waste and to the general public.

FINDINGS OF FACT

1. The specific waste to be thermally treated by detonation is the following:

23 Booster Separation Motors (BSMs)

The NASA Explosive Safety Manager and the 45 CES/CED EOD units have determined the Booster Separation Motors to be unsafe to transport for disposal. Because of the flammable, shock-sensitive, reactive, and explosive nature of the material, there is a potential danger to the health and welfare of those persons coming in contact with this waste if the waste is not

"More Protection, Less Process"

Printed on recycled paper.

handled in a proper manner. Based on the above-stated facts, the Department finds that the hazardous waste presents an imminent hazard to persons and property in its proximity.

2. 45th Space Wing Range Safety Office, 45 CES/CED EOD, NASA Explosive Safety Manager, and the KSC/Air Force, Launch Operation and Support Contractor will abate the imminent hazard identified in Findings of Fact #1 of this permit by thermal destruction of the unstable, flammable, shock-sensitive, and potentially explosive hazardous waste.
3. The Permittee will thermally treat only the waste specified in Findings of Fact #1 of this permit. The Permittee will accomplish the disposal operation in accordance with the March 16, 2004 letter from Mr. Summerfield, "Request for Regulatory Concurrence – BSM Disposal."
4. The Permittee is required to obtain all other local, state and federal approvals and licenses required for conducting the activities in this permit.
5. The hazardous waste will be detonated in a field within the designated area of the KSC Schwartz Road Landfill, Kennedy Space Center, Florida.
6. The thermal destruction will be accomplished according to the procedures specified in the "45 CES OPERATING PLAN, BSM Disposal Operating Plan," dated 26 February 2004. The general procedure will be carried out by individually placing the 23 Booster Separation Motors on the ground; EOD will use 2 pounds of C-4 explosives to cut open each end of the case. The C-4 will be packed into DoD Mark 7 Mod 6, Shape Charge Demolition Containers which will be wrapped around each end of the BSM and detonated.
7. The hazardous waste will be thermally treated under the supervision and control of the 45th Space Wing Range Safety Office, 45 CES/CED EOD, NASA Explosive Safety Manager, and the KSC/Air Force, Launch Operation and Support Contractor. These officials are experienced in the handling and disposal of explosives.
8. Any visible material resulting from the treatment process will be removed and properly disposed of by approved methods.
9. Adequate fire and personal protection to assure confinement and control of any fire resulting from the operation, and to prevent injuries of personnel present, will be provided.
10. Prior to the thermal treatment operation, the Permittee will secure the treatment site in Findings of Fact #5 of this permit, and restrict access except to authorized personnel. Additionally, prior to the treatment operation, the Permittee will perform a visual inspection within a minimum 670-foot (204-meter) radius of the treatment site described in Findings of Fact #5 of this permit to assure that no unauthorized personnel are on site.

11. The KSC Safety Health and Environmental Division shall submit a detailed written summary of the actual procedures used for treatment, details on the reasons for any deviations from the plans and information submitted for this permit, the disposition of any residues from the treatment process, as well as, any additional pertinent information. A separate environmental monitoring report will also be submitted. It must be signed and sealed by a licensed, professional engineer or geologist. The report must discuss the environmental monitoring required by the "Soil Sampling and Ground Water Monitoring" section of the "Request for Regulatory Concurrence – BSM Disposal." It must include conclusions regarding whether any contamination resulted from the disposal operation and, if necessary, recommendations for dealing with the contamination. These summary reports shall be submitted within 60 days of the last disposal operation to both:

Florida Department of Environmental Protection, Central District Office
Attn: Waste Program Administrator
Suite 232, 3319 Maguire Boulevard
Orlando, Florida 32803-3767

and

Florida Department of Environmental Protection
Attn: Mr. Douglas Outlaw
2600 Blairstone Road, Twin Towers
Mail Stop 4560
Tallahassee, Florida 32399-2400

12. Thermal treatment of the waste as specified above in Findings of Fact #1 of this permit will occur in an open field, owned by John F. Kennedy Space Center within the next 120 days.
13. Mr. Jim Bradner, DEP Central District will be notified at least 5 days before the beginning of the disposal operation. He or his designee has the option of being present to observe the thermal treatment operation.

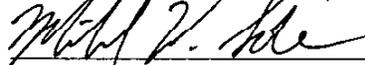
CONCLUSION

45th Space Wing Range Safety Office, 45 CES/CED EOD, NASA Explosive Safety Manager, and the KSC/Air Force, Launch Operation and Support Contractor will conduct this thermal treatment operation in an environmentally sound and a Department-approved manner. Therefore, pursuant to Sections 403.726(5) and 120.59(3), Florida Statutes, and Rules 62-110 and 62-730.320, Florida Administrative Code (F.A.C.) it is

ORDERED

The Permittee shall be permitted to dispose of the flammable, shock-sensitive, and potentially explosive booster separation motors and in so doing will undertake whatever action necessary to comply with Rule 62-730.320, F.A.C.

Issued this 15th day of April, 2004



Dotty Diltz, Assistant Director
Division of Waste Management

CERTIFICATE OF SERVICE

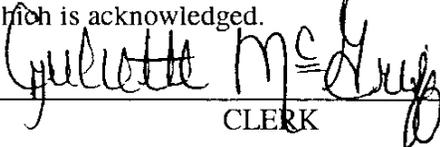
I HEREBY CERTIFY that a true copy of the foregoing FINAL ORDER has been furnished by U.S. Mail to:

1. Burton R. Summerfield, Kennedy Space Center
2. John Armstrong, DEP/Federal Facilities
3. Tom Lubozynski, DEP/Orlando
4. Don Webster, EPA/Atlanta

on this 15 day of April, 2004 in Tallahassee, Florida.

Filing and Acknowledgment

Filed on this date, pursuant to Section 120.52, Florida Statutes, with the designated Clerk, receipt of which is acknowledged.


CLERK

4/15/04
DATE

STATE OF FLORIDA
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

CENTRAL DISTRICT OFFICE
SUITE 232, 3319 MAGUIRE BOULEVARD
ORLANDO, FLORIDA 32803

PERMIT NO. 0026028-HE-002

NOTICE OF ISSUANCE OF AN EMERGENCY PERMIT UNDER
THE RESOURCE CONSERVATION AND RECOVERY ACT
AND THE FLORIDA RESOURCE RECOVERY AND MANAGEMENT ACT.

The Department of Environmental Protection (DEP) has issued an Emergency Permit to the 45th Space Wing Range Safety Office, NASA Explosive Safety Manager, and the KSC/Air Force, Launch Operation and Support Contractor, located at Kennedy Space Center, Brevard County, Florida 32899.

The treatment site is in a field, owned by Kennedy Space Center, located at Kennedy Space Center, Brevard County, Florida 32899.

The permit authorizes detonation and treatment of unstable, reactive, flammable, shock-sensitive or explosive materials.

An emergency permit pursuant to Sections 403.726(5) and 120.59(3), F.S., and Rule 62-730.320, F.A.C., is warranted because there is an imminent and substantial endangerment to human health and the environment. The issuance of this permit will result in environmental benefits as compared with the previous storage conditions of the waste. The permit was drafted in accordance with the provisions of the Resource Conservation and Recovery Act and the Florida Resource Recovery and Management Act, and were designed to protect human health and the environment.

