



*Remediation Venture Office*  
 Rocky Mountain Arsenal  
 Commerce City, CO 80022-1748  
 (303)289-0500

# REMEDIATION VENTURE OFFICE

**ROCKY MOUNTAIN ARSENAL**  
 Building 111, Commerce City, Colorado 80022-1748

## HEALTH AND SAFETY PROGRAM

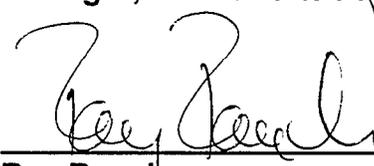
NOVEMBER 1997

### APPROVALS:

SHELL OIL COMPANY

  
 \_\_\_\_\_ 11/13/97  
 William J. McKinney Date  
 Manager, Denver Site Project

U.S. FISH AND WILDLIFE SERVICE

  
 \_\_\_\_\_ 11/19/97  
 Ray Rauch Date  
 Project Leader

U.S. DEPARTMENT OF ARMY

  
 \_\_\_\_\_ 11/19/97  
 Eugene H. Bishop, Colonel Date  
 Program Manager RMA

# RVO HEALTH AND SAFETY PROGRAM

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Hearing Conservation	304	0	May 16, 1997



RVO-CNTR.004

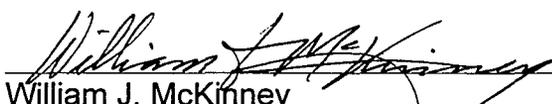
## RVO HEALTH AND SAFETY POLICY STATEMENT

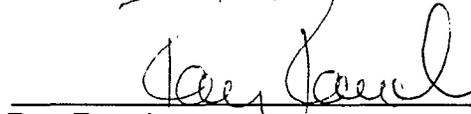
The Remediation Venture Office (RVO) is committed to the elimination of personal injuries and occupational illnesses during all phases of the remediation while protecting public health and environment. This commitment is emphasized through the development of policies and procedures, safety performance goals, job planning, training and oversight of activities.

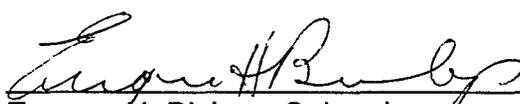
The RVO's Senior Management Group expects all managers and supervisors to plan safety into each work task. All employees will be held responsible and accountable for their safety performance and will never consider production as more important than the safety aspects of the work. Further, it is the RVO's goal to create a safety culture among all our employees which fosters an understanding that he or she has the responsibility and desire to work safely at all times.

The Senior Management Group is committed to and endorses this policy and the important role that Health and Safety plays in the successful implementation of the Record of Decision for the RMA Program.

Senior Management Group:

Shell Oil Company	 _____ William J. McKinney Manager, Denver Site Project	11/5/97 _____ Date
-------------------	--	--------------------------

U.S. Fish & Wildlife Service	 _____ Ray Rauch Project Leader	11/19/97 _____ Date
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U.S. Department of Army	 _____ Eugene H. Bishop, Colonel Remediation Venture Manager	11/19/97 _____ Date
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*Remediation Venture Office*  
Rocky Mountain Arsenal  
Commerce City, CO 80022-1748  
(303)289-0500

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Rev. 0  
November 3, 1997

# **STOP WORK AUTHORITY**

The Remediation Venture Office (RVO) has established a process which gives all employees the obligation and authority to stop work for situations involving an imminent danger. An imminent danger is defined as: A condition or unsafe act, which if not immediately corrected, would reasonably be expected to cause death or serious physical harm. Ref. QAQC-006.

ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM

RVO RECORDS AND REPORTS  
Procedure No. 100, Rev. No. 0

Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 16, 1997

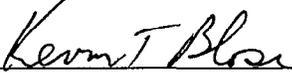
APPROVALS

  
\_\_\_\_\_  
John Isham  
Health and Safety Manager

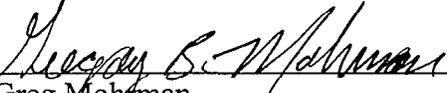
5-20-97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Janie Griffin  
Quality Assurance Manager

5-20-97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Kevin Blöse  
Program Controls Manager

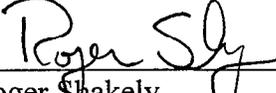
5-23-97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Greg Mohrman  
Program Support Manager

6/3/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Charles Scharmann  
Remedy Execution Manager

5/23/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Roger Shakely  
Shell Project Manager

6/9/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Ronel Finley  
Fish and Wildlife Remediation Manager

6/12/97  
\_\_\_\_\_  
Date

## RVO RECORDS AND REPORTS

### 1.0 PURPOSE

- 1.1 To establish an effective means of documentation necessary for recording and reporting incident data.

### 2.0 SCOPE

- 2.1 This Standard Operating Procedure (SOP) applies to all RVO Performers and their subcontractors.

### 3.0 REFERENCES

- 3.1 29 CFR 1910.20, Access to Employee Exposure and Medical Records.
- 3.2 29 CFR 1904, Recording and Reporting Occupational Injuries and Illnesses.
- 3.3 U.S. Bureau of Labor Statistics booklet "Record keeping guidelines for Occupational Injuries and Illnesses."

### 4.0 DEFINITIONS

- 4.1 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements as outlined in this SOP.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - RMA employees shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

HEALTH AND SAFETY PROGRAM

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PAGE No.

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## 6.0 REQUIREMENTS

6.1 Monthly Report - A monthly report shall be submitted to the RVO Safety and Health office no later than the 15<sup>th</sup> of each month. This report shall include the following Safety and Health information.

6.1.1 Accident reports for all personal injuries that require medical attention other than first aid, all occupational illnesses as defined by OSHA and all equipment damage in excess of \$500.

6.1.2 All incident and near miss investigations required by the RVO Health and Safety Program.

6.1.3 The total employee man hours worked at the RMA including subcontractors for the month preceding.

6.1.4 The total number of "recordable cases" as defined by OSHA, the total number of "restricted/lost work cases" as defined by OSHA and the total lost work days and total restricted days. Attachment 8.1 may be used to comply with this requirement.

