FINAL
PROJECT PLANS

STRUCTURAL ANALYSES AND MEC SUPPORT
FOR LOAD LINES 1-4
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

US Army Corps
of Engineers ®
Louisville District

CONTRACT NO. W912QR-04-D-0027
DELIVERY ORDER 0001

NOVEMBER 2006

Shaw® Shaw E & I

FINAL

Quality Assurance and Management Plan Addendum No. 1
for
Structural Analyses and MEC Support for Load Lines 1, 2, 3 and 4
at the
Ravenna Army Ammunition Plant
Ravenna, Ohio

Contract Number W912QR-04-D-0027
Task Order 0001

Prepared for:

United States Army Corps of Engineers
Louisville District

Prepared by:

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November 2006

QUALITY ASSURANCE AND MANAGEMENT PLAN ADDENDUM NO. 1
Structural Analyses and MEC Support for Load Lines 1, 2, 3 and 4
Ravenna Army Ammunition Plant
Ravenna, Ohio

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LIST OF ACRONYMS

CQCM	Contractor Quality Control Manager
DDMP	Data and Document Management Plan
FPRI	Fixed-Price Remediation with Insurance
HASP	Health and Safety Plan
LLs 1-4	Load Lines 1, 2 , 3 and 4
MARC	Multiple Award Remediation Contract
MEC	Munitions and Explosives of Concern
OHARNG	Ohio Army National Guard
OhioEPA	Ohio Environmental Protection Agency
PMP	Project Management Plan
POC	Point of Contact
PWS	Performance Work Statement
QA	Quality Assurance
QC	Quality Control
QAMP	Quality Assurance Management Plan
RVAAP	Ravenna Army Ammunition Plant
SAIC	Safety Applications International Corporation
Shaw	Shaw Environmental, Inc.
SHERP	Safety, Health, and Emergency Response Plan
SOP	Standard Operating Procedure
USACE	United States Army Corps of Engineers
UXO	Unexploded Ordnance

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1.0 INTRODUCTION

In September 2003, the United States Army Corps of Engineers (USACE) Omaha District awarded Shaw Environmental, Inc. (Shaw) a Fixed-Price Remediation with Insurance (FPRI) contract (DACA45-03-R-0026, Task Order No 0001) for the remediation of soils at Load Lines 1, 2, 3 and 4 (LLs 1-4) at the Ravenna Army Ammunition Plan (RVAAP). Under this contract, Shaw was tasked with preparing a Quality Assurance and Management Plan (QAMP; Shaw, 2006b) to document procedures for assuring quality and management in all aspects of project execution during the completion of work. The QAMP (Shaw 2006b) serves as the basis for Shaw's quality assurance and management procedures for work at RVAAP.

Shaw was subsequently contracted by the USACE Louisville District under USACE's Multiple Award Remediation Contract (MARC) (No. W912QR-04-D-0027, Task Order No. 0001) to perform a structural analysis of remaining buildings, relocation and handling of existing stockpiled demolition debris within the proposed work zones, and structural support of structures and debris that could dislodge or collapse during excavation activities. Shaws' scope of work under this task order is to relocate demolition debris stockpiles that prevent access to the excavation areas outlined under the FPRI.

Under this task order, Shaw will not be responsible for off-site disposal of any existing debris stockpiles. Shaw's activities will be coordinated with Ohio Army National Guard (OHARNG) as needed. Off-site disposal and coordination with OHARNG will be the Army's responsibility under another contract vehicle. It was conveyed to Shaw based on information provided by the Army, the stockpiled debris at LLs 2-4 was generated during previous demolition related activities conducted between June and October 2003 and consists mainly of scrap metals and wood stripped from the buildings in advance of the demolition activities. This work was performed by others prior to Shaw's involvement at the site.

Additionally, USACE has identified two areas at LL 1, where excavation and removal of surface soil is required for remedial action under the FPRI, have propellant nodules mixed in with them. Because the FPRI contract specifically excludes unexploded ordnance (UXO) and munitions and explosives of concern (MEC) removal activities, additional UXO/MEC support/removal assistance needs to be provided by Shaw under the MARC to alleviate safety concerns

This QAMP Addendum was developed to support the work issued under the MARC and was prepared in accordance with the FPRI QAMP (Shaw 2006b) and Shaw's Project Coordination Plan (PCP; Shaw 2006a) prepared for this Task Order. This QAMP Addendum provides for inspections, tests, and controls necessary to achieve specified quality assurance (QA). It identifies personnel, procedures, control, instructions, tests, records, and forms to be used.

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2.0 PROJECT QUALITY MANAGEMENT PERSONNEL

This work to be performed per the requirements of the Performance Work Statement (PWS), dated July 13, 2006, will be executed by the Shaw Federal Contracts Group under the direction of the Project Manager, Mr. David Cobb. Shaw maintains numerous technical resource groups from which the Project Manager draws technical resources for project execution. Project personnel and organization for the RVAAP project are detailed in **Section 4.0** of the PCP (Shaw 2006a) that includes information related to project personnel, roles, responsibilities, project participants and other interested parties. The roles and responsibilities of primary project personnel involved with the documentation procedures for assuring quality management in all aspects of project execution during the completion of work under this Task Order are described below. Shaw and its subcontractors performing project activities are required to follow the guidelines set forth in the QAMP (Shaw 2006b) and this addendum and all associated quality management procedures referenced in this document.

2.1 Shaw Project Manager

The Shaw Project Manager is Mr. David Cobb. Mr. Cobb will serve as the point of contact (POC) for the USACE on all project issues, as well as Task Order-specific issues as they may arise. As Project Manager, Mr. Cobb will ensure that contractual obligations are observed. He will be responsible for interactions with USACE Louisville District and will be ultimately responsible for all quality management activities under this project. The Project Manager will be responsible for coordinating the satisfactory quality assurance and management of testing, inspection and review of all aspects of the project and will oversee the performance of these activities by assigned project personnel. The Project Manager will track the progress of these activities through monthly project review meetings and reports.

2.2 Shaw Technical/Regulatory Lead

The Shaw Technical/Regulatory Lead for the RVAAP has direct responsibility for implementing the remedial designs, field activities, and report preparation. The Technical/Regulatory Lead will also provide the overall quality management of all project tasks and will serve as technical lead and point of contact with the USACE, Louisville District Project Manager and USACE designated point of contact. The Technical/Regulatory Lead will perform follow-up inspections, as required, and will review all quality management documentation. The Shaw Technical/Regulatory Lead will coordinate with the Shaw Project Manager to designate qualified project personnel to prepare, review, and distribute quality management documentation, and respond to comments of this Addendum. The Shaw Technical/Regulatory Lead is Mr. David Crispo.

2.3 Shaw Structural Engineer

The Shaw Structural Engineer is responsible for conducting the structural analyses of the existing buildings and structures to identify potential safety concerns and will supervise and control design activities related to the implementation of the safety measures to alleviate those concerns. The Shaw Structural Engineer will assign only qualified personnel, provide appropriate project planning and monitoring, will review and check work and ensure the use of the appropriate technical tools. This person will assign the appropriate personnel to conduct field inspections of the safety measures to be implemented and will maintain contact with the

field personnel to ensure compliance with project requirements. The Shaw Structural Engineer is Mr. Tim Lynch.

2.4 Shaw UXO/MEC Specialist

The Shaw UXO/MEC Specialist is responsible for assigning the appropriate MEC personnel to inspect excavated soils for the presence of propellants, identify items suspected of being propellant nodules and instruct Shaw field personnel as to how excavation activities will proceed as to ensure propellant material can be readily segregated for disposal. The Shaw UXO/MEC Specialist is Mr. Tim Mathisen.

2.5 Shaw Field Superintendent

The Field Superintendent is responsible for implementing all field activities in accordance with the site-specific documentation and for ensuring that all Shaw field personnel perform field activities in accordance with field plans and project documents. For the work to be completed under this PWS, the Field Superintendent will coordinate with the Shaw Technical/Regulatory Lead and UXO/MEC Specialist or the appropriately authorized on-site personnel. The Field Superintendent will have direct responsibility over all subcontractor activities and will ensure that the subcontractors comply with project requirements.

3.0 PROCEDURES FOR CONTROLLING PROJECT ACTIVITIES

This section outlines the procedures for controlling project activities to ensure efficiency, cost effectiveness, coordination with design objectives, and reliability of data collected, maintenance of worker safety, and proper recording and reporting formats. The procedures include identification of government and contractor staff, by name and discipline, which will be responsible for preparation, independent review, and QA review of technical reports produced in support of the project. The specific QC for activities is summarized in **Table 3-1**.

Table 3-1
Quality Control Verification Summary

Activity	QC Verification
Field Work	
Structural Survey	▪ Daily Contractor QC Report ▪ Daily Health & Safety Report ▪ Structural Survey Report
Implement Structural Safety Measures	▪ Daily Contractor QC Report ▪ Daily Health & Safety Report
Relocate Debris Piles	▪ Daily Contractor QC Report ▪ Daily Health & Safety Report
MEC Removal and Disposal	▪ Daily Contractor QC Report ▪ Daily Health & Safety Report ▪ Explosive Safety Submittal
Demobilization	▪ Daily Contractor QC Report ▪ Daily Health & Safety Report ▪ Final Closeout Report Submittals

3.1 Corporate and Contract-Specific Control Procedures

Cost control and reporting is detailed in **Section 6.0** of the FPRI Project Management Plan (PMP; Shaw 2004a). The discussion includes procedures to ensure QC in Procurement (**Section 6.1**), Invoicing (**Section 6.2**), Purchasing (**Section 6.3**), Subcontracting (**Section 6.4**). Roles and Responsibilities specific to the work to be performed under the PWS are provided in the **Section 6.5** of the PCP (Shaw 2006a). In general, Shaw will ensure that activities under this PWS are carried out in accordance with Shaw Standard Operating Procedures (SOPs) and as presented in the FPRI PMP and maintain the appropriate records of such activities.

3.2 Shaw Project Quality Control Personnel

A discussion of Shaw's project-specific quality control personnel is discussed in **Section 2.0** of this Addendum. These designated personnel will be responsible for the overall management of the QC program onsite and offsite.

3.3 Project-Specific Training

In accordance with **Section 5.3** of the FPRI QAMP (Shaw 2006b), Shaw will provide QC personnel with the specific minimum training and qualifications to assume control functions over the project. In addition, Shaw will provide training as needed to other project personnel, to ensure efficiency, cost-effectiveness, coordination with design objectives, reliability of data collected, maintenance of worker safety, and proper recording and reporting formats.

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4.0 PROCEDURES FOR CONTROLLING DESIGN ACTIVITIES

It is anticipated that design activities to be conducted under this Task Order will be primarily for structural safety measures and MEC support at LLs 2-4. Defining quality management activities for engineering design tasks associated with the structural safety measures and MEC support will assist Shaw in providing quality deliverables aligned with the client needs and project requirements which will, in turn, help ensure effective implementation of the safety measures. QC activities will focus on assignment of appropriately qualified and experienced personnel, adequate project planning and monitoring, review and checking of work, and use of appropriate technical tools. Shaw will implement the procedures for controlling design activities as specified in **Section 6.0** of the FPRI QAMP (Shaw 2006b) and as discussed below.