The permit files are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, Central District Office, Suite 232, 3319 Maguire Boulevard, Orlando, Florida 32803.

Persons wishing to comment upon the permit issuance or to the permit conditions are invited to submit same in writing within forty-five (45) days of the date of this notice to the address given in above paragraph, Attention: Tom Lubozynski (Central District). The public notice number should be included in the first page of the comment.

All comments received within the 45-day period will be considered in the formulation of future emergency permits.

FACT SHEET

April 14, 2004

Facility Name: John F. Kennedy Space Center
EPA I.D. Number: FL6 800 014 585
Permit Number: 0026028/HE/002
Project: Emergency Permit

1. This emergency permit covers the thermal treatment and disposal of 23 Booster Separation Motors. The BSMs have been determined to be unusable by the Shuttle Program and unsafe to transport for disposal by NASA. The BSMs will be treated at the KSC Schwartz Road Landfill.
2. Soil and groundwater sampling is required after completion of the treatment and disposal for all 23 BSMs.
3. There are no issues with the permit.

BEFORE THE STATE OF
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

In Re:
Request for an Emergency Permit by
Department of Environmental Protection
Bureau of Emergency Response
District 2, 3000 NE 30th Place, Suite 210
Ft. Lauderdale, Florida 33306

Date: November 12, 2004
Permit Number: 0225441/HE/001

FINAL ORDER

BY THE DEPARTMENT:

On December 31, 2003, the Department received a request from Troy Roberts of the Department of Environmental Protection for an emergency permit to allow the thermal treatment and disposal of waste. The treatment of the waste was carried out by the Palm Beach County Sheriff's Shooting Range at 19500 State Road 80, West Palm Beach, Florida. The waste, three containers of Ethyl Ether and one container of Tetrahydrofuran, was an unstable chemical with explosive and shock-sensitive characteristics, which could create an imminent danger to persons handling the waste and to the general public.

FINDINGS OF FACT

The waste came into the possession of the Department. Because of the flammable, shock-sensitive, reactive, and explosive nature of the material, there was a potential danger to the health and welfare of those persons coming in contact with this waste if the waste was not handled in a proper manner.

1. The specific waste to be thermally treated by detonation was the following:

Three containers of Ethyl Ether (2 – 4 Liters and 1-1 Liter)

One 4 Liters of Tetrahydrofuran

Based on the above-stated facts, the Department finds that the hazardous waste presented an imminent hazard to persons and property in its proximity.

2. Palm Beach County Sheriff's Office Bomb Disposal Unit abated the imminent hazard identified in Findings of Fact #1 of this permit by thermal destruction of the unstable, flammable, shock-sensitive, and potentially explosive hazardous waste.
3. The Permittee thermally treated only the waste specified in Findings of Fact #1 of this permit.
4. The Permittee was required to obtain all other local, state and federal approvals and licenses required for conducting the activities in this permit.
5. The hazardous waste was detonated in an open field behind the Palm Beach County Sheriff's Shooting Range at 19500 State Road 80 West Palm Beach, Florida.
6. The thermal destruction was carried out by placing the Ethyl Ether and Tetrahydrofuran on the ground, wrapping the containers with primer cord and detonating it.
7. The hazardous waste was thermally treated by the Palm Beach County Sheriff's Office Bomb Disposal Unit.
8. Any visible material resulting from the treatment process was removed and properly disposed of by approved methods.
9. Adequate fire and personal protection to assure confinement and control of any fire resulting from the operation, and to prevent injuries of personnel present was provided.
10. Prior to the thermal treatment operation, the Permittee secured the treatment site in Findings of Fact #5 of this permit, and restricted access except to authorize personnel. Additionally, prior to the treatment operation, the Permittee performed a visual inspection within a minimum 670-foot (204-meter) radius of the treatment site described in Findings of Fact #5 of this permit, to assure that no unauthorized personnel were on site.
11. The Bureau of Emergency Response shall submit a written summary of the specific description of the actual procedures used for treatment, and the disposition of any residues from the treatment process, as well as any additional pertinent information. This summary shall be submitted to the Department of Environmental Protection, Southeast District Office, 400 North Congress Avenue, Suite 200, West Palm Beach, Florida 33401; Attention: Waste Program Administrator.
12. Thermal treatment of the waste as specified above in Findings of Fact #1 of this permit occurred in an open field, owned by Palm Beach County Sheriff's Office at approximately 1630 hours.

13. The local Department representative or its designee was notified and had the option of being present to observe the thermal treatment operation.

CONCLUSION

Palm Beach County Sheriff's Office Bomb Disposal Unit conducted this thermal treatment operation in an environmentally sound and a Department-approved manner. Therefore, pursuant to Sections 403.726(5) and 120.59(3), Florida Statutes, it is

ORDERED

The permittee shall undertake whatever action necessary to comply with Rule 62-730.320, F.A.C.

Issued this _____ day of _____

MIKE SOLE, DIRECTOR
DIVISION OF WASTE MANAGEMENT

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true copy of the foregoing FINAL ORDER has been furnished by U.S. Mail to:

1. Palm Beach County Sheriff's Office
2. Paul Wierzbicki, DEP/West Palm Beach
3. Don Webster EPA/Atlanta

on this _____ day of _____, _____ in Tallahassee, Florida.

Filing and Acknowledgment
Filed on this date, pursuant to
Section 120.52, Florida Statutes,
with the designated Clerk, receipt
of which is acknowledged.

CLERK

DATE

Appendix F

Munitions Response Operations Forms

- MEC Information
- MEC Disposal Checklist
- Misfire Checklist
- BATF Form 5400.5

MUNITIONS AND EXPLOSIVES OF CONCERN (MEC) DISPOSAL CHECKLIST

Be sure to equalize electrical potential "Ground" wherever appropriate.

- _____ A. Approval of disposal plan from Senior UXO Supervisor, Government Safety Representative, and Site Authorities.
- _____ B. Site is secure. Appropriate EZ per work plan.
- _____ C. Ensure the blasting machine is in control of the downrange team.
- _____ D. Test the firing cable for continuity and short the wires or clips.
- _____ E. Barricade the electric blasting caps (EBCs).
- _____ F. Remove the shunt on an EBC.
- _____ G. Facing away from the barricade, test the continuity of the EBC with a galvanometer.
- _____ H. Replace the shunt or short the EBC.
- _____ I. Repeat steps F, G, and H for the second EBC.
- _____ J. Recheck the firing cable to ensure the cable is shorted.
- _____ K. Make a parallel circuit and connect the leg wires of the EBCs to the firing cable.
- _____ L. Connect the EBCs to the main charge. Return to the firing point.
- _____ M. Using binoculars, ensure the area is clear and blow the air or vehicle horn three times.
- _____ N. Fire the charge.
- _____ O. Conduct a destruction site inspection

MEC INFORMATION FORM

DATE/TIME: _____ TRACKING NUMBER: _____

LOCATION: _____

1. ITEMS REMOVED FROM SITE (YES/NO)

2. WHO REMOVED THE ITEM(S)?

Name: _____ Organization: _____

3. IF ITEMS WERE REMOVED, WHERE WERE THEY TAKEN? _____

4. ITEMS DESTROYED ONSITE (YES/NO)

5. WHO DESTROYED ITEM(S)?

Name: _____ Organization: _____

Time of Detonation: _____ MEC Down Time: _____

6. MEC ENCOUNTERED:

Type	Quantity	Condition	Disposition

7. NAVY NOTIFIED AT (TIME): _____ REP: _____

8. PERSONNEL NOTIFIED AT (TIME): _____ REP: _____

9. COMMENTS (Significant events or findings): _____

CH2M HILL UXO Representative (Signature)
(Print Name)

CH2M HILL MEC Representative

CHECKED BY _____	APPROVED BY _____
------------------	-------------------

GENERAL DEMOLITION ELECTRIC MISFIRE CHECKLIST

- _____ A. Repeat firing attempts.
- _____ B. Check circuit with galvanometer.
- _____ C. Switch blasting machines, if possible.
- _____ D. Repeat firing attempts.
- _____ E. Check circuit with galvanometer.
- _____ F. Short firing cable wires.
- _____ G. Wait 60 minutes before going downrange.
- _____ H. Using new EBCs, countercharge the main charge.