## 7.0 RECORDS

7.1 The Monthly Report is a Quality Assurance (QA) document.

## 8.0 ATTACHMENTS

8.1 Rocky Mountain Arsenal Monthly Health and Safety Report.

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**HEALTH AND SAFETY PROGRAM**

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**ROCKY MOUNTAIN ARSENAL**  
**MONTHLY HEALTH AND SAFETY REPORT**

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\_\_\_\_\_ - 1997  
REPORTING MONTH

1. ORGANIZATIONS NAME \_\_\_\_\_

2. CONTACT PERSON \_\_\_\_\_ # \_\_\_\_\_

3. NUMBER OF OSHA RECORDABLE INJURIES \_\_\_\_\_

4. NUMBER OF LOST WORK DAY CASES \_\_\_\_\_

4.1 NUMBER OF LOST DAYS \_\_\_\_\_

5. NUMBER OF RESTRICTED CASES \_\_\_\_\_

5.1 NUMBER OF RESTRICTED DAYS \_\_\_\_\_

6. MONTHLY MAN HOURS \_\_\_\_\_

\* PLEASE SUBMIT A COMPLETED COPY OF THIS FORM ON THE 15<sup>th</sup> OF EVERY MONTH TO THE RVO SAFETY AND HEALTH OFFICE (BUILDING 129).

THE COMBINED INFORMATION WILL BE USED TO CREATE THE "ROCKY MOUNTAIN ARSENAL MONTHLY SAFETY PERFORMANCE UPDATE". THIS PERFORMANCE UPDATE WILL BE DISTRIBUTED TO ALL RMA ORGANIZATIONS MONTHLY.

THANK YOU.



*Remediation Venture Office*  
 Rocky Mountain Arsenal  
 Commerce City, CO 80022-1748  
 (303)289-0500

SAFETY INCIDENT REVIEW COMMITTEE (SIRC)

RVO SOP: ES&H.101  
 Rev: 0  
 Date: 02/10/98  
 Page: 1 of 3

APPROVALS

*John M. Dehan* 2/10/98  
 Originating RVO Organization Manager Date

*Kenneth D. Brown* 2/11/98  
 RVO Health and Safety Manager Date

*Janie Griffin* 2/12/98  
 Janie Griffin/Quality Assurance Manager Date

*Kevin T. Blase* 2/13/98  
 Kevin Blase/Program Controls Manager Date

*Carol Occhionero* 2-13-98  
 Carol Occhionero/Program Support Manager Date

*Charles Scharmann* 2/13/98  
 Charles Scharmann/Remedy Execution Manager Date

*Roger Shakely* 2/13/98  
 Roger Shakely/Shell Project Manager Date

*Ronell Finley* 2/17/98  
 Ronell Finley/Fish and Wildlife Service Manager Date

## 1.0 PURPOSE

- 1.1 To review all OSHA recordable cases and other selected incidents that occur at the Rocky Mountain Arsenal (RMA) to understand the causes, discuss preventative measures, and communicate lessons learned to all organizations at the RMA.

## 2.0 SCOPE

- 2.1 This committee will be comprised of representatives from the Army, U.S. Fish and Wildlife Service, Shell Oil Company, Morrison Knudsen and Foster Wheeler.

## 3.0 REFERENCES

- 3.1 RVO Health and Safety Program procedure ES&H 107 titled Incident Reporting.

## 4.0 DEFINITIONS

- 4.1 Committee Chairperson: A person voted on and designated in writing during the first SIRC meeting.
- 4.2 RVO Performers - A term used to describe any federal, state or government agency, private contractor, subcontractor or organization providing services to the RVO.
- 4.3 OSHA Recordable Injury - Injuries requiring medical attention other than first aid, do not involve loss of consciousness, restriction of work or motion and do not involve transfer to another job.

## 5.0 RESPONSIBILITIES

- 5.1 Committee Chairperson - The Chairperson will coordinate the meetings and act as the facilitator during each meeting.
- 5.2 Committee Members - Shall understand the importance of this committee and participate in the meetings by asking questions of the attending RVO performer regarding the incident investigation, outcomes, and the lessons learned to further understand the specifics of the incident and offer any

suggestions that may help the RVO performer prevent any further incidents.

- 5.3 RVO Health and Safety Group - Shall request individuals to serve as committee members annually.

## 6.0 REQUIREMENTS

- 6.1 All RVO performers who sustain an OSHA recordable injury or an incident that effects the compliance status of RMA shall schedule a meeting with the SIRC chairperson for the next available SIRC meeting. The RVO performer shall prepare a presentation for the SIRC which includes but is not limited to: contributing factors, preventative measures, results and lessons learned from each OSHA recordable incident. As a minimum the RVO performer representation at the SIRC meeting will include project management and the affected supervisor.

- 6.2 The SIRC chairperson shall establish meeting dates as needed so timely review of incidents occurs, but no longer than 15 days from the occurrence of the incident.

- 6.3 Any recommendations from the SIRC as a result of the RVO performers presentation will be given to the RVO Health and Safety Group to be addressed with the RVO performer or the RMA contracting department as necessary.

## 7.0 RECORDS

- 7.1 Any Records associated with this Standard Operating Procedure shall be in accordance with established RVO Quality Assurance (QA) procedures and maintain the original on file at RMA.

## 8.0 ATTACHMENTS

- 8.1 . N/A

ROCKY MOUNTAIN ARSENAL

HEALTH AND SAFETY PROGRAM

SAFETY AND HEALTH STEERING COMMITTEE

Procedure No. 102

Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

April 18, 1997

APPROVALS



John Isham  
Safety and Health Manager

4-18-97

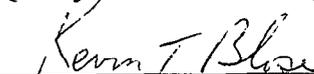
Date



Janie Griffin  
Quality Assurance Manager

4/18/97

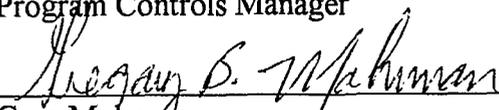
Date



Kevin Blöse  
Program Controls Manager

4/21/97

Date



Greg Mohrman  
Program Support Manager

4/28/97

Date



Charles Scharmann  
Remedy Execution Manager

4/24/97

Date



Roger Shakely  
Shell Project Manager

5/2/97

Date



Ronel Finley  
Fish and Wildlife Remediation Manager

4/28/97

Date

## **SAFETY AND HEALTH STEERING COMMITTEE**

### 1.0 Purpose

This charter provides and defines the operating criteria for the RVO Safety and Health Steering Committee. This Steering Committee is comprised of representatives from each site organization and the RVO.