4.1 Assignment of Personnel

Shaw requires that appropriately qualified and experienced personnel be utilized to perform both the technical tasks and the associated QC activities. While quality is a focus for all project personnel, the primary positions responsible for ensuring quality under this Task Order are the Project Manager, Technical/Regulatory Lead, Structural Engineer, UXO/MEC Specialist and the Field Superintendent. These individuals will work in concert to identify appropriate individuals for engineering and review tasks on a per-deliverable basis. In general, individuals and/or subcontractors will be assigned based on their technical competency in the relevant discipline(s), with the most experienced assigned as discipline leads responsible for the planning and review activities. In addition, individuals with appropriate professional licenses will be designated at the outset to personally supervise the design activities in order to sign/seal final deliverable documents.

4.2 Project Planning and Monitoring

For each deliverable, the technical team may develop a checklist based on guidance in this QAMP Addendum and the FPRI QAMP (Shaw 2006b) which will indicate the QC activities to be performed during preparation of the deliverable, the personnel assigned to each activity, and target dates. Development of the checklist helps ensure that each of the QC activities is performed and sufficient time is scheduled to allow the activity to take place. It also documents when each activity is completed and by whom. Planning and monitoring activities that may be included in the individual checklists are discussed in further detail in **Section 6.2** of the FPRI QAMP (Shaw 2006b).

4.3 Review and Checking of Work

In addition to the planning and monitoring activities, the checklist may present the designation of a number of review activities that are to be performed at a particular stage of the design through construction process or on an as-needed basis. Many of these activities can be combined; however, it is critical that personnel can not solely review their own work. Documentation of the activities will be made on the checklist with detailed comments or meeting minutes attached. The types of reviews that may be performed for this Task Order are discussed in further detail in **Section 6.3** of the FPRI QAMP (Shaw 2006b).

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5.0 APPROPRIATE TECHNICAL TOOLS

In addition to relying on the technical competence of the technical staff and reviewers, use of appropriate technical tools helps ensure quality in the final deliverable. Technical tools of potential use for the design activities required for this Task Order are discussed in further detail in **Section 7.0** of the FPRI QAMP (Shaw 2006b).

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6.0 PROCEDURES FOR SUBMITTALS

Shaw is responsible for total management of design and implementation of safety measures identified in this Task Order. This responsibility includes scheduling, reviewing, certifying and managing submittals. Shaw is also responsible for ensuring that certifications provided by others (e.g., subcontractors) are accurate and in compliance with the contract requirements. The submittals identified for this project are discussed in **Section 3.0** of the PCP (Shaw 2006a). The procedures for submittals are discussed in detail in **Section 8.0** of the FPRI QAMP (Shaw 2006b).

6.1 Schedule of Submittals

The schedule for submittals required under this Task Order are presented in the Project Schedule included as **Attachment A** of the PCP (Shaw 2006b).

6.2 Submittal Review

The review of submittals will be performed as described in **Section 8.2** of the FPRI QAMP (Shaw 2006b) and discussed further in **Section 7.2.1** of the PMP (Shaw 2004a).

6.3 Submittal Procedures

The appropriate number of copies of submittals will be distributed directly to USACE, RVAAP, Ohio Environmental Protection Agency (OhioEPA) and other interested parties in accordance with project requirements or as directed by USACE. Submittals for particular Project Stakeholder approval are identified in the Project Task and Submittal Approval Matrix in **Table 4-1** of the PCP (Shaw 2006a). Submittal recipients for each submittal and mailing addresses are identified in **Table 4-2** of the PCP (Shaw 2006a).

6.4 Submittals of Subcontractors

Shaw's Project Manager is ultimately responsible for identifying technical and schedule requirements for subcontractors and overseeing subcontractor performance. Direct management of subcontractors may be delegated to Task Managers or to the Technical/Regulatory Lead. As such, these individuals are responsible for reviewing subcontractor or vendor work plans, drawings, and specifications. If, at any point during this review cycle, discrepancies, inconsistencies, or incorrect entries are noted, the submittal will be returned for correction and then resubmitted for review. Shaw will manage subcontractors as detailed in **Section 6.4** of the FPRI PMP (Shaw 2004a).

6.5 Document Control System

Document control requirements are identified in the FPRI Data and Document Management Plan (DDMP; Shaw 2006c).

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7.0 CONTROL PHASES AND INSPECTION PROCEDURES

The QC procedures for work under this Task Order are based on a four-phased protocol consisting of the following control phases:

- Preparatory,
- Initial,
- Follow-up, and
- Final

Each QC phase is discussed in detail in **Section 11.0** of the FPRI QAMP (Shaw 2006b). Shaw's Field Superintendent will have ultimate responsibility for the performance of the inspections at the site. The Field Superintendent may assign inspection duties for individual activities to the work leader responsible for the activity, or to appropriate QC personnel, depending on their area of expertise. Inspection results will ultimately be reviewed by Shaw's Technical/Regulatory Lead, and he will report findings to RVAAP.

7.1 Inspection Documentation

The Field Superintendent or Technical/Regulatory Lead where applicable, will be responsible for ensuring completion of all inspection paperwork, including inspection forms, checklists for tests, deficiency report forms and corrective action logs, Daily Contractor QC Report forms and QA audit checklists. Preparatory, Initial and Follow-up inspections will be recorded on the standard forms included in **Appendices A and B** of the FPRI QAMP (Shaw 2006b). The completed forms generated by inspections will be used to document and track specification compliance, deficiencies, and corrective actions, where necessary. Regardless of which person conducts the inspections, the completed forms will be reviewed by the Technical/Regulatory Lead. Complete forms will be maintained on-site by the Field Superintendent and will be available for inspection. Inspection forms will be tracked using the log in **Appendix C** of the FPRI QAMP (Shaw 2006b).

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8.0 TRACKING DEFICIENCIES AND CORRECTIVE ACTIONS

There are several mechanisms to identify services or activities that do not comply with the contract requirements. These mechanisms include the following:

- Inspections;
- Tests;
- QA audits; and
- Notification of the USACE Project Manager and RVAAP Authorized Representatives.

In each case, noncompliance issues will be specifically identified in documents generated as a result of implementing this QAMP Addendum. It will be the responsibility of the Technical/Regulatory Lead or designated alternate to notify the relevant parties of the noncompliance and to ensure that corrective action is taken as soon as possible.

The Technical/Regulatory Lead and Field Superintendent, or designated alternates, have the authority and responsibility to stop work, if necessary, related to or affected by the noncompliance condition until action can be taken to correct the noncompliance condition or prevent it from affecting related or subsequent work. The Technical/Regulatory Lead and Field Superintendent, or designated alternates, may, at their discretion, require that the work be retested and/or reinspected, if necessary, to confirm or disprove the noncompliance condition.

The Field Superintendent or designated alternate may not permit any subsequent work to continue if that work is, or may be affected by the noncompliance condition until:

- The work is retested and/or reinspected and found to be in compliance;
- The work is redone and subsequently retested and/or reinspected and found to be in compliance; or
- The Shaw Project Manager notifies USACE and OhioEPA followed by the Army of the issue and planned course of action for concurrence.

Changes to previously approved field activities must be approved by USACE, OhioEPA, and RVAAP prior to implementation from an execution standpoint. Shaw will also require contractual approval from USACE prior to the implementation of any changes in field activities unless it may result in imminent danger to human health and the environment.

8.1 Documenting Deficiencies and Corrective Actions

As deficiencies are noted, they will be documented on the QC Inspection Forms in **Appendices A and B** of the FPRI QAMP (Shaw 2006b). In addition, the following documentation may be maintained by the Field Superintendent or designated alternate to track deficiencies and corrective actions:

- A Deficiency Report Form, provided in **Appendix D** of the FPRI QAMP (Shaw 2006b), will be completed. In preparing this report, the Field Superintendent or designated alternate will review the QC procedures and other relevant documents and procedures to determine if the systems being used need to be amended. This report will also include corrective action, including specific changes in procedures, work practices, or other actions taken to prevent reoccurrence of the noncompliance condition.

- A Deficiency and Corrective Action Log will be maintained to ensure the deficiencies have been corrected. A Deficiency and Corrective Action Log form is provided in **Appendix E** of the FPRI QAMP (Shaw 2006b).
- Deficiencies will be noted in the Daily Contractor QC Report, provided in **Appendix F** of the FPRI QAMP (Shaw 2006b).

9.0 REPORTING PROCEDURES

Current records of QC operations, activities, and tests performed, including the work of subcontractors and suppliers, will be maintained. Documents generated as a result of the implementation of this QAMP Addendum will undergo review and signoff. **Table 9-1** summarizes the review and distribution requirements for QC documents. A master file of QC Documents will be maintained at the project site and the master document file as indicated in the FPRI DDMP (Shaw 2006c).

Table 9-1
Document Review and Distribution of QC Documents

Document	Prepared By	Review and Distribution
QAMP Addendum and Supplements	Project Personnel	▪ Program Manager, ▪ Project Manager, ▪ Technical Manager, ▪ Field Superintendent, ▪ Supplemental QC Personnel, and ▪ Contracting Officer Representative.
Daily Contractor QC Report	Field Superintendent	▪ Project Manager, ▪ Technical Manager, ▪ Field Superintendent, and ▪ Contracting Officer Representative.
Inspection Reports	Field Superintendent, Technical/Regulatory Lead or Designated Inspector	▪ Project Manager, ▪ Technical Manager, ▪ Field Superintendent, and ▪ Contracting Officer Representative.
QA Audit Reports	Technical/Regulatory Lead	▪ Program Manager, ▪ Project Manager, ▪ Technical Manager, ▪ Field Superintendent, ▪ Supplemental QC Personnel, and ▪ Contracting Officer Representative.
Reports of Noncompliance	Various	▪ Project Manager, ▪ Regulatory Lead, ▪ Field Superintendent, and ▪ Contracting Officer Representative.
Change Order Form	Project Manager	▪ Program Manager, ▪ RVAAP Authorized Representative, ▪ Ohio EPA, and ▪ Contracting Officer Representative.

9.1 Daily Contractor QC Report

The Field Superintendent will issue a daily report using the standard form provided in **Appendix E** of the FPRI QAMP (Shaw 2006b). **Section 13.1** of the FPRI QAMP discusses the information included in the Daily Contractor QC Report and associated submittal requirements.

9.2 Meetings, Briefings and Updates

As discussed in **Section 5.1** of the FPRI PMP (Shaw 2004a), monthly program management meetings will be held with the Participant Organizations through the duration of the Contract as deemed necessary by USACE. As discussed in **Section 6.1** of the PCP (Shaw 2006b), briefings, in the form of conference calls, coordinated by the Shaw Project Manager, or designee, will be held periodically to discuss the project status with Participant Organizations. Shaw will conduct

a milestone presentation at the completion of each major component activity as required by USACE. The milestones under this Task Order are included in **Table 3-1** of the PCP (Shaw 2006a).

9.3 Status Reports

Monthly and quarterly status reports will contain updates on field activities performed during the applicable reporting period and those planned in the near future, the overall project schedule. Status report requirements are discussed in further detail in **Section 7.1** of the PCP (Shaw 2006a).