GENERAL DEMOLITION NON-ELECTRIC MISFIRE CHECKLIST

- _____ A. Wait 60 minutes plus time fuze burn time before going downrange.
- _____ B. Using new firing train, countercharge the main charge.

DEPARTMENT OF THE TREASURY
BUREAU OF ALCOHOL, TOBACCO AND FIREARMS
REPORT OF THEFT OR LOSS-EXPLOSIVE MATERIALS

DATE

Upon discovery of any theft or loss of any of your explosive materials:

- First, contact ATF toll free at 1-800-461-8841 between 8:00 a.m. - 5:00 p.m. EST (or after-hours and weekends contact ATF collect at 1-888-283-2662) to report the theft or loss;
- Second, contact your local law enforcement office to report the theft or loss to obtain a police report; and
- Third, complete this form and attach any additional reports, sheets or invoices necessary to provide the required information, and fax then mail the form with additional material(s) to the nearest ATF office listed on the reverse. We suggest you retain a copy of the completed form. Please complete each item, as applicable, to the best of your ability.
- NOTE:** Section 842(k), 18 U.S.C., Chapter 40, states, "It shall be unlawful for any person who has knowledge of the theft or loss of any explosive materials from his stock to fail to report such theft or loss within twenty-four hours of discovery thereof to the Secretary and to appropriate local authorities." Codified at 27 C.F.R., Section 55.30.

1. NAME, ADDRESS AND TELEPHONE NUMBER OF PERSON MAKING REPORT <i>(Include corporate or business name, if applicable)</i>			2. LOCATION OF THEFT OR LOSS <i>(If different from item 1)</i>		
3. THEFT OR LOSS	DATE	TIME	4. NAME AND ADDRESS OF LOCAL AUTHORITY TO WHOM REPORTED POLICE REPORT NUMBER: _____		
a. DISCOVERED					
b. OCCURRED <i>(Show approximate if exact not known)</i>					
c. REPORTED TO ATF BY TELEPHONE					
d. REPORTED TO LOCAL AUTHORITIES					
5. EXPLOSIVE MATERIALS LOST OR STOLEN <i>(Attach invoices or additional sheets, if necessary)</i>					
a. MANUFACTURER OR BRAND NAME <i>(Include date and shift code)</i>		b. QUANTITY <i>(Pounds of Explosives, Number of Caps)</i>		c. TYPE AND DESCRIPTION <i>(Dynamite, Blasting Agents, Detonators, etc. Include for each type, size, MS delay or length of legwire, as applicable)</i>	
6. THEFT OR LOSS OCCURRED FROM <i>(Check applicable box)</i>					
<input type="checkbox"/> PERMANENT MAGAZINE <input type="checkbox"/> PORTABLE MAGAZINE <input type="checkbox"/> TRUCK <input type="checkbox"/> WORK SITE <input type="checkbox"/> OTHER <i>(Explain)</i> _____					
7. ENTRY TO MAGAZINE MADE THROUGH <i>(Complete if applicable)</i>				8. NUMBER AND TYPE OF LOCKS FORCED <i>(Complete if applicable)</i>	
<input type="checkbox"/> DOOR <input type="checkbox"/> ROOF <input type="checkbox"/> FLOOR <input type="checkbox"/> FOUNDATION <input type="checkbox"/> WALL <input type="checkbox"/> CEILING <input type="checkbox"/> VENTS <input type="checkbox"/> OTHER <i>(Explain)</i> _____					
9. OTHER INFORMATION PERTINENT OF THE THEFT OR LOSS					
10. SIGNATURE AND TITLE OF PERSON MAKING REPORT				11. FEDERAL EXPLOSIVES LICENSE OR PERMIT, IF ANY	
FOR ATF USE ONLY					
DATE RECEIVED		TIME RECEIVED		UNIQUE IDENTIFIER	

ATF F 5400.5 (6-2002) PREVIOUS EDITIONS ARE OBSOLETE

REPORTING INSTRUCTIONS

Forward or Fax this completed form to the ATF address listed below:

**Bureau of Alcohol, Tobacco and Firearms
Arson and Explosives National Repository Branch (AENRB)
P.O. Box #50980
Washington, DC 20077-8001
Toll Free Fax: 1-866-927-4570**

Questions regarding the completion of this form should be referred to the AENRB toll free at 1-800-461-8841.

PRIVACY ACT INFORMATION

The following information is provided pursuant to section 3 of the Privacy Act of 1974 (5 U.S.C. § 522a(e)(3)).

1. **Authority.** Solicitation of this information is made pursuant to Title XI of the Organized Crime Control Act of 1970 (18 U.S.C. Chapter 40). Disclosure of a theft or loss of explosive materials is mandatory pursuant to 18 U.S.C. § 842(k) for any person who has knowledge of such theft or loss from his stock.
2. **Purpose.** The purpose for the collection of this information is to give ATF notice of the theft or loss of explosive materials, and to furnish ATF with the pertinent facts surrounding such theft or loss. In addition, the information is used to confirm and verify prior notification of this theft or loss of explosive materials.
3. **Routine Uses.** The information will be used by ATF to aid in the administration of laws within its jurisdiction concerning the regulation of explosive materials and other related areas. In addition, the information may be disclosed to other Federal, State, foreign, and local law enforcement of laws within their jurisdiction.
4. **Effects of not supplying information requested.** 18 U.S.C. § 842(k) makes it unlawful for any person, who has knowledge of the theft or loss of explosive materials from his stock, to fail to report such theft or loss within twenty-four hours of discovery thereof, to the Secretary and to appropriate local authorities. The penalty for violation of this section is a fine of not more than \$1,000 or imprisonment for not more than one year, or both. 18 U.S.C. § 844(b).