### 2.0 Scope

#### 2.1 Charter

The Safety and Health Steering Committee has been sponsored by the Program Integration Team (PIT) to assist in the performance of the following:

- Enhance the RMA's environmental, safety and health process to assist in achieving the Project goals and objectives.
- Act as a communications vehicle to aide in consistent administration and uniform implementation of procedures and standards throughout the site.
- Assist in establishing goals and objectives that work towards achieving a zero injury/accident rate and that meet or exceed environmental protection standards.
- Address other issues and concerns as requested by management, Steering Committee members, or RMA employees.

#### 2.2 Applicability

This charter is to be recognized and followed by all Steering Committee members during all chartered activities.

### 3.0 References

None

### 4.0 Definitions

None

### 5.0 Responsibilities

### **ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

**HEALTH AND SAFETY PROGRAM**

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5.1 Program Integration Team

Responsible for reviewing Steering Committee activities, utilizing the Steering Committee to enhance the RMA Program and assisting with resolution of concerns.

5.2 RVO Safety and Health Manager(s)

Serves as Steering Committee Chairperson (Chair). The Steering Committee Chairperson is also responsible for scheduling meetings.

5.3 Site Personnel

Selected site personnel shall act as Steering Committee representatives responsible for participation and resolution of specific issues as defined by the Steering Committee.

5.4 Steering Committee Recorder

A recorder will be selected by the Steering Committee at each meeting. The recorder will prepare the minutes for submission to the Chair.

6.0 Operating Guidelines

6.1 Evaluation of Safety and Health Items

The Steering Committee shall review selected new and revised requirements such as federal, state and local requirements that have the potential of impacting the RMA programs. Items shall be brought to the Steering Committee by any member based on site safety concerns and review of references, laws, regulations, memoranda, or other forms of notifications.

6.2 Deliverables

The Steering Committee will assist in establishing a safety and health process that will meet the requirements of the charter.

The Steering Committee shall assist with the development, implementation and enhancement of selected safety and health activities. This process is managed by the Chair who assigns action items to appropriate members or other RMA personnel and determines schedules to meet the goals and objectives of the PIT.

**ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

### 6.3 Tracking of Action Items

Dates for implementation of action items will be monitored by the Steering Committee Recorder to ensure the action items are completed on schedule. It is the responsibility of the designated Steering Committee member to complete their assigned items and provide update information to the Steering Committee.

The Steering Committee shall keep Project Management apprised of all major issues via distribution of meetings minutes (refer to 7.1.)

### 6.4 Meetings

The Steering Committee shall meet each month or as needed, as determined by the Chair and through input from others associated with the remedy.

### 6.5 Agenda

The agenda for each meeting will be established by the chair and will include, at a minimum, that each Steering Committee member provides a briefing to the group on current work activities, accident reports, near misses and any lessons learned that will benefit future work at RMA.

### 6.6 Steering Committee Members

Steering Committee members will be designated by each organization including the Army, Shell, Fish and Wildlife Service, Jacobs, USGS, MK, PMC and all other RMA site contractors. Steering Committee members may be rotated or reassigned as needed. Additional members from the attending organizations are welcome as approved by the Chair.

## 7.0 Record Keeping/Reporting

### 7.1 Meeting Minutes

The Steering Committee Recorder shall prepare the meeting minutes and provide the minutes to the Chair. Meeting minutes shall be submitted to Steering Committee members after each meeting.

## 8.0 Attachments

None

## **ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

**HEALTH AND SAFETY PROGRAM**

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INSPECTIONS AND OVERSIGHT

RVO SOP: ES&H.103  
 Rev: 0  
 Date: 10/21/97  
 Page: 1 of 4

APPROVALS

*Blair Jones for JI*  
 Originating RVO Organization Manager 10-28-97  
 Date

*James H. Love*  
 RVO Health and Safety Manager 10-29-97  
 Date

*Janie Griffin*  
 Janie Griffin/Quality Assurance Manager 10-29-97  
 Date

*Kevin Blose*  
 Kevin Blose/Program Controls Manager 11/4/97  
 Date

*Carol Occhionero*  
 Carol Occhionero/Program Support Manager 11-6-97  
 Date

*Charles Scharmman*  
 Charles Scharmman/Remedy Execution Manager 10/31/97  
 Date

*Roger Shakely*  
 Roger Shakely/Shell Project Manager 11/3/97  
 Date

*Ron Finley*  
 Ronel Finley/Fish and Wildlife Service Manager 11/03/97  
 Date

## INSPECTIONS AND OVERSIGHT

### 1.0 PURPOSE

- 1.1 To create an effective inspection and oversight program to ensure that proper tools, PPE, equipment and safe work practices are being utilized and followed.

### 2.0 SCOPE

- 2.1 All RVO Performers shall comply with the requirements of this procedure.

### 3.0 REFERENCES

- 3.1 N/A

### 4.0 DEFINITIONS

- 4.1 Audit - A non-routine formal documented review of work areas and health and safety documents conducted by the RVO Health and Safety group.
- 4.2 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.
- 4.3 Inspection - An informal "walk through" of work areas to ensure proper procedures are being followed.
- 4.4 Surveillance - An organized and documented weekly Safety and Health inspection of work areas including members or representatives of the involved organization(s) to ensure compliance with all applicable rules and regulations.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The manager responsible for the oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure. This Manager should participate in Surveillances at least monthly.

- 
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this SOP.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - All employees shall report all injuries (no matter how minor), illnesses, equipment damage, work area hazards, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical. All RMA employees shall inspect their tools before each use and continually monitor their work areas for hazards and changing work place conditions. Defective tools shall be replaced or repaired before use.