10.0 DEFINABLE FEATURES OF WORK

The work breakdown structure under this Task Order is summarized in **Table 3-1** of the PCP (Shaw 2006a).

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11.0 NOTIFICATION OF CHANGES TO PROCEDURES

Where possible, after acceptance of the QAMP Addendum, the USACE Project Manager, OhioEPA and RVAAP authorized representative will be notified in writing a minimum of seven (7) calendar days prior to any proposed change. Changes to previously approved field activities must be approved by USACE, OhioEPA and RVAAP prior to implementation from an execution standpoint. Shaw will also require contractual acceptance by the USACE Project Manager prior to any changes in field activities unless it may result in imminent danger to human health and the environment. There may be occasions when a 7-day notification is not possible (e.g., unexpected absence of personnel due to injury or illness). On these occasions, the respective parties will be notified within 72 hours of the change.

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12.0 RELATED PROJECT PLANS

A discussion of the field plans generated as part of the remediation work to be conducted under the FPRI contract are presented in **Section 16.0** of the FPRI QAMP (Shaw 2006b). Additional field plans were developed to document procedures for specific components to be performed under this Task Order at LLs 1-4 that deviated or were not included in the original plans or associated addenda. Where applicable, the field plans were created as addendums to the corresponding facility-wide plan.

12.1 Safety, Health, and Emergency Response Plan Addendum

The Safety, Health and Emergency Response Plan (SHERP) Addendum No. 2006-01 (Shaw 2006d) was completed for activities specifically for work to be completed under this Task Order. The SHERP Addendum (Shaw 2006d) documents potential hazards, informs personnel of safety procedures, and provides information in the event of an emergency. The SHERP Addendum (Shaw 2006d) was developed as an addendum to the SHERP which is in itself an addendum to the Facility-Wide Health and Safety Plan (HASP; SAIC 2000).

Field activities will not begin until the RVAAP has accepted the SHERP Addendum (Shaw 2006d). The Health and Safety Officer, in association with the Field Superintendent, will oversee the safety and health program for the LLs 1-4 under this Task Order. Oversight will include the implementation and approval of SHERP Addendum (Shaw 2006d). The Health and Safety Officer will be assigned to the site on a full-time basis during field activities and will be the main contact for any on-site emergency situation.

12.2 Project Coordination Plan

The PCP (Shaw 2006a) specifies the schedule, technical approach and resources required for planning, execution, milestones and completion of performance objectives. The PCP (Shaw 2006a) is an abbreviated version of the existing FPRI PMP (Shaw 2004a) and is intended to be incorporated into the schedule for ongoing FPRI work. The PCP (Shaw 2006a) includes a resource loaded schedule that in **Attachment A** that outlines the estimated completion dates and payable deliverables. The frequency and contents of status reports, briefings and meetings are also included in the PCP (Shaw 2006a).

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13.0 AUDITS

Audits will be conducted on a routine basis to ensure compliance with the task order and Contract. At a minimum, at least one internal audit for the task order and at least one audit every 6 months will be conducted. Audits will verify that the procedures outlined in the Project and task order documents are being conducted as stated. Site Health and Safety audits will follow the procedures outlined in Shaw's SHERP (Shaw 2004b) and associated addendum (Shaw 2006d). A description of Shaw personnel responsible for performing audits and plans outlining the audit requirements are presented in **Section 17.0** of the FPRI QAMP (Shaw 2006b).

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14.0 REFERENCES

1. Science Applications International Corporation (SAIC) 2000. "Facility-Wide Sampling and Analysis Plan for Environmental Investigations at the Ravenna Army Ammunition Plant, Ravenna, Ohio". July 2000.
2. Shaw Environmental, Inc. (Shaw) 2004a. "Final Project Management Plan, Remediation of Soils at Load Lines 1-4, Ravenna Army Ammunition Plant, Ravenna, Ohio". April 2004.
3. Shaw 2004b. "Final Safety, Health and Emergency Response Plan for the Remediation of Soils at Load Lines 1, 2, 3 and 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio". October 2004.
4. Shaw 2006a. "Final Project Coordination Plan for the Remediation of Soils at Load Lines 1, 2, 3 and 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio". October 2006.
5. Shaw 2006b. "Final Quality Assurance Management Plan for the Remediation of Soils at Load Lines 1, 2, 3 and 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio". November 2006.
6. Shaw 2006c. "Data and Document Management Plan for the Remediation of Soils at Load Lines 1, 2, 3 and 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio". November 2006.
7. Shaw 2006d. "Final Safety, Health and Emergency Response Plan Addendum No. 2006-01 for the Remediation of Soils at Load Lines 1, 2, 3 and 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio". November 2006.

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Final Safety, Health, and Emergency Response Plan Addendum

Structural Analyses and MEC Support for Load Lines 1-4

Addendum Number: 2006-01

Date Effective: Upon Project Mobilization

Addendum Summary

This safety addendum is applicable to the following activities:

- Perform Structural Evaluations (Load Lines 2-4)
- Complete Structural Support Measures (Load Lines 2-4)
- Relocate demolition debris (Load Lines 2-4)
- Address MEC Safety Concerns (Load Line 1)

The specific requirements of this addendum and the general requirements of the SHERP are mandatory for all personnel performing the aforementioned activities.

Prepared/
Approved by: _____ Date: November 2, 2006

James R. Joice, CIH, CSP, CHMM
Shaw Environmental, Inc. Project CIH

Approved by: _____ Date: November 2, 2006

David Cobb
Shaw Environmental, Inc. Project Manager, PBC Services

Approved by: _____ Date: November 2, 2006

David Crispo
Shaw Environmental, Inc. Technical/Regulatory Lead

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Attachment 2 Written Lead Compliance Plan

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Acronyms and Abbreviations

$\mu g/m^3$	micrograms per cubic meter
mg/m^3	milligrams per cubic meter
AHA	activity hazard analysis
CIH	Certified Industrial Hygienist
DDESB	Department of Defense Explosive Safety Board
JSA	job safety analysis
MC	munitions constituents
MEC	munitions and explosives of concern
MSDS	Material Safety Data Sheet
OE	Ordnance and Explosives
OhioEPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PCP	Project Coordination Plan
PEL	permissible exposure limit
PPE	personal protective equipment
RDX	Royal Dutch Explosive - Cyclonite
RVAAP	Ravenna Army Ammunition Plant
Shaw	Shaw Environmental, Inc.
SHERP	Safety, Health, and Emergency Response Plan
TNT	2,4,6-Trinitrotoluene
USACE	U.S. Army Corps of Engineers
UXO	Unexploded Ordnance

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1.0 Safety, Health, and Emergency Response Plan Addendum

All work activities will be performed using safe work practices as detailed in the Ravenna Army Ammunition Plant (RVAAP) Safety, Health, and Emergency Response Plan (SHERP) (Shaw 2004) and in accordance with the U.S. Army Corps of Engineers *Safety and Health Requirements Manual, EM 385-1-1* (2003). The SHERP addendum presents the requirements applicable to general site and specific field activities. Additionally, the following activity hazard analyses (AHA) have been generated and are, or may be applicable, for completing structural analyses of dilapidated buildings near areas to be excavated by Shaw under the Fixed-Price Remediation with Insurance (FPRI) contract, providing structural support to dilapidated buildings (as necessary), munitions and explosives of concern (MEC) support activities, and debris relocation:

- AHA 1.0, Vehicle Operations
- AHA 2.0, Structural Analyses of Buildings
- AHA 3.0, Providing Structural Support to Buildings
- AHA 4.0, Relocate Debris
- AHA 5.0, Transportation of Debris
- AHA 6.0, Fueling Operations
- AHA 7.0, Equipment Decontamination
- AHA 8.0, Munitions and Explosives of Concern Support

The AHAs are provided in this addendum as Attachment 1.

1.1 Chemical Hazards

Previous field investigations performed at RVAAP indicate the presence of organic chemicals, metals, and munitions constituents (MC) (explosives and propellants) in soil samples. The majority of the chemical contaminants present are generally found in low concentrations; however, some are found in relatively high concentrations. The primary potential source of exposure to site contaminants under this contract would be from personnel contact with soils and dusts.

Results of these investigations indicated the maximum concentrations in soils of the following notable contaminants of potential concern:

- 2,4,6-Trinitrotoluene (TNT) (390,000 milligrams per kilogram (mg/kg*))
- Nitrocellulose (390 mg/kg)
- Royal Dutch Explosives (RDX; Cyclonite) (2,300 mg/kg)
- Arsenic (110 mg/kg)

- Chromium (4,000 mg/kg)
- Chromium, hexavalent (82 mg/kg)
- Lead (25,000 mg/kg)
- Manganese (8,810 mg/kg)
- PCB-1254 (1,100 mg/kg)
- Zinc (7,300 mg/kg)
- Aluminum (97,000 mg/kg)
- Mercury (9.7 mg/kg).

* This high concentration appears to be an anomaly. It is suspected that a small chunk of TNT was captured in the sample. An additional three samples were obtained in the immediate area with an average concentration of 1.48 mg/kg.

Dust exposure calculations were performed on these detected contaminants for each of the load lines. The calculation indicates that dust exposures to personnel should be maintained to below the following concentrations:

- Load Line 1 – 1.201 mg/m^3
- Load Line 2 – 0.626 mg/m^3
- Load Line 3 – 4.013 mg/m^3
- Load Line 4 – 2.702 mg/m^3.

Table 4-1, Maximum Detected Concentrations of Contaminants of Concern (Shaw 2004) provides an expanded listing of the chemicals and their concentrations detected through previous investigations. Chapter 4.1, Chemical Hazards (Shaw 2004) provides employee exposure information on these specific chemicals. The Written Lead Compliance Plan is provided in this addendum as Attachment 2

Numerous operational chemicals will be used to complete the scope of work covered under this Addendum. These operational chemicals include, but are not limited to fuels, lubricants, and detergents/cleaning solutions. Personnel shall review the Material Safety Data Sheets (MSDS) for these chemicals on a frequent basis and follow the recommended precautionary guidelines.

1.2 Munitions and Explosives of Concern

Subsequent observations to previous investigations have confirmed the presence of MEC, specifically MC, in the form of “propellant nodules”, in the Load Line 1 Area.

Known Locations of Propellants at Load Line 1

Building	Propellant Location
CB-14	• Along east side of building on the surface • Proximate to slag pile on the surface
CB-13B	• Asphalt parking area along east side of the building

Due to the presence of MC, a Shaw MEC Specialist shall be present during remediation activities at the two areas adjacent to buildings CB-14 and CB-13, respectively, identified at Load Line 1 to perform a pre-excavation survey and provide MEC Support but will be available should any hazards outside the areas of known propellants be encountered. Shaw field crews will be made aware of the potential MEC hazards and instructed to practice preliminary identification and avoidance of potential MEC hazards. The MEC Specialist will perform an initial walkover of these areas previously found to contain propellant nodules on the ground surface. The areas will be inspected for the presence of additional propellants so that visible propellants in the proposed areas of excavation can be identified prior to the commencement of any activities. Propellant identified on the soil surface will be flagged for further inspection and removal prior to commencing activities.