PAPERWORK REDUCTION ACT NOTICE

This request in accordance with the Paperwork Reduction Act of 1995. The purpose of this information collection is to report the theft or loss of explosive materials. The information is used for investigative purposes by ATF officials. This information is mandatory by statute. (18 U.S.C. § 842)

The estimated average burden associated with this collection of information is 1 hour and 48 minutes per respondent or recordkeeper, depending on individual circumstances. Comments concerning the accuracy of this burden estimate and suggestions for reducing this burden should be addressed to Reports Management Officer, Document Services Branch, Bureau of Alcohol, Tobacco and Firearms, Washington, D. C. 20226.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

ATF F 5400.5 (6-2002)

Appendix G

Materials that Present a Potential Explosive Hazard/Munitions Debris Collection and Inspection Procedures

**Materials that Presents a Potential Explosive Hazard
(MPPEH)/Munitions Debris (MD)
Collection and Inspection Procedures**

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Title

Figure 1

**Logic Diagram for the Collection and Disposition of
MPPEH Related Scrap**

1.0 Purpose

This SOP is intended to guide Project Delivery Managers, Health & Safety personnel, and UXO Technicians in the safe and efficient handling and disposal of materials that present a potential explosive hazard (MPPEH)/munitions debris (MD) related scrap metal found at CH2M HILL project sites. The inherently dangerous characteristics of Ammunition Explosives Dangerous Articles (AEDA) dictate that special precaution be taken to ensure that demilitarization is performed only by properly trained and technically qualified personnel.

2.0 Background

During excavation and investigation operations, UXO Technicians will encounter the following types of metallic contamination: UXO items; ordnance related scrap that is contaminated with explosives or other hazardous materials; non-hazardous ordnance related scrap metal; and general metallic debris. Because the metal scrap recovered will ultimately be disposed of off-site, it is imperative that procedures be established to preclude live ordnance or hazardous materials from becoming intermingled with other non-hazardous metal scrap.

Current and past practices have only required the inspection of MPPEH/MD related scrap and a certification by a qualified EOD/UXO technician that it is safe to the best of their knowledge. There are several pitfalls with this approach depending on the type of ordnance being inspected. The following paragraphs provide guidance for avoiding these pitfalls.

References:

- DOD 4160.21-M Department of Defense Reutilization and Marketing Manual
- DOD 4160.21-M-1 Department of Defense Demilitarization Manual
- TB 700-4 Department of the Army Technical Bulletin - Decontamination of Facilities and Equipment

3.0 Collection Procedures

We will use a systematic approach for collecting and inspecting metal scrap. Our approach is designed to ensure that the materials undergo a continual evaluation/inspection process from the time acquired until finally removed from the site.

At the operating site, we will preposition two scrap metal containers. One container will be marked "Non-MPPEH/MD Scrap Metal" and will be used to collect general metal debris. The other container will be marked "MD Related Scrap Metal" and will be used to collect non-hazardous ordnance related scrap metal (i.e. Metal components that do not contain any explosives or other hazardous materials).

Collection procedures begin at the time the metal item is discovered by the UXO Technician. At this point the UXO Technician makes a preliminary determination as to the classification of the item. If the item is identified as non-ordnance related scrap it is placed in a temporary Non-

MPPEH/MD scrap accumulation point located within the current operating grid. If the item is identified as ordnance related scrap it is placed in a temporary MPPEH related scrap accumulation point, again this point is located within the current operating grid.

Upon completion of operations within a grid, the UXO Supervisor for the team that cleared the grid will inspect each of the scrap piles and direct movement of the scrap into the appropriate site collection container. To preclude migration of the material from one pile to the other during movement to the scrap containers, each pile will be moved as a distinct and separate vehicle load.

4.0 Removal of Scrap Metal/Range Residue

The UXO Excavation and Disposal Team will collect the scrap piles deposited at the grid corner markers by the UXO Clearance Team, perform an inspection to confirm that segregation of the MPPEH/MD related scrap had been done correctly and that no live MEC has been placed in the MPPEH/MD related scrap pile. The MPPEH/MD related scrap will be inspected and divided into two groups: 1) MPPEH related scrap requiring further demilitarization; and 2) MD related scrap that does not require further demilitarization. **Figure 1** is a Logic Diagram for the Collection and Disposition of MPPEH Related Scrap.

4.1 Segregation of Scrap Metal/Range Residue

For purposes of disposal, it shall be segregated and defined as either Group 1a, Group 1b, or Group 2.

4.1.1 Group 1 Scrap Metal/Range Residue

Group 1 includes property that previously contained explosives or that does not contain items of a dangerous nature and can be certified inert and/or free of explosives or other dangerous materials such as targets, certain expended ordnance, etc.

4.1.1.1 Group 1a Scrap Metal/Range Residue

Group 1a includes firing range expended small arms cartridge and inert metals gleaned from range clean up. Metals gleaned include material for which the only use is for its basic material content (e.g. clean shrapnel, target metal, etc.) And does not include material with any residual utility or capability or that is considered to be MLI or CCLI. Such material is eligible under the Resource Recovery and Recycling Program for disposition by a QRP in accordance with DODI 7514.1, Pollution Prevention. DOD Components may exercise direct sale authority for firing range expended small arms cartridge cases provided that it is crushed, shredded or otherwise destroyed prior to release from DOD control.

4.1.1.2 Group 1b Scrap Metal/Range Residue

Group 1b includes any certifiable material or item not meeting the criteria in 1a above. A determination shall be made as to whether the material/item requires demilitarization. Damaged sustained does not necessarily constitute demilitarization. Destruction shall, at a minimum, satisfy the provisions of DOD 4160.21-M-1. This material is not eligible for a QRP.

4.1.2 Group 2 Scrap Metal/Range Residue

Group 2 includes inherently dangerous items that may potentially contain munitions residue and cannot be certified as inert, such as practice bombs (that is, duds, unexploded ordnance (UXO), BDU-33, MK-106, etc.)

5.0 Disposition of Munitions List Items (MLI)

Demilitarization should be accomplished by the most cost effective method consistent with adequate security and surveillance as economically as practical in accordance with existing environmental standards, safety and operational regulations, to the point of assuring freedom from explosives, toxic or incendiary materials, smoke content or design hazards by one of the following methods:

- a. By a sales contractor, as a condition of sale. Unless otherwise authorized, property to be demilitarized in accordance with DOD 4160.21-M-1 must be demilitarized prior to transfer of title to a purchaser.
- b. By the DRMO, generating activity, designated Military Service/Defense Agency or contractor personnel (having qualified UXO personnel).
- c. Under a service/performance contract.

5.1 Assignment of Demilitarization Codes

The proper procedure requires that MPPEH scrap be assigned a demilitarization code and that code determines the type of processing required. For almost all MPPEH scrap the assigned code should be "A". Assignment of this code is the responsibility of the generating activity (for range maintenance contracts such as Fort Irwin it is the National Training Command; for BRAC removal actions it is the BRAC office; and for FUDS it is the Corp of Engineers). CH2M HILL as the contractor and expert in munitions response (MR) should assist the generating activity in determining the demilitarization code to be assigned and the method and degree of demilitarization required.

Definition of Demilitarization Code G:

"G" MLI -- Demilitarization required - AEDA, Demilitarization, and if required, declassification and/or removal of sensitive markings or information, will be accomplished prior to physical transfer to a DRMO. This code will be used for all AEDA items, including those which also require declassification and/or removal of sensitive marking or information. [When in doubt assign Demilitarization Code "G" for all recovered OE related scrap.]

5.2 Demilitarization Requirements

Demilitarization and decontamination of MPPEH scrap is based on a system that assigns decontamination levels commensurate with the post treatment use. For metal that is being released to the public as recyclable, 5X is the acceptable degree of decontamination.