## 6.0 REQUIREMENTS

- 6.1 Inspection - RVO performers shall conduct daily safety and health inspections of each work area involving construction and/or remedy activities. All deficiencies shall be documented and corrected as soon as practical. If a hazardous situation exists the deficiency shall be corrected immediately.
- 6.2 Surveillance - RVO performers shall conduct, at a minimum, a documented weekly Safety and Health surveillance of all work areas involving construction and/or remedy activities. Other work area surveillances for facilities such as office work or routine "low risk" activities shall be scheduled by the RVO performers on a monthly basis.
- 6.2.1 The RVO Performer shall be responsible for:
- 6.2.1.1 Ensuring that all of the subcontractors work activities and the subcontractors safety representative or designee are included in the surveillance.
  - 6.2.1.2 Developing and implementing corrective actions so deficiencies do not recur.
- 6.2.2 The RVO Performers management shall participate in the surveillance at least once a month.

6.2.3 The RVO Performer shall track deficiencies noted during the surveillance and confirm that corrective actions have been implemented.

6.3 The RVO Health and Safety Office shall conduct safety and health reviews during work activities to assist with program implementation.

6.3.1 If the RVO Health and Safety office determines an audit is required, the RVO performer will be notified at least 24 hours prior to the beginning of the audit.

6.3.2 The RVO Performers shall participate with the audit.

6.3.3 A formal pre-audit meeting will be conducted prior to audit activities to discuss the areas of concern and documentation to be reviewed.

6.3.4 A formal post audit meeting will be conducted to discuss written deficiencies that will require a written response stating corrective actions taken.

6.3.5 A written list of deficiencies noted during the audit will be provided by the RVO Health and Safety Office to the RVO Performer. The RVO Performer shall provide a written report of corrective actions to the RVO Health and Safety Office within ten days.

## 7.0 RECORDS

7.1 All documented inspections, surveillances and associated reports shall be filed at the RMA and available for review by the RVO Health and Safety office. These records are Quality Assurance (QA) records.

## 8.0 ATTACHMENTS

8.1 N/A

ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM

**JOB SAFETY ANALYSIS**  
**Procedure No. 104, Rev. No. 0**

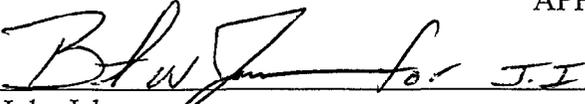
Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 16, 1997

APPROVALS

  
\_\_\_\_\_  
John Isham  
Health and Safety Manager

5-20-97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Janie Griffin  
Quality Assurance Manager

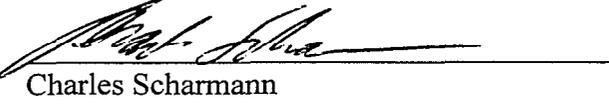
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Date

  
\_\_\_\_\_  
Kevin Blöse  
Program Controls Manager

5-22-97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Greg Mohrman  
Program Support Manager

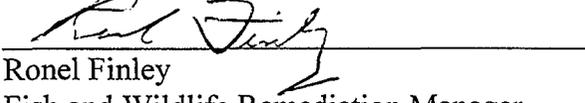
6/8/97  
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Date

  
\_\_\_\_\_  
Charles Scharmann  
Remedy Execution Manager

5/22/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Roger Shakely  
Shell Project Manager

6/9/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Ronel Finley  
Fish and Wildlife Remediation Manager

6/12/97  
\_\_\_\_\_  
Date

## JOB SAFETY ANALYSIS

### 1.0 PURPOSE

- 1.1 To establish a task analysis and hazard identification system to document job procedures and training for employees for non-routine, short term, high risk tasks.

### 2.0 SCOPE

- 2.1 RVO contract support personnel responsible for performing work at the RMA shall comply with the requirements of this Standard Operating Procedure (SOP).

### 3.0 REFERENCES

- 3.1 N/A

### 4.0 DEFINITIONS

- 4.1 JSA - Job Safety analysis.
- 4.2 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this SOP.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - RMA employees shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

#### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

HEALTH AND SAFETY PROGRAM

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## 6.0 REQUIREMENTS

- 6.1 JSA Submittal - The RVO performer shall develop a JSA procedure which shall be submitted to the RVO Health and Safety office for review and approval.
- 6.2 A Task Specific Safety Plan (TSSP) has been developed and may be adopted by the RVO performer to full-fill the JSA requirement. The work tasks that require this plan are those that are non-routine, involve intrusive soil work or present a potential hazard to worker health, public health or the environment. The TSSP can be completed using the form in Attachment 8.1, or equivalent.

## 7.0 RECORDS

- 7.1 All RVO performer records associated with this SOP shall be filed at the RMA and made available for immediate review by the RVO SHO. These records are Quality Assurance (QA) records.

## 8.0 ATTACHMENTS

- 8.1 Task Specific Safety Plan

### **ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

**HEALTH AND SAFETY PROGRAM**

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Z  
NO

ROCKY MOUNTAIN ARSENAL  
TASK SPECIFIC SAFETY PLAN

ATTACHMENT 8.1

- 1
- |   |  |
|---|--|
| <input type="checkbox"/> CONFINED SPACE ENTRY PERMIT REQUIRED<br>(Attached) | <input type="checkbox"/> LOCKOUT/TAGOUT REQUIRED<br>(Attached) |
| <input type="checkbox"/> HOT WORK PERMIT REQUIRED<br>(Attached)             | <input type="checkbox"/> DIG PERMIT REQUIRED<br>(Attached)     |

2

**Organization:** \_\_\_\_\_

**Date Started:** \_\_\_\_\_ **Duration:** \_\_\_\_\_ **Date Closed:** \_\_\_\_\_

**Location of Activity/Confined Space** \_\_\_\_\_

**Objective:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3

**ON-SITE CONTROL**

	Required Yes/No	Distance from Activity	Method of Identification
Exclusion Zone	YES		
Hot Line			
Decon Line			
Support Zone			

(ATTACH SKETCH OR MAP)