The MEC Specialist will be responsible for the removal, handling, and disposal of propellants encountered in Load Line 1. When handling MC, the MEC Specialist shall, at a minimum:

- Ground body before picking up MC.
- Place recovered MC in non-sparking containers
- Keep MC away from heat, static electricity, and other ignition sources.

Recovered propellant material will be transported by the MEC Specialist to the RVAAP open burning/open detonation (OB/OD) area for detonation by Shaw personnel. The Army and Ohio Environmental Protection Agency (Ohio EPA) shall be notified in advance of planned detonation activities in accordance with the MEC Notification Procedures included in Attachment A if the Project Coordination Plan (PCP; Shaw 2006). If the RVAAP OB/OD area is no longer available for disposal of the recovered propellant, then alternative arrangements with the Army shall be made.

Additionally, the following safety criteria, as listed in *Follow-on Reactivity Study of Primary Explosives in Soil", SFIM-AEC-ET-CR-97015* (USACE 1997) shall be followed for all debris relocation activity at Load Line 1:

- Areas where debris will be handled at Load Line 1 will be wetted with potable water prior to commencing the specific activity. Soil should contain a minimum moisture content of 10% by weight.

When working in areas where there is a potential for residual explosives in the soil, the following procedure will be followed:

- Site personnel will be briefed during the morning tailgate safety meeting that there is a potential for the discovery of MC (explosive chunks or pieces of energetic materials) in the soil. They will be instructed to watch for "propellant nodules" and rocks or soils that do not match native materials or that in any other manner do not appear to be normal for the area.
- Raw explosive materials may become more sensitive after being weathered by time and the environment. Disturbing the explosive material could cause it to ignite or explode.
- If any suspect material is discovered on Load Line 1 by operations personnel, work shall stop and the MEC Specialist shall be immediately notified.
- If any suspect material is discovered on Load Line 2-4, personnel will immediately stop work and notify the Field Supervisor.
- Personnel shall not touch or disturb suspect materials until a determination has been made by the MEC Specialist that the material does not present a hazard.
- The Field Supervisor will contact the RVAAP Facility Manager, Mr. Irv Venger at (330) 358-7312.

Explosive soils are not considered a hazard unless the explosive concentration in the soil goes above 10%. Chunks of explosives or "propellant nodules"; however, can present a significant hazard since the explosive material is concentrated. Pieces of explosives may be weathered and may be difficult to distinguish from native soils. When broken, pieces of explosives or propellants may display a different color from that of the exterior of the piece.

1.3 Unexploded Ordnance

There is no reason to expect that MEC will be discovered during the activities required to complete the scope of work covered under this Addendum; therefore, MEC is not addressed in this addendum. However, as a precaution, all field personnel shall have attended MEC Awareness Training in combination with the other required health and safety training (lead awareness) prior to conducting any fieldwork. This training will be provided onsite.

1.4 General Hazard Control Measures

There are numerous physical hazards associated with the work. Prior to beginning remedial operations, the following requirements and precautions apply:

- A site-safety orientation training session shall be held for personnel completing this scope of work at RVAAP. The pertinent information contained in the SHERP, the information contained in this addendum, and the applicable AHAs shall be the content of the training.
- MEC Awareness Training shall be held. All personnel shall attend this training.
- Lead Awareness Training shall be held. All personnel shall attend this training.
- Personnel shall not enter Load Line 1 areas until authorized by the MEC Specialist.
- Underground Utility/Overhead Hazard Awareness Training shall be held. All personnel shall attend this training.
- The Department of Defense Explosives Safety Board (DDESB) must approve the Explosives Safety Submission.
- The structural hazards (falling overhead objects or piles of demolition debris around the buildings) in Load Lines 2-4 must be controlled. This includes the completion of a structural analysis of remaining buildings by a structural engineer, the relocation of existing stockpiled demolition debris within the proposed work zones, and the installation of structural support of structures and debris that could dislodge or collapse during excavation activities. The status of structural support activities and any specific hazards related to that work will be reviewed during the site-safety orientation training session and daily safety meetings.
- Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested by a competent mechanic and certified to be in good operating condition. This initial inspection shall be documented on the USACE Safety Inspection Checklist for Construction Equipment form.
- Personnel and equipment decontamination areas shall be set up prior to commencing work.

During remedial operations, the following requirements and precautions apply:

- Job Safety Analyses (JSAs) shall be completed each day by each distinct work crew.
- Personnel shall not enter any buildings unless authorized by the Army, the structural engineer, and the Field Supervisor.
- Potable water shall be applied to debris prior to and during handling to control dust emissions to below 0.5 mg/m^3.
- Water shall be applied to debris relocation areas in Load Line 1 to maintain soil moisture content greater than 10% by weight.
- Heavy equipment and debris handling equipment shall be inspected daily.

- Personnel shall be cautious of using equipment or parking vehicles in dry, tall grasses due to the possibility of starting a fire by contact with catalytic converters or hot exhaust gases.

1.5 Personal Protective Equipment

The following sections specify the required initial levels of personal protective equipment (PPE) during various activities within this scope of work. As air-monitoring data is obtained, the Project Certified Industrial Hygienist (CIH) will evaluate it to determine if downgrades in PPE levels are possible.

1.5.1 Level D PPE

Level D PPE shall be worn by personnel during structural surveying, structural supporting and MEC support activities. Equipment operators in closed cabs and truck drivers may utilize Level D PPE during debris relocation activities.

Level D PPE shall consist of:

- Safety glasses with side shields
- Hearing protection (when operating equipment or using power tools)
- Nitrile or vinyl sampling gloves (MEC Specialist handling MC).
- Vinyl or latex booties (ground personnel working in potentially contaminated areas, including MEC Specialist)
- Safety-toed work boots
- Hard hat
- Leather gloves (as necessary).

1.5.2 Level D - Modified PPE

Level D - Modified PPE shall be worn by ground personnel working in the Exclusion Zone(s) during debris relocation and by personnel performing equipment decontamination.

Level D – Modified PPE shall consist of:

- Hard hat
- Safety glasses with side shields
- Safety-toed work boots
- Tyvek coveralls
- Vinyl or latex boot covers

- Face Shield (pressure washing)
- Rain Gear (pressure washing)
- Hearing protection (heavy equipment operators and pressure washing)
- Nitrile or vinyl sampling gloves.

1.6 Monitoring Requirements

There are air and noise monitoring requirements during the debris relocation activities. All monitoring equipment shall be calibrated and all monitoring shall be documented as specified in the RVAAP SHERP (Shaw, 2004)..

1.6.1 Real-time Aerosol Monitoring

Real-time aerosol monitors (MIE pDR-1000 or equivalent) shall be used to monitor dust emissions during debris relocation. One monitoring station will be established at the down-wind perimeter of each exclusion zone and one monitoring station will be established within each debris location area where personnel may be exposed to dust.

1.6.2 Personal Air Sampling (Time-integrated)

To monitor employee exposures to lead, personal air sampling pumps (Gilian Gil-Air 3 or equivalent) will used to collect air samples in the breathing zone of workers during certain work activities. The results of this sampling will be compared against the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) for lead of 50 $\mu g/m^3$; and used to validate the selection of PPE. Personal air sampling for lead shall be performed on personnel working in the Exclusion Zones during debris relocation activities. The personnel selected for this air sampling shall represent employees with the highest potential for exposure. At least three full-shift samples for lead (on each of the different types of operations in each of the distinct debris piles) will be obtained early in the operations. This sampling shall continue at the discretion of the Shaw Project CIH.

1.6.3 Noise Monitoring

Noise monitoring (dosimetry) shall be performed on personnel operating and/or working in the vicinity of heavy equipment. Noise attenuation ratings of the hearing protection used shall be compared against the noise dosimetry data to verify that exposures are maintained to below OSHA standards. This monitoring shall continue at the discretion of the Shaw Project CIH.

1.6.4 Air Monitoring Action Levels

The following action levels are established for the collected air monitoring data:

Debris Piles Relocation

- Work area aerosol monitors registering instantaneous peak dust concentrations at or above 1.0 mg/m^3 require that additional dust suppression measures be instituted. Aerosol monitors shall be checked on an hourly basis during dust generating activities.
- Perimeter aerosol monitors registering workday time-weighted average dust concentrations at or above 150 $\mu g/m^3$ require that additional dust suppression measures be instituted on the following workday. The aerosol monitors shall be checked for this data at the conclusion of each workday.

2.0 References

Shaw Environmental, Inc. (Shaw) 2004. *Safety, Health, and Emergency Response Plan, Ravenna Army Ammunition Plant*, Final, Revision 0, Stoughton, Massachusetts, April.

Shaw 2006. *Final Project Coordination Plan for Structural Analyses and MEC Support for Load Lines 1, 2, 3 and 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. October 2006.

U.S. Army Corps of Engineers (USACE) 2003. *Safety and Health Requirements Manual*, EM 385-1-1, Washington, D.C. November 3, 2003.

U.S. Army Environmental Center (USAEC) 1997. *Follow-on Reactivity Study of Primary Explosives in Soil", SFIM-AEC-ET-CR-97015,* Aberdeen Proving Grounds, Maryland, May.

Attachment 1
Activity Hazard Analyses

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Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 1.0 – Vehicle Operation			Risk Assessment Code (RAC):	M
Date Prepared (mm-dd-yyyy):	08-31-2006				
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

Recommended Protective Clothing & Equipment:
Level D PPE Equipment: Vehicles

E= Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic					
Severity	Critical					
Severity	Marginal				X	
Severity	Negligible					

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Project vehicle use.	Operation of motor vehicles and trucks-General.	All company owned, leased, or rented vehicle operations shall comply with the requirements of Shaw Procedure HS800, *Motor Vehicle Operation: General Requirements*.	
		All company owned, leased, or rented commercial vehicle operations shall comply with the requirements of Shaw Procedure HS810, *Commercial Motor Vehicle Operation And Maintenance*.	
		Subcontractors operating motor vehicles shall comply with all federal, state, and local traffic regulations. Subcontractors shall only use vehicles that are in good condition and safe to operate.	18.A.01 18.A.02.a,b,c,d,e,f 18.A.03
		All personnel shall drive defensively and wear seat belts while vehicles are in motion.	18.B.01 18.B.02
		The route to the site shall be planned prior to departure.	
	Operation of motor vehicles and trucks-Accidents	In the event of an accident: Stop; call for medical assistance; notify police; complete Vehicle Accident Report and submit to your supervisor.	01.D.01

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 1.0 – Vehicle Operation				
Date Prepared (mm-dd-yyyy):	08-31-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Project vehicle use (continued).	Operation of motor vehicles and trucks-Accidents (continued)	If a Shaw employee is injured, the Health Resource forms, Return to Work, Medical Release, and Treatment of Injury/Illness must completed at the health clinic or Emergency Room.	
	Operation of motor vehicles and trucks-Backing	Back into parking spaces upon arrival, whenever possible.	
		When preparing to move or back vehicles at the project site, walk around the vehicle before backing to identify any new conditions or obstructions.	18.B.14 08.B.04
		Use a spotter when backing whenever possible, and sound horn prior to backing.	
		Determine and agree upon hand signals (between spotter and driver) before attempting to back vehicle.	08.B.06
		Check the rear-view and side mirrors prior to backing (Note: All vehicles, other than automobiles, must have small convex mirrors attached to the side mirrors.)	
		Back slowly in areas of obstructed vision.	
		Anticipate others who may be backing out into your pathway and adjust accordingly.	18.B.01
	Operation of motor vehicles and trucks - Unfamiliar with the vehicle	Familiarize yourself with the vehicle before moving.	
		Review the dashboard controls, steering radius, overhead and side clearances. Locate windshield wipers and lights.	