Past practices for recovery and certification of MPPEH scrap from range maintenance contracts, BRAC and FUDS removal actions have improperly certified MPPEH scrap as safe for turn-in to DRMO for recycling based on inspection and certification by UXO/EOD technicians. In most cases this achieves a 3X level of decontamination by de facto. This is not sufficient for resale to the public. Three X=s indicate the equipment or facilities (in this case OE scrap) have been examined and decontaminated by approved procedures and no contamination can be detected by appropriate instrumentation, test solutions, or by visual inspections on easily accessible surfaces or in concealed housings, etc. and are considered safe for the intended use. Items decontaminated to this degree can not be furnished to qualified DOD or Industry users or subjected directly to open flame cutting, welding, high temperature heating devices), or operations which generate extreme heat, such as drilling and machining. Newly implemented certification procedures require two signatures for certification of which only one signature may be from a government contractor.

The only acceptable way to get to 5X decontamination is by partial or complete removal, neutralization, or destruction of explosives/explosive residue by flashing, steaming, neutralization, or other approved desensitizing methods such as shredding. This is often expensive and nullifies the value of the scrap. However to leave MPPEH scrap on a range site increases the possibility of residues such as RDX, HBX, and TNT entering the ground water and causing a more expensive problem.

Technical instructions issued by the Defense Agency or Military Service having procurement responsibility for the item involved and/or instructions provided through the DOD demilitarization Bulletin Board System, will determine and identify the method of demilitarization and the degree to which additional demilitarization is necessary to meet the requirements in their respective areas. For additional information contact the following:

- a. For ammunition procured by the Department of the Army, technical instructions relating to ballistic missiles, and large rockets, will be furnished by the Commander, U.S. Army Aviation and Missile Command (AMCOM), Attn: AMSAM-DSA-WO, Redstone Arsenal, AL 35898-5239
- b. For conventional, chemical, and all other types of ammunition excluding lethal chemical agents and waste munitions, technical instructions will be provided by the U.S. Army Industrial Operations Command, Attn: AMSIO-SMK, Rock Island, IL 61299-6000
- c. For lethal chemical agents including vesicants and nerve agents and their carriers, technical instructions will be furnished by the U.S. Army Armament Material Readiness Command Program Manager for the demilitarization of Chemical Material, Edgewood Arsenal, Aberdeen proving Ground, Maryland 21010
- d. For ammunition procured by the Department of the Navy, technical instructions will be issued by the Commander, Naval Sea Systems Commander or by the

Commander Naval Air Systems Command, department of the Navy, Washington, D.C.

- e. For ammunition procured by the Department of the Air Force, technical instructions will be issued by the Engineering and Reliability Branch (MMWR), Ogden Air Logistics Center, Ogden, UT 84056-5609.

The following paragraphs provide guidance for the method and degree of required demilitarization for most types of OE items:

5.2.1 Category III. Ammunition - Method and Degree of Required Demilitarization

- a. **Artillery/Mortar Ammunition Components and Similar Items of All Types** including but not limited to high explosive, practice, inert loaded, incendiary, and smoke fillers. Remove explosive filler from projectile (wash out, burn out, etc.). Remove rotating band and deform fuze cavity threads or score or deform bourrelet or gas check band. Burn propellant unless otherwise instructed to retain for sale or other purposes. Deform fin assembly threads or fin blades. Cartridge cases will be deformed by off-center punch-out of primer or split case neck or puncture the lower sidewall with a minimum of 3/4 inch hole or deform lower sidewall, which will prevent chambering, or crush or press. Burn out smoke mixture or detonate smoke canister.
- b. **Inert Loaded Ammunition, Projectiles, and Similar Items of All Types** loaded with inert filler to simulate service item. Remove rotating band from artillery projectiles and open the closure of the projectile body to expose the inert filler. On items without rotating bands, open the body closure to expose the inert filler and damage the closure surface to prevent reloading or resealing.
NOTE: For inert loaded items (concrete, sand, plaster) a potential explosive safety hazard exists when the internal filler is not exposed or unconfined during burning, melting, or cutting. Heat generated from a demilitarization process can cause the filler, moisture and air to expand and burst sealed casings causing a mechanical explosion. For this reason, DRMOs will not accept inert loaded items unless the internal filler is exposed and unconfined. The internal filler may be exposed by removal of the fuze well from the cavity, removal of base plates, or by puncturing/drilling holes in the casing.
- c. **Ammunition and Components Which Have Been Fired or Expended, Range Residue and Other Non-Explosive Items.** All items will be rendered free of energetic materials prior to accomplishment of demilitarization. Range residue will be processed in accordance with the defense Material Disposition Manual, DOD 4160.21-M, Chapter 4, paragraph B.3, after all required demilitarization is accomplished.

1. **Artillery/Mortar Ammunition Components and Similar Items of All Types.** Remove rotating band and deform fuze cavity threads or score or deform bourrelet or gas check band. Score practice round with a torch, displacing a minimum of one cubic inch of metal or shear into two pieces. Deform fin assembly threads and fin blades.
 2. **Inert Loaded Ammunition, Projectiles, and Similar Items of All Types** loaded with inert filler to simulate service item. Remove rotating band from artillery projectiles and open the enclosure of the projectile body to expose the inert filler. On items without rotating bands, open the body closure to expose the inert filler and damage the closure surface to prevent relocating or resealing. **NOTE:** For inert loaded items (concrete, sand, plaster) a potential explosive safety hazard exists when the internal filler is not exposed or unconfined during burning, melting, or cutting. Heat generated from a demilitarization process can cause the filler, moisture and air to expand and burst sealed casings causing a mechanical explosion. For this reason, DRMOs will not accept inert loaded items unless the internal filler is exposed and unconfined. The internal filler may be exposed by removal of the fuze well from the cavity, removal of base plates, or by puncturing/drilling holes in the casing.
 3. **Other Nonexplosive Filled Items** which perform a major function essential to the basic mission of the end item. Cut, crush, or process through a deactivation furnace. Burn or cut cartridge case lines and propelling charge bags. Cut, burn, or crush aircraft and ground signal cases. Crush or detonate piezoelectric (lucky) elements.
- d. **Technical data** will be demilitarized by burning, shredding, or pulping.

5.2.2 Category V. Military Explosives, Solid and Liquid Propellants, Bombs, Mines, Incendiary Agents, and their Constituents - Method and Degree of Required Demilitarization

- a. **Artillery/Mortar Ammunition Components and Similar Items of All Types** including but not limited to high explosive, practice, inert loaded, incendiary, and smoke fillers. Remove explosive filler from projectile (wash out, burn out, etc.). Remove rotating band and deform fuze cavity threads or score or deform bourrelet or gas check band. Burn propellant unless otherwise instructed to retain for sale or other purposes. Deform fin assembly threads or fin blades. Cartridge cases will be deformed by off-center punch-out of primer or split case neck or puncture the lower sidewall with a minimum of 3/4 inch hole or deform lower sidewall, which will prevent chambering, or crush or press. Burn out smoke mixture or detonate smoke canister.