4

**PERSONAL PROTECTIVE EQUIPMENT**

	LEVEL OF PROTECTION			
Exclusion Zone	A	B	C	D
Hot Line	A	B	C	D
Decon Line	A	B	C	D
Support Zone	A	B	C	D

5

**SPECIFIC PPE REQUIREMENTS**

Exclusion Zone	Hot Line	Decon Line	Support Zone



**DECONTAMINATION PLAN**

**A. DECONTAMINATION PROCEDURES:**

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_
- (6) \_\_\_\_\_
- (7) \_\_\_\_\_
- (8) \_\_\_\_\_
- (9) \_\_\_\_\_

**B. REQUIRED DECONTAMINATION EQUIPMENT:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**C. DECONTAMINATION SOLUTION:** \_\_\_\_\_

**D. EMERGENCY DECONTAMINATION will include the following stations:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**E. Disposition of Decontamination Solution:** \_\_\_\_\_

**COMMUNICATIONS**

**A. Communication with Fire and Emergency Services:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**B. Communication amongst team members:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

C. Communications with home base: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11

**EMERGENCY EVACUATION**

A. Emergency Notification Method: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

B. Emergency Evacuation Route: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

C. Emergency Assembly Point: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

D. Other Special Emergency Procedures: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

12

**I have read and understand every aspect of this Site Specific Safety Plan and will comply will all requirements of this plan.**

Name	TEAM DESIGNATION:	Signature
_____	Function	_____
_____	Team Leader	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	Attendant	_____
_____	Supervisor	_____

INSTRUCTIONS

This form will be completed for all intrusive activities conducted on RCRA and CERCLA sites on Rocky Mountain Arsenal. See Chapter 7 of PMRMA R-385-1, XX XXX XX

Complete Box 2 first and then Box 6.

**Box 2.** Organization is the unit, contractor or activity doing the work.

Date Started is the date the job was started or expected start-date of the job.

Duration is the length of time the plan is valid for. May not exceed one year.

Date Closed is the date the task was completed or an expiration date of the plan. See note below.

Location of Activity/Confined Space is the location of the tasking being done. If the same task is being done at multiple sites, one Site Specific Safety Plan may be used at all sites, if each site is listed.

Objective is the task to be completed.

Note: Site Specific Safety Plans are only valid until the completion of the task, a change in hazards, a change in team personnel, a change of supervisors or one year -- whichever comes first.

**Box 6.** The second part of the form to be completed is Box 6. All hazards (chemical, physical, etc.) identified by either the Job Safety Analysis (JSA) or Operational and Support Hazard Analysis (O&SHA) as having significant risk will be listed. Additional sheets may be attached as necessary. For each hazard, the engineering control or type of personal protective equipment used to protect the work team members will be identified. Attach the JSA or O&SHA the plan.

**Box 7.** Box 7's function is to indicate all chemicals whose quantities might exceed permissible levels, therefore, requiring monitoring. First list the chemical. Then indicate the type of monitoring equipment to use, the frequency of monitoring, and the acceptable limits for each chemical. Attach a copy of the Tomes, CHRIS, HCDB information or current MSDS for each chemical listed.

**Box 8.** Box 8 is used to insure that all electrical, gas, water and sewer lines near the worksite have been identified and considered. Indicate in the appropriate box whether or not each utility is present. If any utilities are identified, they will be added to Box 6 along with the appropriate engineering control necessary to protect the employees. Indicate a method of identifying the utilities, example: "Blue flags will be used. A buffer zone of 3 feet will be provided for each utility marked."

**Box 1.** Based on the Job Safety Analysis or Operational and Support Hazard Analysis, each additional required permit will be identified by the appropriate box.

**Box 3.** On-site Control.

An exclusion zone will be established for all activities conducted in RCRA or CERCLA sites on RMA.

The distance from the activity will be based on an evaluation of the hazards (Box 6). The table below contains suggested distances for quantities less than or equal to 55 gallons.

SUGGESTED EXCLUSION ZONES DISTANCES  
(Quantities  $\leq$  55 Gallons)

TYPE	FEET
Liquids, specific gravity $\leq$ 1.0	50
Liquids, specific gravity $>$ 1.0	25
Fuming acid	100
Intrusive soil work.	150
Liquid $12 < \text{pH} < 1$	70

Instructions (continued)

For larger quantities greater than 55 gallons, the DOT Emergency Response Guidebook, Tomes, CHRIS, HCDB or current MSDS should be consulted.

Exclusion zones for physical hazards should be large enough as to prevent other worker teams and visitors from being exposed.

When contamination of team members is possible, hot lines, decontamination (Decon) and support zones will be established. These will be established based on wind direction. A sketch or map showing the layout of the various zones will be attached. Additionally, the means of identifying the various zones (cones, flags, etc.) will be listed and shown on the sketch or map.

**Box 4.** The level of protection for each zone will be indicated by circling the appropriate level. The minimum level of protection will be level "D" for any activity in RCRA or CERCLA areas. Clothes worn to and from home are not considered level "D," since they do not limit the possibility of carrying hazardous material off RMA.

**Box 5.** List each piece of personal protective equipment required under the appropriate zone. Each piece of personal protective equipment must be fully described, for example: Hard Hat, Class B; Safety glasses w/ side shield; etc.

**Box 9.** Any time the possibility exists for the workers to be contaminated by a hazardous material, decontamination procedures will be developed. In part A, each step of the decontamination procedure will be identified. Example: A(1) Prewash operator standing in the tub with clean water using spray hose.

In part B, all required equipment will be listed.

In part C, list the decontamination solution required for the identified hazardous contamination. Selection should be based on the type of contamination involved and personal protective equipment. Soapy water may not be sufficient.

In part D, list the steps or stations which will be used for emergency decontamination of injured personnel. These procedures should only be used for personnel with life-threatening injuries.

Part E. This describes how the Decon solution will be disposed of. For example: "Collect decon solution and take to CERCLA Facility."

**Box 10.** Part A. This section describes the method of communication with the Fire and Emergency Services. For example: "A radio tuned to channel X will be used" or "A cell phone will be used and the number for the Fire and Emergency Services is 289-0223."