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 1.0 – Vehicle Operation				
Date Prepared (mm-dd-yyyy):	08-31-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Project vehicle use (continued).	Operation of motor vehicles and trucks - Unfamiliar with the vehicle (continued)	Properly adjust mirrors and seat.	
	Operation of motor vehicles and trucks-Speed	Obey all posted speed limits.	18.B.04
		Radar detectors are prohibited in all company owned, leased, or rented vehicles.	18.B.04
		Reduce travel speed during hazardous conditions (i.e. rain, fog, snow).	
	Operation of motor vehicles and trucks-Spacing/Distance	Identify if your vehicle has Anti-Lock Brakes (ABS).	
		Follow the 3-second rule. Increase the 3-second rule as necessary during hazardous travel conditions.	
		Always leave yourself an “out” during travel – this applies to stoplights as well.	18.B.03
		When stopping, make sure that you leave enough distance between you and the car in front of you (you should be able to see the rear tires of the vehicle in front, when stopped).	
		When at a red light, and it turns green, use the “delayed start” technique, by counting to three before you take your foot off the brake.	
		DO NOT TAILGATE!	
		Allow extra spacing and braking time for trucks and vehicles towing trailers. Trailers shall be equipped with brakes	

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 1.0 – Vehicle Operation				
Date Prepared (mm-dd-yyyy):	08-31-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Project vehicle use (continued).	Operation of motor vehicles and trucks-Skids	If the vehicle has begun to skid out of control, turn the steering wheel in the direction of the skid and re-adjust the wheel, as necessary.	
		Slow travel speeds during hazardous travel conditions.	18.B.04
		Use 4-wheel drive, if available, when driving vehicles off road, on steep inclines, muddy conditions, etc.	
		Do not take vehicles “off road” if they cannot be operated safely.	
	Operation of motor vehicles and trucks-Blind Spots	Become familiar with any blind spots associated with your vehicle.	
		Adjust mirrors properly.	
		Make sure you use your directional signals.	
		Always look over your shoulder to assure the lane is clear when changing lanes.	
	Operation of motor vehicles and trucks-Cellular phones	Exercise caution when approaching other driver’s blind spots.	18.B.01
		Do not use handheld cellular phones while driving	
		Pull over to the side of the road when making a call.	
	Operation of motor vehicles and trucks-Equipment Failure	Perform daily inspections of your vehicle.	18.A.02.e
		Any vehicle with mechanical problems that may endanger the safety of the driver, passengers, or the public shall not be used.	18.A.03

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 1.0 – Vehicle Operation				
Date Prepared (mm-dd-yyyy):	08-31-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Project vehicle use (continued).	Operation of motor vehicles and trucks-Spacing/Distance (continued)	Ensure safety equipment is in the vehicle. Safety equipment should include a spare tire, jack, first-aid kit, fire extinguisher, and flashlight. Flares and/or reflective triangles shall be available in larger trucks. Verify that the proper documentation is in the vehicle - documentation includes an operations manual for the vehicle, insurance card, vehicle registration, and Shaw Accident forms.	18.A.04
	Operation of motor vehicles and trucks- Influenced by drug and alcohol	NEVER DRIVE UNDER THE INFLUENCE OF DRUGS OR ALCOHOL. Disciplinary action, including termination, will be taken against anyone who is convicted of or who pleads no-contest to the charges of driving under the influence in accordance with Shaw Health and Safety Procedure HS800 Project-assigned hourly employees are not permitted to operate company owned, leased, or rented vehicles after 10:00 p.m. without written authorization from their supervisor.	01.C.02
	Operation of motor vehicles and trucks-Driver Attitude/Fatigue.	Do not operate any vehicle when abnormally tired, temporarily disabled, or under the influence of drugs or alcohol. Keep an even temper when driving. Do not let the actions of others affect your attitude. Avoid “highway-hypnosis” and “falling asleep at the wheel.” Take plenty of breaks when driving long distances. Rotate driving responsibility with your partner.	

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 1.0 – Vehicle Operation				
Date Prepared (mm-dd-yyyy):	08-31-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Project vehicle use (continued).	Operation of motor vehicles and trucks-Driver Attitude/Fatigue (continued).	No employee is authorized to operate a company vehicle (including rentals) after having been on-duty for a period of 12-hours. No employee may drive for more than 10-hours in a single on-duty period.	01.C.04.b
	Operation of motor vehicles and trucks-Vehicle Loading	DO NOT OVERLOAD the vehicle. Secure all equipment within the body of the vehicle. Do not block side view mirrors with load. Do not transport DOT manifested hazardous materials without a commercial driver's license (CDL). Dispatch all equipment and personnel with proper forms and identification.	18.B.16.c 18.B.16.b 18.A.01

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 2.0 – Structural Analysis of Buildings			Risk Assessment Code (RAC):	M
Date Prepared (mm-dd-yyyy):	08-31-2006				
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

Recommended Protective Clothing & Equipment:
Level D: hard hat, safety glasses, steel-toed boots, work gloves Equipment: Flashlight

E= Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic					
Severity	Critical				X	
Severity	Marginal					
Severity	Negligible					

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Arrival of new personnel at site.	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	All personnel shall attend the site orientation training.	01.B.03 01.E.01 28.A.03.a, b, c
Unload equipment/structural analysis.	Working alone.	The buddy system shall be maintained at all times. Emergency communications shall be readily available at all times. At least one other site worker, not participating in the structural analysis, shall be notified of intended work schedule	01.E.06 14.A.01
	Heavy lifting, strains, and sprains.	No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used.	
	Struck-by/Against.	Wear reflective warning vests when exposed to vehicular traffic. Personnel working on or near roads and only remain on road long enough to complete work. Personnel walking along roadway shall stay off roadway as far as possible and walk on the side facing traffic.	05.A.11

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 2.0 – Structural Analysis of Buildings				
Date Prepared (mm-dd-yyyy):	08-31-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Structural analysis (continued)	Munitions and Explosives of Concern (MEC) / Unexploded Ordnance (UXO).	Personnel shall attend MEC Awareness and UXO Awareness training. UXO Technician shall be present during any activity occurring in Load Line 1 areas.	01.B.07
	Slips, trips, falls.	Stairs and elevated walking surfaces shall not be used until evaluated by structural engineer. Personnel shall not jump from elevated surfaces. Personnel shall use caution when walking on rocky, slippery, or uneven terrain. Personnel shall not walk or climb on debris.	14.C.01-10 23.A.01
	Hand injuries.	Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall wear leather gloves when handling sharp materials. Personnel shall be aware of and avoid pinch point hazards.	05.A.10
	Heat, cold, and severe weather.	Follow procedures outlined in the SHERP.	06.J
	Hazardous atmospheres.	Personnel shall immediately notify the SSHO if odors are detected.	
	Fire.	Smoking shall not be permitted in regulated areas. Vehicles shall not be parked in tall dry grass.	09.A.06

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 3.0 – Providing Structural Support to Buildings			Risk Assessment Code (RAC):	M
Date Prepared (mm-dd-yyyy):	08-31-2006				
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

Recommended Protective Clothing & Equipment:
Level D: hard hat, safety glasses, steel-toed boots, work gloves Equipment: Excavator

E= Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic					
Severity	Critical				X	
Severity	Marginal					
Severity	Negligible					

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Arrival of new personnel at site.	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	All personnel shall attend the site orientation training.	01.B.03 01.E.01 28.A.03.a, b, c
Implement structural supports.	Failure to properly plan daily activities.	A Job Safety Analysis (JSA), as required by Shaw HS 045 shall be prepared by the crew prior to commencing daily activities. The JSA may be used as a component of the morning Tailgate Safety Meeting. The JSA shall be revised at any time throughout the workday when new tasks are initiated, unforeseen circumstances arise, or if working conditions change.	01.A.09
	Heavy lifting, strains, and sprains.	No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.	14.A.01
	Struck-by/Against.	Wear reflective warning vests when exposed to vehicular traffic. Personnel working on or near roads and only remain on road long enough to complete work.	05.A.11

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 3.0 – Providing Structural Support to Buildings				
Date Prepared (mm-dd-yyyy):	08-31-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Structural analysis (continued)	Munitions and Explosives of Concern (MEC) / Unexploded Ordnance (UXO).	Personnel shall attend MEC Awareness and UXO Awareness training. UXO Technician shall be present during any activity occurring in Load Line 1 areas.	01.B.07
	Slips, trips, falls.	Stairs and elevated walking surfaces shall not be used until evaluated by structural engineer. Personnel shall not jump from elevated surfaces. Personnel shall use caution when walking on rocky, slippery, or uneven terrain. Personnel shall not walk or climb on debris.	14.C.01-10 23.A.01
	Hand injuries.	Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall wear leather gloves when handling sharp materials. Personnel shall be aware of and avoid pinch point hazards.	05.A.10
	Heat, cold, and severe weather.	Follow procedures outlined in the SHERP.	06.J
	Hazardous atmospheres.	Personnel shall immediately notify the SSHO if odors are detected.	
	Fire.	Smoking shall not be permitted in regulated areas. Vehicles shall not be parked in tall dry grass.	09.A.06

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 4.0 – Relocate Debris			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-05-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

Recommended Protective Clothing & Equipment:
Level D and D – Modified; puncture-proof footwear, Class 3 Reflective vests Equipment: Decontamination station, water supply, fire extinguishers, excavator, shears, hearing protection

E= Extremely High Risk H = High Risk M = Moderate Risk L = Low Risk		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic					
Severity	Critical				X	
Severity	Marginal					
Severity	Negligible					

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Relocate Debris.	Failure to properly plan daily activities.	A Job Safety Analysis (JSA), as required by Shaw HS 045 shall be prepared by the crew prior to commencing daily activities. The JSA may be used as a component of the morning Tailgate Safety Meeting. The JSA shall be revised at any time throughout the workday when new tasks are initiated, unforeseen circumstances arise, or if working conditions change.	01.A.09
	Chemical contamination.	Set up work zones and personnel washing facilities. PPE shall be worn as required. Perform air monitoring as specified in the SHERP. Personnel shall wash hands and face before eating, drinking, smoking, or chewing.	02.C.01 06.B.02 28.E.01 28.F.02
	Dust.	Personnel shall avoid working in dust. Dust from excavation and debris handling shall be controlled by water misting.	28.F.02
	Hand injuries.	Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall wear leather gloves when handling sharp materials. Personnel shall be aware of and avoid pinch point hazards.	05.A.10