- b. **Inert Loaded Projectiles, Warheads and Similar Items of All Types** loaded with inert filler to simulate service item. Remove fuze and/or spotting charge, where applicable, and burn or detonate. Remove rotating band from artillery projectiles and open the enclosure of the projectile body to expose inert filler. On items without rotating bands, open the body closure to expose the inert filler and damage the closure surface to prevent reloading or resealing.
- c. **Bombs and Similar Items of All Types**, including but not limited to high explosive, practice, inert loaded, incendiary and photo flash fillers, military explosive excavating devices, demolition blocks, and grenades. Demilitarization will be accomplished by removal of explosive filler in an approved manner (e.g., wash-out, burn-out, etc.) And by deforming fuze cavity threads or removing base plate by other than normal disassembly (such as sawing) or by detonation. Grenades will be demilitarized by cutting or crushing (a minimum of 75% compression) the grenade body after item has been defuzed and explosive removed or by detonation.
- d. **Small Explosive Items**, including but not limited to fuzes, boosters, primers, detonators, firing devices, ignition cartridges, blasting caps, grenade cartridges, tracer assemblies, and similar components. Demilitarization can be accomplished by processing through a deactivation furnace at settings of 1150 degrees at burner end and 450 to 500 degrees at stack end or by mutilation. Incendiary projectiles will normally be decored to expose and assist in the complete burning of the incendiary composition. Where decoring of projectile is not necessary, processing through the deactivation furnace is adequate. Burn out 20mm HE projectiles by processing through the deactivation furnace or detonate. Processing complete small arms ammunition cartridges, all caliber's, through the deactivation furnace at controlled temperatures will result in adequate demilitarization. Fuzes and boosters can be disposed of by disassembly and cutting, drilling, or punching to deform metal parts. Explosive components generated through disassembly are to be burned or detonated. Fuzes may also be processed through a deactivation furnace as a complete item when disassembly is not feasible. For grenades demilitarization may be accomplished by removal of explosive components by crushing, cutting, breaking, melting, burning, or otherwise to fully preclude their rehabilitation or further use as grenade components. Demilitarization may also be accomplished by detonation or burning as appropriate for the particular item involved.
- e. **Rocket Motors, Warheads, Components and Similar Items of All Types**, including high explosive, inert, loaded, practice and smoke. Wash out or burn out rocket warhead filler and mutilate casing by crushing or cutting by torch and deforming threaded area. Disassemble and remove or burn out rocket motor propellant and cut or crush case, and deform threaded area of cases. Rocket motors and warheads may also be detonated.

- f. **Mines, Anti-Personnel/Anti-Tank Explosive, Components and Similar Items of All Types** including high explosive, practice, inert loaded associated explosive components. Wash out or burn out filler and mutilate by crushing, cutting by torch, deforming threaded area or detonate. Process mine fuzes, activators, and firing devices through a deactivation furnace, burn in a cage or detonate. Mine firing such as the M56 or M61 types should be crushed, cut, or burned.
- g. **Ammunition and Components Which Have Been Fired or Expended, Range Residue and Other Non-Explosive Items.** All items will be rendered free of energetic materials prior to accomplishment of demilitarization. Range residue will be processed in accordance with the defense Material Disposition Manual, DOD 4160.21-M, Chapter 4, paragraph B.3, after all required demilitarization is accomplished.
1. **Artillery/Mortar Ammunition Components and Similar Items of All Types** including but not limited to high explosive, practice, inert loaded, incendiary, and smoke fillers. Remove explosive filler from projectile (wash out, burn out, etc.). Remove rotating band and deform fuze cavity threads or score or deform bourrelet or gas check band. Score practice round with a torch, displacing a minimum of one cubic inch of metal or shear into two pieces. Deform fin assembly threads and fin blades. Defective cartridge cases will be deformed by off-center punch-out of primer or split case neck or puncture the lower sidewall with a minimum of $\frac{3}{4}$ inch hole or deform lower sidewall, which will prevent chambering, or crush or press. Burn out smoke mixture or detonate smoke canister.
 2. **Inert Loaded Ammunition, Projectiles, and Similar Items of All Types** loaded with inert filler to simulate service item. Remove rotating band from artillery projectiles and open the enclosure of the projectile body to expose the inert filler. On items without rotating bands, open the body closure to expose the inert filler and damage the closure surface to prevent relocating or resealing. **NOTE:** For inert loaded items (concrete, sand, plaster) a potential explosive safety hazard exists when the internal filler is not exposed or unconfined during burning, melting, or cutting. Heat generated from a demilitarization process can cause the filler, moisture and air to expand and burst sealed casings. For this reason, DRMOs will not accept inert loaded items unless the internal filler is exposed and unconfined. The internal filler may be exposed by removal of the fuze well from the cavity, removal of base plates, or by puncturing/drilling holes in the casing.
 3. **Bombs and Similar Items of All Types**, including but not limited to high explosive, practice, inert loaded, incendiary and photoflash fillers, military explosive excavating devices, demolition blocks and grenades.

Demilitarization will be accomplished by deforming fuze cavity threads or removing base plate by other than normal disassembly (such as sawing) or by detonation. Grenades will be demilitarized by cutting or crushing (a minimum of 75% compression) the grenade body after item has been defuzed and explosive removed or by detonation.

4. **Rocket Motors, warheads, Components and Similar Items of All Types**, including high explosive, inert loaded, practice and smoke. Demilitarize casing by crushing or cutting by torch or deforming threaded area. Cut, crush case, or deform threaded area of rocket motor cases.
5. **Mines, Anti-Personnel/Anti-Tank, and Similar Items of All Types** including high explosive, practice, inert loaded and associated components. Demilitarize casing by crushing, or cutting by torch, and deforming threaded area or detonate. Mine firing devices such as the M56 or M61 types should be crushed, cut, or burned.

h. **Instructions For Specific Ordnance Items:**

1. **BDU-50 Practice Bomb:**

- (a) Each bomb must be inspected by qualified EOD/UXO personnel to ensure that bombs are BDU-50s and that the bomb is expended. If the EOD/UXO personnel cannot verify both fuze wells, or absence thereof, it must be op-opened remotely by detonation.
- (b) A 1/4 inch hole will be punched in each of the two spanner wrench receptacles, fracturing the metal to a depth in excess of 1/10 inch into the concrete filler material..
- (c) A 1/4 inch punch will be utilized to further damage the threads of the nose plate, ensuring that the plate cannot be removed and replaced.
- (d) Fins will be deformed or broken and paint will then be used to place a mark of contrasting color on the bomb or near the nose.

- i. **Technical data** will be demilitarized by burning, shredding, or pulping.

5.2.3 Venting of MPPEH Related Scrap

Prior and current practices have taken this to mean that if the MPPEH item is intact and resembles a piece of military ordnance, such as a 105mm HEAT (Practice) projectile, it should have a hole punched through the side to expose the filler as non-explosive. This is typically accomplished through the use of a shape charge attack or vented using remotely operated water

jet cutting technology. The explosively created hole exposes the filler and disfigures the projectile so that it could not be used again. For a 105mm HEAT (Practice) round this approach is sufficient because the projectile never contained any explosives or energetic material used as a spotting charge. For a MK- 82 LDGP Bomb (Practice) this approach may not be sufficient because the bomb can contain various types of explosively activated spotting charges that have the capability to cause injury or death if exposed to the right elements such as flame from a cutting torch. And there is always the possibility that a shape charge attack may punch a hole in an explosive ordnance item exposing the filler but not causing a detonation. Because some explosive fillers look like inert fillers the possibility for misidentification and improper certification is real.