Part B. This section will describe how the team will communicate amongst themselves. For example "Hand signals will be used. An air horn will be used to signal evacuation of the work area." or "Members will communicate by voice. An air horn will be used to signal evacuation of the work area." When using hand-signals, the signals must be standardized and understood by the team members.

Part C. This section describes how communication will be maintained with the activity's supporting office.

**Box 11.** Part A describes the method that will be used to notify team-members to evaluate the area. Example: "Sounding of an air-horn is the signal to evacuate the area."

Part B. This section describes the route to use when evacuating the area. Example: "Proceed west to "D" Street, then north on "D" Street to the assembly place."

Part C. This section describes where to assemble after evacuating the area. Example: "The crew will assemble in the field across from the Fire and Emergency Services Building."

Part D. This section describes any special instruction. For example: "Bill will shut off the generator. Bob will turn off the pump. Truck 7 will be used by all members for evacuation."

Instructions (continued)

**Box 12.** Each member of the team and the supervisor will sign and date the Site Specific Safety Plan indicating that they have read the plan, its attachments and understand all instructions and requirements included in the plan and attachments.

Disposition:

The original signed copy will be maintained in the originating office for two years. The hazard analysis and MSDS will be maintained with the original copy. If employees are exposed to any chemical hazard above the permissible exposure level without the appropriate protection, the MSDS for that chemical will be forwarded for inclusion in the worker's medical record with a memorandum stating the time, date, and exposure level.

One signed copy will be available at the work-site.

A second signed copy will be provided the Safety, Health, and Environment Office.

**Box Z.** Box Z contains a serial number assigned by the computer network.

ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM  
SAFETY AND HEALTH TRAINING  
Procedure No. 105, Rev. No. 0

Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 16, 1997

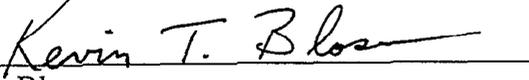
APPROVALS

  
\_\_\_\_\_  
John Isham  
Health and Safety Manager

5-20-97  
Date

  
\_\_\_\_\_  
Janie Griffin  
Quality Assurance Manager

5-20-97  
Date

  
\_\_\_\_\_  
Kevin Blöse  
Program Controls Manager

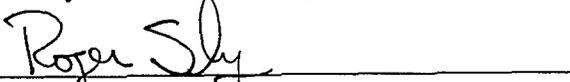
5-22-97  
Date

  
\_\_\_\_\_  
Greg Mohrman  
Program Support Manager

6/3/97  
Date

  
\_\_\_\_\_  
Charles Scharmann  
Remedy Execution Manager

5/23/97  
Date

  
\_\_\_\_\_  
Roger Shakely  
Shell Project Manager

6/9/97  
Date

  
\_\_\_\_\_  
Ronel Finley  
Fish and Wildlife Remediation Manager

6/12/97  
Date

## SAFETY AND HEALTH TRAINING

### 1.0 PURPOSE

- 1.1 To establish minimum Health and Safety training requirements for the RVO and RVO performers.

### 2.0 SCOPE

- 2.1 RVO and RVO performers responsible for conducting work at the RMA shall comply with the requirements of this SOP.

### 3.0 REFERENCES

- 3.1 OSHA 29 CFR 1926.65 Hazardous Waste Operations

### 4.0 DEFINITIONS

- 4.1 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.
- 4.2 Site Orientation - Training that is required before employees start work at the RMA. This training will cover at a minimum UXO, agent hazards, chemicals, contingency plans, emergency response and site access limitations. This training will last approximately 2 hours. This training shall be documented.
- 4.3 Site Worker Training - This training shall comply with OSHA requirements including, but not limited to, hazard communication, respiratory protection, hearing conservation, confined space entry, fire protection, emergency response, electrical hazards, lockout tagout, blood borne pathogens, and first aid. This training shall be documented.
- 4.4 Sponsor - An employee who has completed the Site Worker Training.
- 4.5 UXO - Unexploded ordinance.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The manager responsible for the oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure.
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this SOP.

#### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

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5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.

5.4 Employees - RMA employees shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

## 6.0 REQUIREMENTS

6.1 OSHA Training - All RMA employees shall have OSHA hazardous material training, if required, which includes:

6.1.1 40-hour Initial Training for appropriate site workers plus three days actual field experience under direct supervision of a trained, experienced supervisor in compliance with 29 CFR 1926.65.

6.1.2 24-hour Initial Training for appropriate site workers plus one day actual field experience under direct supervision of a trained, experienced supervisor in compliance with 29 CFR 1926.65.

6.1.3 8-hour Management and Supervisor Training for all field supervisors in compliance with 29 CFR 1926.65.

6.1.4 8-hour Refresher Training for site workers in compliance with 29 CFR 1926.65.

6.2 Site Orientation - All RVO and RVO performers shall attend site orientation training before starting work at the RMA. This training shall be provided by the RVO Health and Safety office for the management and supervision of the Program Management Contractor (PMC). This training will also be provided by the RVO Health and Safety office for RVO performers except those who are under contract with the PMC. The PMC shall conduct site orientation for their employees and their subcontractors. The PMC shall submit a copy of their site orientation training program to the RVO Health and Safety office for review and approval.

6.3 Site Worker Training - RVO Performers shall implement site worker training for their employees. The RVO Performers shall have a site worker training program available to the RVO Health and Safety office for review.

6.4 Visitors - RVO policy requires that all visitors have a sponsor. The sponsor is responsible for the health and safety of the visitor. The sponsor shall insure that the visitor is protected from work site hazards by providing information and the appropriate personal protective equipment (PPE). Sponsors shall not issue

### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

respirators to visitors without the approval of the appropriate Health and Safety office. The sponsor shall direct the visitor during emergencies.

7.0 RECORDS

7.1 All records produced by this procedure shall be maintained at the RMA and be available for immediate review by the RVO Health and Safety office. These records will be Quality Control (QC) records.