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 4.0 – Relocate Debris			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-05-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Relocate Debris (continued). UXO Technician:	Munitions and Explosives of Concern (MEC) / Unexploded Ordnance (UXO). (Load Line-1)	Personnel shall attend MEC Awareness and UXO Awareness training. UXO Technician shall be present during any activity occurring in Load Line 1 areas. Soil moisture shall be maintained above 10% in Load Line 1 areas. Eliminate ignition / impact sources.	01.B.07 25.A.01
	Structural hazards.	The structural analysis and necessary structural support shall be completed prior to relocating debris in impacted areas. Personnel shall stay out of buildings.	
	Overhead hazards/utilities.	Overhead hazards shall be evaluated prior to moving equipment on the project site. Overhead power lines shall be shut-off and locked-out. Areas with overhead hazards shall be barricaded with caution tape to prevent contact In areas where it is not feasible to use barricades, then spotters shall be provided: however, the minimum distances from electrical lines must be observed (See SHERP).	11.E.04
	Noise.	Equipment operators and ground personnel working near heavy equipment shall wear hearing protection to reduce exposures to below the OSHA limits.	05.C
	Use of heavy equipment.	Only qualified personnel shall be permitted to operate equipment. Heavy equipment shall be inspected daily after the initial USACE inspection (and documented.) Do not use unsafe equipment. All equipment shall have backing alarms. All equipment shall be operated at safe speeds and in a safe manner. Equipment operators shall wear safety belts. Personnel are only permitted to approach equipment after a signal from the operator.	16.A.04 16.A.01 16.A.02 16.A.03 16.A.04 16.A.07

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 4.0 – Relocate Debris			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-05-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Relocate Debris (continued).	Use of heavy equipment (continued).	Ground personnel, working near heavy equipment, shall wear ANSI Class 3 high visibility conspicuity vests. Ground personnel shall not enter the swing radius of the backhoes/excavators.	05.A.11
		Ground personnel shall not position themselves between equipment and stationary objects. Personnel shall verify all mechanical guards are in place and functioning properly. Moving equipment shall be equipped with a back-up alarm. All equipment shall be shut down with energies dissipated prior to performing maintenance activities - lock out/tag out procedures may apply. Only qualified mechanics shall work on or repair heavy equipment.	16.A.04 16.A.04 16.B.03 16.B.01 16.A.09 16.A.08 16.A.03
	Fire.	Engines shall be shut off before refueling. A 10-B:C fire extinguisher shall be available when refueling. Smoking shall not be permitted near fueling areas. Gasoline shall be stored in safety cans with flash arrestors and spring-loaded vents.	16.A.14 09.E.01 09.A.06 09.B.08
		Fire extinguishers shall be placed in work areas. Smoking shall only be allowed in designated areas. Hot work permitting procedures shall be followed.	09.E.01 09.A.06 09.A.03
	Heavy lifting, strains, and sprains.	No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.	14.A.01
	Heat, cold, severe weather.	Follow procedures outlined in the SHERP.	06.J

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 4.0 – Relocate Debris			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-05-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Load-out of debris (continued).	Slips, trips, and falls.	Travel paths for materials removal shall be evaluated and cleared. Work areas shall be kept organized during work activities. Housekeeping shall be maintained. Personnel shall not jump from equipment or elevated surfaces.	14.C.01 14.C.02
	Punctures.	Personnel working near debris piles shall wear puncture-proof foot protection.	05.A.08
	Struck-by.	Long pieces of debris shall be sized into manageable lengths prior to loading. Personnel shall not be permitted in the swing radius of the equipment. Personnel shall maintain a safe distance from shearing operations and be aware that cut pieces of tank may fly a considerable distance. Cutting shall only be performed in areas clear of overhead hazards. Set up cutting area away from other operations when possible. Ground personnel shall wear ANSI Class 3 reflective vests when working near heavy equipment.	23.F.01 05.A.11
	Dump truck operations.	Overhead hazards shall be re-evaluated prior to allowing dump trucks onto the project site. Areas with overhead hazards shall be barricaded with caution tape to prevent dump bed from contacting. In areas where it is not feasible to use barricades, then spotters shall be provided: however, the minimum distances from electrical lines must be observed (See SHERP). Dump trucks shall not be allowed to contact contaminated materials unless proper decontamination will be performed. Dump truck operators shall exit trucks and stay in designated area while being loaded.	16.B.11 16.B.08 16.B.02

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 4.0 – Relocate Debris			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-05-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Load-out of debris (continued).	Dump truck operations (continued).	Operators shall wear seat belts while trucks are in motion at the project site. Spotters shall assist trucks when backing is necessary.	

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 5.0 – Transportation of Debris			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

Recommended Protective Clothing & Equipment:
Level D PPE (see SHERP Addendum 2006-01) Equipment: Dust control equipment, ANSI Class 3 high visibility apparel.

E= Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic					
Severity	Critical					
Severity	Marginal			X		
Severity	Negligible					

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Transportation of debris.	Unfamiliarity with site hazards.	Truck drivers shall be provided with site-safety orientation training.	01.B.02
	Munitions and Explosives of Concern (MEC). (Load Line-1)	Truck drivers shall attend MEC Awareness training.	01.B.02
	Exposure to lead or spreading lead contamination.	Personnel shall attend Lead Awareness training. Physical contact by truck drivers with debris is prohibited. Wash hands immediately before eating, drinking, smoking, or driving vehicles.	06.B.05
	Unqualified operators.	All truck drivers shall possess a valid Commercial Driver's License (CDL).	18.A.01
	Unsafe trucks.	Prior to any truck getting mobilized to the project site and before being placed in use, the truck shall be inspected and tested in accordance with the manufacturer's recommendations and shall be certified in writing by a competent person to meet the manufacturer's recommendations and requirements of USACE EM 385-1-1. Subsequent re-inspections will be conducted at least annually thereafter.	18.A.02

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 5.0 – Transportation of Debris			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Transportation of debris (continued).	Unsafe trucks (continued).	All safety deficiencies noted during the inspection shall be corrected prior to the equipment being placed in service at the project. If at anytime the machinery or mechanized equipment is removed and subsequently returned to the project (other than equipment removed for routine off-site operations as part of the project), it shall be re-inspected and re-certified prior to use.	18.A.02
	Site hazards.	Dump truck operators shall not remain in the truck cab while loading and shall wait in the designated area.	18.B.17
	Overhead hazards.	Overhead hazards shall be re-evaluated prior to allowing dump trucks onto the project site. Areas with overhead hazards shall be barricaded with caution tape to prevent dump bed from contacting. In areas where it is not feasible to use barricades, then spotters shall be provided: however, the minimum distances from electrical lines must be observed (See SHERP). Spotters shall wear ANSI Class 3 high visibility apparel.	11.E.01 05.A.11
	Truck speed.	Truck drivers shall comply with all posted speed limits (both on-site and off-site).	18.B.05
		Operators shall wear seat belts while trucks are in motion at the project site.	16.B.08 18.B.03
	Backing trucks.	Spotters shall assist trucks when backing is necessary. Spotters shall wear ANSI Class 3 high visibility apparel.	18.B.15 05.A.11
	Haul roads.	All roads shall be maintained in a safe condition and eliminate or control dust, ice, and similar hazards.	08.D.01

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 5.0 – Transportation of Debris			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Transportation of debris (continued).	Use of cellular telephones.	Use of cellular telephones is prohibited while vehicles are in motion.	18.B.01
	Contaminated soils.	Dump trucks shall not be allowed to contact contaminated soil unless proper decontamination is performed.	28.A.02
	Unsecured loads.	All loads shall be covered prior to transporting.	18.B.17

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 6.0 – Fueling Operations			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

Recommended Protective Clothing & Equipment:
Level D – Safety glasses and disposable nitrile gloves Equipment: Fire extinguisher (2-A:10-B), saddle tanks, bonding cable, eye wash bottle, five-gallon safety cans (equipped with self-venting cap and flash arrestor)

E= Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic					
Severity	Critical					
Severity	Marginal				X	
Severity	Negligible					

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Fueling operations.	Exposures to fuels.	Personnel shall periodically review the MSDSs for the fuels that are being used at the project. The handling and use of fuels shall be performed in well-ventilated areas – preferably outside of buildings. Personnel shall avoid skin and eye contact with fuels. Safety glasses and disposable nitrile gloves shall be worn while handling fuels. A small eyewash bottle shall be readily available when fueling equipment. If personnel get fuel in their eyes, then the eyes shall be irrigated with the entire contents of the eye wash bottle and then the employee shall seek medical assistance. If personnel sustain skin contact with fuels, then the affected area shall be immediately washed with soap and water. If fuel contact with clothing is made, then clothing shall be removed and changed immediately.	06.B.01 09.B.07 05.B.01 05.A.10 09.B.05

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 6.0 – Fueling Operations			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Fueling operations (continued).	Fire: extinguisher requirements.	A 2-A: 40-B fire extinguisher shall be readily available when fueling equipment at any location on site. Trucks with flammable/combustible fuels must be equipped with a 20-B:C fire extinguisher. Personnel who intend to extinguish small fires shall be trained in the use of fire extinguishers. Equipment and property are of secondary concern in a fire situation - personnel shall never try to extinguish a fire if there is any doubt that it can be extinguished safely.	09.E.03 09.B.03 09.B.21
	Fire: elimination of ignition sources – hot surfaces.	All vehicles and equipment shall be shut down prior to fueling. Small equipment, such as generators, mowers, pressure washers, etc. shall be allowed to cool prior to re-fueling. Heavy equipment with the fuel cap near the engine or near other hot surfaces shall also be allowed to cool prior to re-fueling.	09.B.02
	Fire: elimination of ignition sources – arcs/sparks/open flames.	Smoking shall not be allowed within 50 feet of fueling operations. Personnel shall visually survey the immediate area for open flames and other ignition sources prior to commencing fueling operations. Personnel are prohibited from using cell-phones or two-way radios during all fueling operations.	
	Fire: elimination of ignition sources – static electricity.	Personnel shall never fill portable fuel cans that are in the bed of a pickup truck or in the trunk of an automobile. Filling fuel containers on plastic pickup truck bed-liners can cause static electric discharges, which may ignite the fuel. The fuel can(s) shall be removed from the truck bed or automobile trunk and placed on the ground before adding fuel.	