Munitions and explosives of concern (MEC) known or suspected to be inert (filled with an inert substance to simulate the weight of an explosive filler) will be explosively vented with conical-shaped charges or vented using a remotely operated water jet cutter. For the purpose of determining the fragmentation hazard area for venting, it will be assumed that the MEC has an explosive filler and that a high-order detonation will occur. Venting will be considered successful when the inert filler is exposed. The vented inert ordnance item can be treated and disposed as scrap after the venting and demilitarization process is complete.

6.0 Certification/Disposal of Scrap Metal

Generating activities shall have a Memorandum of Agreement (MOA) with the nearest DRMO for the disposal processing of ORS. DRMO will assist with the identification of a recycler that is Qualified Recycling Program (QRP) eligible. The generating activity will ensure that the quantities of demilitarized property turned in to the DRMO are accurate and that these quantities are readily verifiable by the DRMO. DRMOs will not accept any property unless the DD Form 1348-1A contains the demilitarization code or clear text statement of the demilitarization required. The generating activity is responsible for issuing a letter specifying who is authorized to sign the statement of inert certification. This letter will be kept in the project files, at the local DRMO, and with the generating activity. It must be updated as needed. Personnel designated as authorized to sign on behalf of CH2M HILL must have an authorization letter from the MR Market Segment Leader.

All material generated from the firing and/or demilitarization of AEDA will be rendered **free from explosives** before being referred to a DRMO for sale. All scrap metal, generated at the site, will be disposed of through the local Defense Reutilization and Marketing Office (DRMO) or when appropriate and approved to a local scrap metal dealer, and will be transferred using DD Form 1348-1A. Prior to release of the material, the Senior UXO Supervisor will physically inspect the material in the containers to ensure that they are free of dangerous items or conduct demilitarization operations. The Senior UXO Supervisor will sign the certificate, typed on the DD Form 1348-1A, which states:

“I certify that the property listed hereon has been inspected by me and, to the best of my knowledge and belief, contains no items of a dangerous nature.”

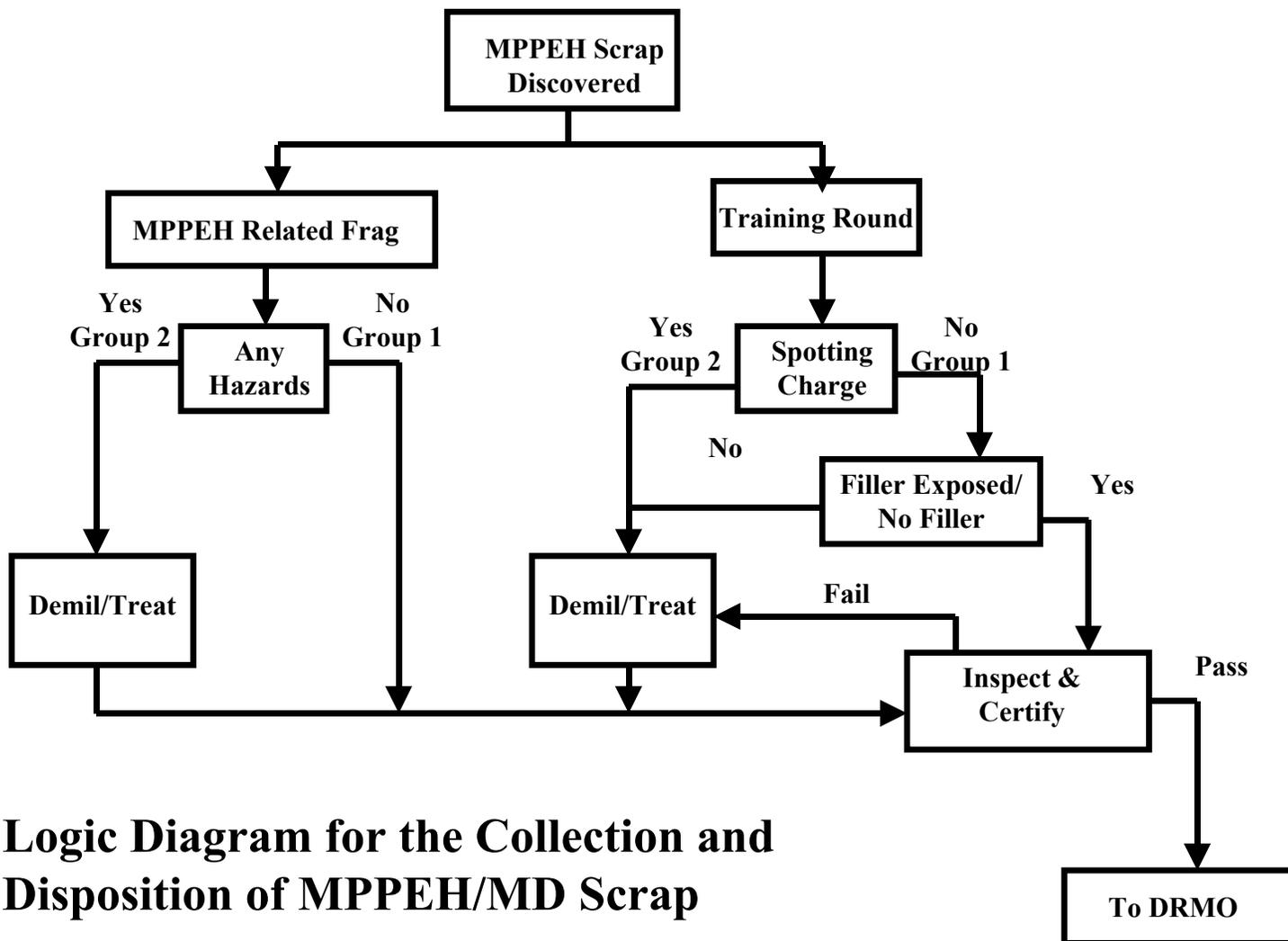
or

“I certify that (identify items) were demilitarized in accordance with (cite specific instructions (Appendix and Item number) that were complied with in the DOD 4160.21-M-1 and other applicable regulations.”

The certification will be verified (countersigned) by a technically qualified U.S. government representative (U.S. citizen) designated by the responsible commander/generating activity. The government may delegate the responsibility for the second signature (verification) to a contractor. The delegation must be in writing and signed by the contracting officer.

Scrap will be segregated into like metals (mainly steel, aluminum, and mixed metal) and placed into palletized wooden shipping boxes. Each item placed into an inert-certified box will be inspected. The boxes will be filled, the covers will be nailed on, and a lead seal will be affixed. A Statement of Inert Certification will then be attached to the box. The box can then be picked up by a local scrap yard for disposal or recycling.

Using these procedures ensures that the collected scrap metal is properly inspected and classified. Our method includes three distinct inspections which are performed by persons of increasing levels of responsibility. The first inspection is performed at the operating grid by a qualified UXO Technician, the second is performed by the supervisor responsible for the operating grid, and the final inspection is performed by the Senior UXO Supervisor who is vested with overall responsibility.