8.0 ATTACHMENTS

8.1 N/A

**ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

**HEALTH AND SAFETY PROGRAM**

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ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM

INCIDENT REPORTING  
Procedure No. 107

Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

April 18, 1997

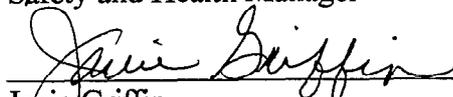
APPROVALS



John Isham  
Safety and Health Manager

4-18-97

Date

  
Janie Griffin  
Quality Assurance Manager

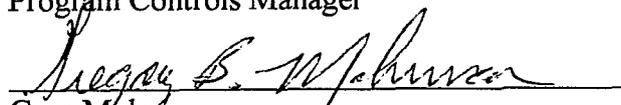
4/18/97

Date

  
Kevin Blöse  
Program Controls Manager

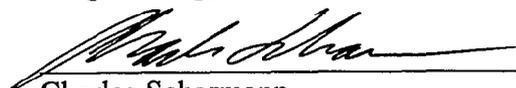
4/21/97

Date

  
Greg Mohrman  
Program Support Manager

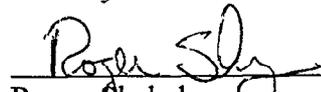
4/28/97

Date

  
Charles Scharmann  
Remedy Execution Manager

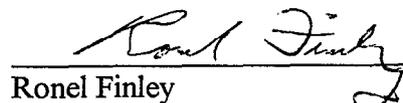
4/24/97

Date

  
Roger Shakely  
Shell Project Manager

5/2/97

Date

  
Ronel Finley  
Fish and Wildlife Remediation Manager

5/25/97

Date





- 6.3.1.4 Any near miss.
- 6.3.1.5 All chemical or hazardous material spills in excess one gallon or five pounds.
- 6.3.1.6 Any over exposure to a hazardous substance above the allowable exposure levels.
- 6.3.1.7 All unusual occurrences.

#### 6.4 Incident Reporting

- 6.4.1 The "RMA INCIDENT REPORT" (attachment 1) form shall be used by all organizations to fulfill the requirements of this SOP.
- 6.4.2 If a reportable incident occurs that requires dispatch of the RMA Fire and Emergency Services the involved organization's supervisor or designee shall verbally notify a member of the RVO Safety and Health Office within 20 minutes. All other reportable incidents shall be verbally reported to the RVO Safety and Health office within two hours.
- 6.4.3 The written incident report shall be completed by the supervisor and submitted to the RVO Safety and Health Office within 24 hours of occurrence. Faxed copies are acceptable. The Fax number is 289-0489.
- 6.4.4 The intent of this SOP is to create a notification system for reporting incidents to the RVO. The RVO recognizes that some instances will arise that will cause questions regarding if an incident should be reported. In those cases; submit the "RMA INCIDENT REPORT" to the RVO Safety and Health Office within the required time frame.
- 6.4.5 This report is in addition to and does not replace other reporting requirements required by the RMA Fire Department or those identified in the RMA Contingency Plan.

#### 7.0 RECORDS

- 7.1 Training for all employees shall be documented and maintained on file at the RMA and be available for review. This is a Quality Assurance (QA) record.
- 7.2 The RMA INCIDENT REPORT shall be maintained on file at the RMA and available for review. This is a QA record.

#### 8.0 ATTACHMENTS

- 8.1 Attachment 1 - RMA INCIDENT REPORT



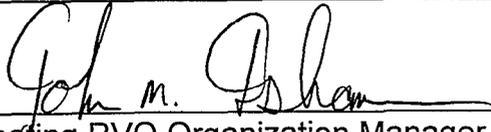
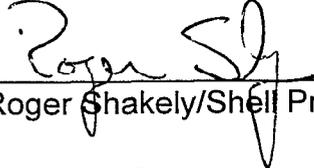
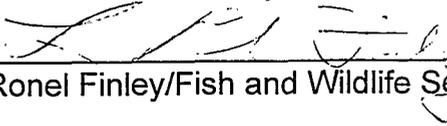


*Remediation Venture Office*  
 Rocky Mountain Arsenal  
 Commerce City, CO 80022-1748  
 (303)289-0500

SITE ACCESS CONTROLS

RVO SOP: ES&H.108  
 Rev: 0  
 Date: 09/17/97  
 Page: 1 of 10

APPROVALS

	9/17/97
Originating RVO Organization Manager	Date
	9-17-97
RVO Health and Safety Manager	Date
	9/17/97
Jamie Griffin/Quality Assurance Manager	Date
	9/29/97
Kevin Blöse/Program Controls Manager	Date
	9-29-97
Carol Occhionero/Program Support Manager	Date
	9/26/97
Charles Scharmann/Remedy Execution Manager	Date
	9/29/97
Roger Shakely/Shell Project Manager	Date
	9/29/97
Ronel Finley/Fish and Wildlife Service Manager	Date

## 1.0 PURPOSE

The purpose of this procedure is to establish an access control process for the Rocky Mountain Arsenal (Arsenal). Access requires specific training, a vehicle pass and in some situations Activity Coordination and issuance of an Access Cone.

## 2.0 SCOPE

This procedure applies to RVO personnel; all Federal, state, and local government agencies and their personnel; contractors and their personnel; subcontractors and their personnel; visitors, vendors and service personnel; and all vehicles utilized on the Arsenal. There is no exemption for government vehicles or civilian or commercial vehicles with previously issued government agency access passes.

This procedure does not apply to work inside the established Central Remediation Area or to emergency response or law enforcement vehicles or other vehicles involved in emergency situations.

## 3.0 REFERENCES

3.1 Title 29, Code of Federal Regulations, Part 1910.120

## 4.0 DEFINITIONS

4.1 Activity - An activity is considered any task or group of tasks. The RVO defines a group of tasks as similar types of work requiring the same task requirements such as personnel, skill level, types of equipment, level of personal protective equipment and similar hazards. If any task requirements change, then that task must be considered a separate activity.

4.2 Activity Coordination - Activity Coordination is a process of approving work or other Arsenal related activities prior to the activity commencing on site. Activity Coordination is managed by the RVO Health and Safety Group (H&S) and is a method for ensuring that proper planning and notifications take place by the organization supervising the activity.