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 6.0 – Fueling Operations			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Fueling operations (continued).	Fire: elimination of ignition sources – static electricity (continued).	Electrical continuity shall be maintained between the portable fuel can and the tank being filled. A bonding cable shall be used to maintain continuity between the metal fuel container and the equipment fuel tank. Allowing free-fall of fuel into the tank is prohibited. Personnel shall not re-enter vehicles while fueling is underway due to the static electric charge generated between clothing and vehicle seats. If you absolutely HAVE to get in your vehicle while the gas is pumping, make sure you get out, close the door TOUCHING THE METAL, before you pull the nozzle out. This way the static from your body will be discharged before you remove the nozzle.	09.B.20
	Storage and transportation: five-gallon cans in pick-up trucks.	Gasoline shall be stored and transported in properly marked/labeled five-gallon safety cans (equipped with self-venting cap and flash arrestor). Gasoline cans shall be secured to prevent movement during transportation. No more than six - five gallon containers of gasoline may be transported in vehicles (back of pick-up trucks or trailers) at the same time unless all the DOT Hazardous Material Regulations are complied with, such as proper packaging, completing shipping papers, placarding (as required), and the appropriate HM 126 Training (as well as having been provided emergency response information and training.) The total quantity of hazardous materials may never exceed 440 pounds total. Hazardous materials must be secured prior to transporting.	09.B.10 09.B.11

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 6.0 – Fueling Operations			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Fueling operations (continued).	Communication of hazards.	Drivers must be notified that they are transporting hazardous materials. Drivers shall review MSDS for the fuels transported in their vehicle.	01.B.06
	Storage of fuels on-site.	Portable safety gasoline cans must be stored within a flammable materials storage area, have appropriate warning signs, be posted as “No Smoking’, and have a fire extinguisher available in the area.	09.B.02
	Spills.	All spills shall be immediately cleaned-up. Spill control equipment shall be readily available. All spills shall be reported to the SSHO.	09.B.18
	Storage and transportation: safety containers and saddle tanks in pick-up trucks.	Gasoline shall not be transported in portable saddle tanks – only diesel fuel shall be transported in saddle tanks. All portable saddle tanks mounted in pick-up trucks shall be manufactured to meet DOT specifications. Portable saddle tanks shall be securely mounted to the pick-up truck, as recommended by the manufacturer. Saddle tanks shall be properly marked (see 49 CFR 172.101) with the proper shipping name and labeled for “No Smoking.” No more than 110 gallons of diesel fuel may be transported in a saddle tank unless all the DOT Hazardous Material Regulations are complied with, such as proper packaging, completing shipping papers, placarding, and the appropriate HM 126 Training (as well as having been provided emergency response information and training.) Caps on saddle tanks shall be securely closed. Saddle tanks shall be inspected weekly to check for leaks.	09.B.08

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 6.0 – Fueling Operations			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
Fueling operations (continued).	Bulk storage of diesel fuel on-site.	Bulk storage tanks shall not be permitted on-site without express permission from the Shaw Project CIH.	

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA7.0 – Equipment Decontamination			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	122788		
Prepared By:	James Joice, CIH	Reviewed By:			

Recommended Protective Clothing & Equipment:
Level D - Modified: hard hats, Tyvek coveralls, protective gloves, vinyl rain-gear, steel-toed boots, protective over-boots Equipment: temporary lighting, GFCIs, extension cords, pressure washer, fire extinguishers, carbon monoxide monitor, chemical splash goggles, emergency eyewash station, spill control equipment

E= Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic					
Severity	Critical					
Severity	Marginal				X	
Severity	Negligible					

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Clean Equipment.	Failure to properly plan daily activities.	A Job Safety Analysis (JSA), as required by Shaw HS 045 shall be prepared by the crew prior to commencing daily activities. The JSA may be used as a component of the morning Tailgate Safety Meeting. The JSA shall be revised at any time throughout the workday when new tasks are initiated, unforeseen circumstances arise, or if working conditions change.	01.A.09
	Exposure to contaminants.	Maintain work zones and decontamination areas. Level D - Modified PPE shall be worn as required in the HASP. Personnel shall perform proper decontamination procedures each time when exiting the Exclusion Zone.	28.I.02 05.A.01
	Poor lighting.	Additional lighting shall be put in place as necessary. Temporary lighting shall be protected with GFCIs.	07.A.01 11.C.05
	Slips, trips, falls.	Work areas shall be kept organized during work activities. Housekeeping shall be maintained. Personnel shall use caution when walking/working on wet surfaces.	14.C.01 14.C.02

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 13.0 – Equipment Decontamination			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	100804 / 122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Clean Equipment (continued).	Electrical.	GFCIs shall be used on all power tools and extension cords. Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas.	11.C.05 11.A.03.b 11.A.03.d
	Heavy lifting.	No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.	14.A.01
	Noise.	Personnel shall wear hearing protection when operating pressure washer.	05.C
	Fire.	Fire extinguishers shall be placed in work areas. Smoking shall only be allowed outside of the facility in designated areas.	09.E.01 09.A.06
	Heat Stress.	Personnel shall drink plenty of cool water. Personnel shall pace themselves while performing strenuous work and take adequate breaks in a cool area.	06.J.03 02.A.04 02.A.06
	Use of pressure or steam washer.	The pressure/steam washer shall be inspected before each use. The manufacturer's instruction manual shall be used to guide the inspection process. Personnel shall be trained in the use of the washing equipment. All personnel working in the equipment decontamination area shall be trained in the emergency shut-off procedures for the equipment being used.	16.A.01

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 13.0 – Equipment Decontamination			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-06-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1-4	Job:	100804 / 122788		
Prepared By:	James Joice, CIH	Reviewed By:			

JOB STEPS	HAZARDS	ACTIONS TO ELIMINATE HAZARDS	EM 385-1-1 (PARA REF)
Clean Equipment (continued).	Use of pressure or steam washer (continued).	The minimum amount of steam/pressure that will complete the job should be used. Pressure washers exceeding 3000 psi shall not be used without the approval of the CIH. The spray from such equipment shall only be directed at surfaces to be cleaned and never at body parts or other personnel. Personnel in the immediate area shall use face shields and metatarsal/shin guards. Personnel shall keep firm grip on wand and not point it at anything that is not being washed. Pressure washer operators must maintain good footing. The trigger on the wand shall never be wired/fixed open. Operators are to take adequate breaks to avoid fatigue.	16.A.01
		Hot surfaces shall be avoided. Units shall be shut off and allowed to cool prior to re-fueling (if gas-powered).	09.B.21.b
		Carbon monoxide shall be monitored if gas-powered pressure washers are used. Carbon monoxide concentrations shall not be allowed to exceed 25 ppm within any indoor areas.	13.A.12
	Spills of decontamination water.	All waste handling activity shall be performed on visqueen (polyethylene sheeting) lined work surfaces. Waste liquids shall be stored with secondary containment. Lids and bungs shall be secured when drums are in storage or are being moved. Spill cleanup equipment shall be readily available when handling wastes. Drums containing waste shall be inspected on a daily basis. Spills shall be immediately reported to the SSHO.	28.H.03 28.H.04

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 8.0 – Munitions and Explosives of Concern Support			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-05-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1	Job:	122788		
Prepared By:	T. Mathison / J. Joice	Reviewed By:			

Recommended Protective Clothing & Equipment:
Level D PPE (nitrile surgical gloves, vinyl boot covers) Equipment: Decontamination station, water supply, fire extinguishers, first aid kit

E= Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

		Probability				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity	Catastrophic					
Severity	Critical				X	
Severity	Marginal					
Severity	Negligible					

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
MEC Support.	Failure to properly plan daily activities.	A Job Safety Analysis (JSA), as required by Shaw HS 045 shall be prepared by the crew prior to commencing daily activities. The JSA may be used as a component of the morning Tailgate Safety Meeting. The JSA shall be revised at any time throughout the workday when new tasks are initiated, unforeseen circumstances arise, or if working conditions change.	01.A.09
	Chemical contamination.	Set up work zones and personnel washing facilities. PPE shall be worn as required. Personnel shall wash hands and face before eating, drinking, smoking, or chewing.	02.C.01 06.B.02
	Munitions and Explosives of Concern (MEC) / Unexploded Ordnance (UXO). (Load Line-1)	Personnel shall attend MEC/UXO Awareness training. UXO Technician shall be present during any activity occurring in Load Line 1 areas. Soil moisture shall be maintained above 10% in Load Line 1 areas. Eliminate ignition / impact sources.	01.B.07 25.A.01
	Structural hazards.	The structural analysis and necessary structural support shall be completed prior to relocating debris in impacted areas. Personnel shall stay out of buildings.	

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 8.0 – Munitions and Explosives of Concern Support			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-05-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1	Job:	122788		
Prepared By:	T. Mathison / J. Joice	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
MEC Support (continued). UXO Technician:	Noise.	Equipment operators and ground personnel working near heavy equipment shall wear hearing protection to reduce exposures to below the OSHA limits.	05.C
	Heat, cold, severe weather.	Follow procedures outlined in the SHERP.	06.J
	Slips, trips, and falls.	Travel paths for shall be evaluated and cleared. Watch for and avoid trip hazards. Work areas shall be kept organized during work activities. Housekeeping shall be maintained. Personnel shall not jump from equipment or elevated surfaces.	14.C.01 14.C.02
	Punctures.	Personnel working near debris piles shall wear puncture-proof foot protection.	05.A.08
	Accidental detonation of explosives.	Observe U.S. Army Engineering and Support Center, Huntsville, Safety Concepts and Basic Considerations for UXO Operations. UXO-trained personnel will escort non-UXO personnel at all times on site. Only UXO-qualified personnel will perform MEC operations. Explosives will be transported in accordance with 49 Code of Federal Regulations (CFR) Parts 100-199. Explosives will be transported in closed vehicles whenever possible. When using an open vehicle, explosives will be covered with a flame resistant tarpaulin. Motor vehicles will be shut off when loading/unloading explosives. Beds of vehicles will have a nonconductive bed liner, dunnage, or sand bags to protect the explosives from contact with the metal bed and fittings. Initiating explosives, such as blasting caps, will remain separated at all times.	

Activity Hazard Analysis (AHA)

Definable Feature of Work	AHA 8.0 – Munitions and Explosives of Concern Support			Competent Person:	
Date Prepared (mm-dd-yyyy):	09-05-2006			Risk Assessment Code (RAC):	M
Project:	RVAAP Load Lines 1	Job:	122788		
Prepared By:	T. Mathison / J. Joice	Reviewed By:			

PRINCIPLE STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS	EM 385-1-1 (PARA REF)
MEC Support (continued).	Accidental detonation of explosives (continued).	Each vehicle used for the transport of explosives will be outfitted with a fire extinguisher and first aid kit. Do not fuel trucks when loaded with explosives. Chock wheels when unloading or loading MC materials. Vehicles transporting explosives off road will not exceed 15 MPH. Observe procedures in EOD/TM/TO 60A 1-1-31, Explosive Ordnance Disposal Operations. Use only UXO personnel qualified IAW TP 18, Minimum Qualifications for UXO Technicians and Personnel. Do not subject MEC to heat, shock, or friction. Establish exclusion zone (EZ); post warning signs, maintain site control. Stop all MEC operations when non-UXO trained personnel are within the EZ.	

Attachment 2
Written Lead Compliance Plan

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Written Lead Compliance Plan
Ravenna Army Ammunition Plant
September 7, 2006
Prepared by: James Joice, CIH

Introduction

The United States Army Corps. of Engineers (USACE) has contracted Shaw Environmental, Inc. (Shaw) to relocate demolition debris at the Ravenna Army Ammunition Plant (RVAAP) located in Ravenna, Ohio. The debris is not known to contain lead; however, it is being handled as potentially contaminated. The relocation of the debris is expected to take two weeks to complete.

Shaw does not expect that employees will be exposed above the Permissible Exposure Limit (PEL) of 50 $\mu g/m^3$ to metallic lead, especially if dust levels are controlled. This Written Lead Compliance Plan, used in conjunction with the Site Safety, Health, and Emergency Response Plan (SHERP) (Shaw 2004), will outline the procedures and controls necessary to prevent potential employee exposures.