Logic Diagram for the Collection and Disposition of MPPEH/MD Scrap

Figure 1

Appendix H

Quality Control/Transportation and Disposal Attachments

- Submittal Register
- Testing Plan and Log
- Transportation and Disposal Log
- Summary of Field Tests Log
- Contractor Daily Production Report
- Contractor Daily Quality Control Report
- Preparatory Phase Report

CH2M HILL SOUTH DIV RAC N62467-01-D-0331	CONTRACTOR QUALITY CONTROL REPORT (ATTACH ADDITIONAL SHEETS IF NECESSARY)	REPORT DATE: REVISION NO: REVISION DATE:
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CTO NO: 0029	PROJECT NAME/LOCATION: Munitions Response and On-site Construction Support for Discarded Military Munitions	REPORT NO:
PROJECT NO: 321878	PROJECT QC MANAGER:	SITE H&S SPECIALIST:

SAFETY MEETINGS AND INSPECTIONS

WAS A SAFETY MEETING HELD THIS DAY? YES NO IF YES, ATTACH SAFETY MEETING MINUTES
 WAS CRANE USED ON THE SITE THIS DAY? YES NO IF YES, ATTACH DAILY CRANE REPORT OF INSPECTION AND CONTRACTOR CRANE OPERATION CHECKLIST

DEFINABLE FEATURES OF WORK STATUS				
DFOW No.	Definable Feature Of Work	Preparatory	Initial	Follow-Up
1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PREPARATORY	WAS PREPARATORY PHASE WORK PERFORMED TODAY? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, FILL OUT AND ATTACH SUPPLEMENTAL PREPARATORY PHASE CHECKLIST.	
	DFOW No.(from list above).	TASK/ACTIVITY
		PREPARATORY PHASE REPORT NO.

INITIAL AND FOLLOW-UP FEATURE OF WORK COMMENTS		
DFOW No.(from list above)	Phase	Comment/Finding/Action
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	
	Initial <input type="checkbox"/>	
	Follow up <input type="checkbox"/>	

REWORK ITEMS IDENTIFIED TODAY (NOT CORRECTED BY CLOSE OF BUSINESS)			REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)	
TASK/ACTIVITY	DATE ISSUED	DESCRIPTION	TASK/ACTIVITY	CORRECTIVE ACTION(S) TAKEN

CH2M HILL SOUTH DIV RAC N62467-01-D-0331	CONTRACTOR PRODUCTION REPORT (ATTACH ADDITIONAL SHEETS IF NECESSARY)	DATE OF REPORT: REVISION NO: REVISION DATE:
CTO NO: 0029	PROJECT NAME/LOCATION: Munitions Response and On-site Construction Support for Discarded Military Munitions	REPORT NO:
PROJECT NO: 321878	SUPERINTENDENT:	SITE H&S SPECIALIST:
AM WEATHER:	PM WEATHER:	MAX TEMP: F
SUMMARY OF WORK PERFORMED TODAY		
	Was A Job Safety Meeting Held This Date? <input type="checkbox"/> Yes <input type="checkbox"/> No	TOTAL WORK HOURS ON JOB SITE THIS DATE (Including Continuation Sheets)
	Were there any lost-time accidents this date? (If Yes, attach copy of completed OSHA report) <input type="checkbox"/> Yes <input type="checkbox"/> No	CH2MHILL On-Site Hours
	Was a Confined Space Entry Permit Administered This Date? (If Yes, attach copy of each permit) <input type="checkbox"/> Yes <input type="checkbox"/> No	JA JONES On-Site Hours
	Was Crane/Manlift/Trenching/Scaffold/HV Elec/High Work/Hazmat Work Done?? (If Yes, attach statement or checklist showing inspection performed) <input type="checkbox"/> Yes <input type="checkbox"/> No	Subcontractor On-Site Hours
	Was Hazardous Material/Waste Released into the Environment? (If Yes, attach description of incident and proposed action) <input type="checkbox"/> Yes <input type="checkbox"/> No	Total On-Site Hours This Date
		Cumulative Total of Work Hours From Previous Report
SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED (Include Safety Violations, Corrective Instructions Given, Corrective Actions Taken, and Results of Safety Inspections Conducted):		
EQUIPMENT/MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB		
DESCRIPTION OF EQUIPMENT/MATERIAL RECEIVED	MAKE/ MODEL/ MANUFACTURER	EQUIPMENT/ LOT NUMBER
EQUIPMENT USED ON JOB SITE TODAY.		
EQUIPMENT DESCRIPTION	EQUIPMENT MAKE/MODEL	SAFETY CHECK PERFORMED BY
CHANGED CONDITIONS/DELAY/CONFLICTS ENCOUNTERED (List any conflicts with the delivery order [i.e., scope of work and/or drawings], delays to the project attributable to site and weather conditions, etc.):		
VISITORS TO THE SITE:		
LIST OF ATTACHMENTS (OSHA report, confined space entry permit, incident reports, etc.):		
SAFETY REQUIREMENTS HAVE BEEN MET <input type="checkbox"/>		
_____ SUPERINTENDENT'S SIGNATURE		_____ DATE

CH2M HILL SOUTH DIV RAC N62467-01-D-0331	PREPARATORY PHASE REPORT	REPORT NO:	REPORT DATE: REVISION NO: REVISION DATE:	CTO NO: 0029
PROJECT NO: 321878	DEFINABLE FEATURE OF WORK:	SITE/ACTIVITY: Munitions Response and On-site Construction Support for Discarded Military Munitions		
PERSONNEL PRESENT	GOVERNMENT REP NOTIFIED _____ HOURS IN ADVANCE: YES <input type="checkbox"/> NO <input type="checkbox"/>			
	NAME	POSITION	COMPANY/GOVERNMENT	
SUBMITTALS	REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER.	HAVE ALL SUBMITTALS BEEN APPROVED? YES <input type="checkbox"/> NO <input type="checkbox"/>		
	IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED?			
	ARE ALL MATERIALS ON HAND? YES <input type="checkbox"/> NO <input type="checkbox"/>			
	IF NO, WHAT ITEMS ARE MISSING?			
CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES).				
COMMENTS:				
MATERIAL STORAGE	ARE MATERIALS STORED PROPERLY? YES <input type="checkbox"/> NO <input type="checkbox"/>			
	IF NO, WHAT ACTION IS TAKEN?			
SPECIFICATIONS	REVIEW EACH PARAGRAPH OF SPECIFICATIONS.			
PRELIMINARY WORK & PERMITS	ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.			
	IF NO, WHAT ACTION IS TAKEN?			

CH2M HILL SOUTH DIV RAC N62467-01-D-0331	PREPARATORY PHASE REPORT	REPORT NO:	REPORT DATE: REVISION NO: REVISION DATE:	CTO NO: 0029
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PROJECT NO: 321878	DEFINABLE FEATURE OF WORK:	SITE/ACTIVITY: Munitions Response and On-site Construction Support for Discarded Military Munitions
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TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM.		
	TEST	FREQUENCY	PERFORMER
	WHEN REQUIRED?		
	WHERE REQUIRED?		
	REVIEW TESTING PLAN.		
HAVE TEST FACILITIES BEEN APPROVED?			
TEST FACILITY	APPROVED?		
	YES <input type="checkbox"/> NO <input type="checkbox"/>		
	YES <input type="checkbox"/> NO <input type="checkbox"/>		

SAFETY	ACTIVITY HAZARD ANALYSIS APPROVED? YES <input type="checkbox"/> NO <input type="checkbox"/>
	REVIEW APPLICABLE PORTION OF EM 385-1-1.

MEETING COMMENTS	NAVY/ROICC COMMENTS DURING MEETING.

OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS:

PROJECT QC MANAGER NAME	PROJECT QC MANAGER'S SIGNATURE	DATE
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