Lead-emitting Activities

The following activities may emit lead into the air:

- Relocation of demolition debris at Load Lines 2, 3 and 4.

Equipment Used

The following lists the equipment that will be used to remediate lead-contaminated soil and debris from RVAAP:

- Front end loader
- Dump-trucks
- Dust control equipment
- Air monitoring equipment
- Decontamination and personal hygiene facilities.

Material Involved

The following materials are anticipated to be moved and relocated:

- Demolition debris.

The following materials will be used during the debris relocation process:

- Water for dust control – water will be applied as necessary to maintain average dust levels below 0.15 mg/m^3 at the perimeter of the work area.

Controls in Place

The following controls are in place to reduce potential personnel exposures to lead:

- Work practices to minimize dust generating activity
  - Pushing and loading rates will be paced to minimize dust generation
  - dump trucks will be covered.

- Wetting of debris and adjacent soils with water to suppress dust – water will be applied as necessary to maintain average dust levels below 0.15 mg/m^3.

- Personnel shall work upwind of dust generating activities.

- Use of Personal Protective Equipment (PPE) such as disposable coveralls, gloves, and boot-covers. Additional PPE requirements are specified in Section 1.5 of the SHERP Addendum 2006-01.

- Use of personnel and equipment decontamination facilities with hand/face washing capabilities and supplies
  - disposable PPE shall be discarded each time upon exiting the Exclusion Zone
  - non-disposable PPE (hard-hats) shall be cleaned each time upon exiting the Exclusion Zone
  - equipment used in the Exclusion Zone shall be decontaminated promptly upon being removed from the Exclusion Zone.

- Use of D-lead hand wipes – personnel working in the Exclusion Zone will wipe hands immediately after doffing PPE (during the personal decontamination process).

- Use of D-lead hand soap – personnel working in the Exclusion Zone will wash hands with this special soap immediately after using D-lead hand wipes (during the personal decontamination process).

- Air monitoring
  - personal air sampling shall be performed on personnel working in the Exclusion Zone during handling and loading of demolition debris into dump trucks (Personal air monitoring requirements are specified in Section 1.6 of the SHERP Addendum 2006-01).
  - perimeter air monitoring shall be performed at the downwind perimeter of the Exclusion Zones) during handling and loading of demolition debris into dump

trucks (Perimeter air monitoring requirements are specified in Section 1.6 of the SHERP Addendum 2006-01).

- Medical surveillance
  - all personnel working in the Exclusion Zone shall be currently participating in a medical surveillance program as specified in 29 CFR 1910.120.

- Training
  - all personnel working in the Exclusion Zone shall be HAZWOPER trained as specified in 29 CFR 1910.120
  - all personnel working in the Exclusion Zone shall have received Lead Awareness Training.

Crew Size and Responsibilities

The crew will consist of a Field Supervisor, a Site Safety and Health Officer (SSHO), and two to four equipment operators/laborers.

The Field Supervisor is responsible for:

- Implementing this Written Compliance Plan and the SHERP
- Verifying by inspection/documentation that work is performed in compliance with Federal/State regulations
- Verifying that employees are trained and participating in a medical surveillance program by inspection of medical surveillance and training documentation
- Verifying by inspection and documentation that all equipment is in satisfactory working order and is properly maintained
- Facilitating Morning Safety Meetings
- Verifying that Job Safety Analyses are being completed daily
- Monitoring employees for safety, health, and operational performance
- Other responsibilities are outlined in the SHERP (Shaw 2004).

The SSHO is responsible for:

- Maintaining all project related safety records
- Performing the necessary air monitoring

- Assisting the Field Supervisor with safety responsibilities as necessary

- Other responsibilities are outlined in the SHERP (Shaw 2004).

Laborers are responsible for:

- Attending Morning Safety Meetings

- Performing all work in compliance with rules and procedures

- Washing hands and face at the conclusion of work and before eating, drinking, and smoking.

Operating Procedures and Maintenance Practices

The following operating procedures are in effect:

- Only trained employees will be allowed to work in Exclusion Zones – training consists of HAZWOPER (29 CFR 1910.120), Hazard Communication (29 CFR 1910.1200), and Lead Awareness (29 CFR 1926.62)

- Only employees participating in a medical surveillance program, complying with 29 CFR 1910.120 will be allowed to work in Exclusion Zones

- Decontamination and personal hygiene facilities shall be set-up prior to working in debris relocation areas

- All equipment and tools shall be inspected prior to commencing work

- Personal air sampling and perimeter air monitoring shall be performed during the handling of demolition debris

- Smoking, chewing, drinking, or eating is prohibited in the Exclusion Zone

- All work will be performed in a manner to minimize dust generation. Dry sweeping shall be avoided

- Personnel shall utilize PPE, as specified in the SHERP Addendum 2006-01

- Personnel shall wash hands and face before each break

- Disposable PPE shall be used

The following maintenance practices are in effect:

- Personnel shall inspect PPE before each use.

Technology Considered in Meeting the PEL

The following technology was considered for meeting PEL requirements, and will be used for this project:

- Dust control with water.

Air Monitoring Data

Air monitoring data is not available. Air monitoring will be performed during the handling of demolition debris

Implementation Schedule

This Written Lead Compliance Plan is to be implemented before commencing project activities involving debris relocation.

Other Contractors

Subcontractors may be used to complete the project. These subcontractors could perform the following activities:

- Trucking
- Analytical laboratory.

On-site contractors, other than the analytical laboratory, shall comply with all requirements of the SHERP (Shaw 2004) and Written Lead Compliance Plan. The SSHO shall notify the contractors of these requirements and verify compliance.

COMMENT RESPONSE TABLE
Draft Project Plans, Structural Analyses and MEC Support for Load Lines 1- 4 at the Ravenna Army Ammunition Plant, Ravenna, Ohio
Reviewer: Eileen T. Mohr, Ohio EPA, NEDO, DERR
Date: September 12, 2006

Cmt. #	Page # Line #	Comment	Recommendation	Response
1	General - QAMP and SHERP	Thanks for numbering the lines - it really helps.	No changes needed.	No response required.
2	General - QAMP and SHERP	There should be additional verbiage in the beginning of the document that clarifies what these plans represent and how they will be used.	Provide this additional clarification. Clearly indicate that these are documents required under the contract and that they do not represent the RD plans.	Each document will add a statement in the introduction that states "This plan will reference and adhere to existing facility wide and FPRI project specific work plans, but it is not an element of the remedial action work plans that are forthcoming under the FPRI."
3	General - QAMP and SHERP	Comments on safety issues - both with respect to MEC and structural analyses are solely provided for your consideration.	The document was not reviewed by a PE, nor does Ohio EPA approve HASP submissions. We will review and comment.	No response required.
4	iii	The acronym MEC appears.	Revise to read: Munitions and Explosives of Concern.	This revision will be incorporated as requested.
5	1-1/12 Also applicable to SHERP 5/12.	Clarification requested.	Please clarify what is meant by a "suspect" building.	"suspect" will be removed from the text in both documents.
6	1-1/12-13	The text references the relocation and	Please provide additional details as	It is Shaw's intention to move

Cmt. #	Page # Line #	Comment	Recommendation	Response
		handling of existing stockpiled demolition debris. Also applicable to: 3-1/table 3-1; cover sheet for SHERP; SHERP 1/9; SHERP 1/13-14; SHERP 3/30-31; SHERP 3/32; SHERP 5/13; SHERP 5/30; SHERP 6/9; SHERP 6/21; SHERP 7/4; SHERP 7/9; SHERP 7/18; SHERP 7/30; AHA 4.0; AHA 5.0.	to the location, how long the materials have been there, what the materials consist of, how it has been determined to be demo debris, who will remove this material and dispose of it off-site and when, etc. Also, please clarify - it sounds like the material may be moved from one portion of the AOC to another and dumped - why not just get it off-site? Please also coordinate all activities with OHARNG.	stockpiled debris form one location to another within the load line. The material will be relocated to the nearest possible point to the currently existing stockpiles as to not interfere with Shaw's removal activities. Off-site disposal of this debris would be at the direction of the Army. Although Shaw can not speak for the Army, it is assumed any off-site disposal would be coordinated with OHARNG by the Army. For clarification, the following text will be added to the QAMP Addendum document: "Shaw's scope of work under this task order is to relocate demolition debris stockpiles that prevent access to the excavation areas outlined under the FPRI. Under this task order, Shaw will not be

Cmt. #	Page # Line #	Comment	Recommendation	Response
				responsible for off-site disposal of any existing debris stockpiles. Shaw's activities will be coordinated through OHARNG as needed. Based on information provided by the Army, the stockpiled debris was generated during previous demolition related activities conducted between June and October 2003 and consists mainly of scrap metals and wood stripped from the buildings in advance of the demolition activities. This work was performed by others prior to Shaw's involvement at the site."
7	8-1/23-25 Also applicable to 9-1/table 9-1; 11-1/1-7.	The text discusses change orders.	Please ensure that all technical change orders are approved by USACE, Ohio EPA, and RVAAP prior to implementation.	The text will be revised to read: "The Project Manager will notify the USACE and Ohio EPA of the issue and the planned course of action for

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				concurrence. Changes to previously approved field activities must be approved by Ohio EPA, USACE, and RVAAP prior to implementation from an execution standpoint. Shaw will also require contractual approval from USACE prior to the implementation of any changes in field activities unless it may result in imminent danger to human health and the environment."
8	9-2/3-6	Text addition requested.	Also make sure that these activities are captured in the monthly report submitted to Ohio EPA under the Order.	This section will be revised to state: "Quarterly and monthly status reports will contain….."
9	SHERP 3/10	Clarification requested.	Should MC be MEC?	MC is defined in the SHERP (pg 1, line 21) as "munitions constituents" that refers to the propellant nodules.
10	SHERP 3/11	Clarification requested.	Will Shaw MEC personnel be on site during all excavation activities at Load Line 1, or just in the areas of known propellants?	Shaw MEC personnel will be onsite at LL1 at areas of known propellants only (CB-13B and CB-14), but will be

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				available should any hazards outside of the areas of the known propellants be encountered. Shaw field crews will be made aware of the potential MEC hazards and instructed to practice preliminary identification and avoidance of potential MEC hazards. This will be clarified in the document as requested.
11	SHERP 3/24-27	Cross-reference needed.	Cross reference the MEC notification procedure developed by Ohio EPA (04/08/2005). Append this to the revised plan.	The Ohio EPA MEC notification procedure is included as an appendix to the Project Coordination Plan for MEC removal. This document and its location within the PCP will be referenced in the SHERP.
12	SHERP 3/32	Text revision requested.	Revise to read: "... wetted with potable water..."	The text will be revised as requested.
13	SHERP 5/28	Text revision requested. Also applicable to SHERP 5/30.	Revise text to read: "Potable water shall be applied..."	The text will be revised as requested.
14	AHA	Clarification requested.	Why are debris load out activities	This is a typo and will be removed from this AHA. The

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	8.0/pgs 4-5		listed under this AHA (with no associated hazards/controls?)	AHAs for relocation and transport of debris are described in detail in AHAs 5 and 6.