- 4.3 Bald Eagle Management Area (BEMA) - Designated portions of the Arsenal are restricted due to the presence of wintering bald eagles during the period of October 15 to April 15 each year ( see Attachment 8.6). Entrance into BEMA is controlled through Activities Coordination within the RVO H&S Group.
- 4.4 Central Remediation Area (CRA) - Four central sections of the Arsenal which require extensive remediation by the Program Management Contractor who will control work activities and access control in this area (see Attachment 8.5).
- 4.5 Closed Areas - All areas of the Arsenal, except the designated Open Areas, which require Activity Coordination approval prior to entry (see Attachment 8.5).
- 4.6 Open Areas - Open Areas of the Arsenal are for official use by site personnel and include 7th Avenue from the West Gate east to "E" Street and the parking lot immediately southeast of the 7<sup>th</sup> Avenue and the "E" Street intersection; the Headquarters Complex; "C" Street from Corps of Engineers Complex south to the South Gate; "B" Street from 7th Avenue south to 6th Street; the Logistic Complex on "B" Street; 6th Avenue between "B" Street and "C" Street; "D" Street from 96<sup>th</sup> Avenue south to 9<sup>th</sup> Avenue and designated hiking trails (see Attachment 8.5).
- 4.7 Remediation Venture Office (RVO) - The oversight organization for the Arsenal comprised of the U.S. Army, Shell Oil Company and the U.S. Fish and Wildlife Service.
- 4.8 RVO Performer - Any Federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.
- 4.9 Site Worker - Personnel, except fishermen, are classified as a Site Worker if they are required to perform activities at the Arsenal for more than thirty consecutive days; including Arsenal employees, volunteers and Federal, state and local government personnel who are approved by the RVO or an RVO Performer.
- 4.10 Temporary Worker - Personnel are classified as Temporary Workers if they perform activities on the Arsenal between six and thirty consecutive days.

4.11 Visitor/Vendor/Service Personnel - Personnel are classified as a Visitor/Vendor/ Service Personnel if they access the Arsenal for short durations and for not more than five consecutive days. Some exceptions apply for daily deliveries such as mail, etc.

## 5.0 RESPONSIBILITIES

5.1 Activity Clerk - An Arsenal employee who is responsible for the administration of access control training, vehicle registration and passes, Access Cones and associated procedures.

5.2 Health and Safety Manager - An RVO Health and Safety Manager responsible for approval of activities scheduled through the Activity Coordination process.

5.3 RVO and RVO Performers - Responsible for compliance with this procedure.

## 6.0 REQUIREMENTS

### 6.1 Training

All Visitors, Vendors, Service Personnel and Site Workers who have not received the required access pass or training must be escorted by trained site personnel while in the designated Closed Area of the Arsenal.

#### 6.1.1 Visitor/Vendor/Service Personnel Training Requirements

Each Visitor, Vendor and Service Personnel will be provided with Site Access information at the gate by the gate attendant at the time of arrival. Information will include a site map, basic site rules and a daily pass.

- This training is not required for tour groups, fishermen, emergency personnel or participants at scheduled meetings held on the Arsenal.

#### 6.1.2 Temporary Worker Training Requirements

Temporary Workers will be provided with Site Orientation training by the H&S Group prior to unescorted access to the designated Closed Area of the Arsenal.

Site Orientation training will be provided at a designated location, Monday through Friday (except holidays), during normal business hours, unless otherwise scheduled with the H&S Group.

Fisherman who have received an Arsenal fishing permit will be provided with this training during the annual fisherman orientation.

#### 6.1.3 Site Worker Training Requirements

Site Workers will be provided with Site Orientation training by the H&S Group prior to unescorted access to the designated Closed Area of the Arsenal. Site Orientation training is required for all personnel who are classified as Site Workers (see definition of Site Worker).

Training will be provided at a designated location, Monday through Friday (except holidays), during normal business hours, unless otherwise scheduled with the H&S Group.

#### 6.1.4 Training Records and Training Update

Training documentation will be kept on file at the designated training location and will be controlled by the Activity Clerk. Training requirements will be revised as needed by the H&S Group and incorporated into the specific training program.

## 6.2 Access Passes to the Arsenal

All Visitors, Vendors, Service Personnel or Site Workers who have not received the required access pass or training must be escorted by trained site personnel while in designated Closed Areas of the Arsenal.

### 6.2.1 Visitor/Vendor/Service Personnel Vehicle Access Pass

A Daily Pass will be issued at the gate by the gate attendant. This Pass will be valid for one day and is issued for up to five consecutive days, exceptions are daily deliveries. The Daily Pass is **only** valid in the Open Areas of the Arsenal. A copy of the Daily Pass is included as Attachment 8.1 of this procedure.

The Daily Pass must be displayed through the windshield on the driver side of the vehicle dashboard.

This Pass is not required for tour groups, fishermen, emergency personnel or participants at scheduled meetings held on the Arsenal.

### 6.2.2 Temporary Worker Vehicle Access Pass

Temporary Workers will be issued a 30 day Temporary Pass by the H&S Group at a designated location, Monday through Friday (except holidays), during normal business hours. This pass allows access to Open Areas of the Arsenal for up to thirty consecutive days. A copy of this Pass is included as Attachment 8.2 of this procedure.

The following information must be presented in order to receive a Temporary Pass:

- Vehicle registration
- Proof of vehicle insurance
- Valid drivers license
- Colorado emission certificate if applicable
- Proof of Access training.

The Temporary Pass will be displayed through the windshield on the driver side of the vehicle dashboard.

### 6.2.3 Site Worker Vehicle Access Pass

Site Workers will be issued an Eagle Decal Pass by the H&S Group at a designated location, Monday through Friday (except holidays), during normal business hours. This Pass allows access to Open Areas of the Arsenal for more than thirty consecutive days. Access outside the Open Areas must be scheduled through the Activities Coordination process.

The Eagle Decal Pass will be valid for a calendar year and personnel will be issued an annual validation. A copy of the Eagle Decal Pass and example of an annual validation is included as Attachment 8.3 of this procedure.

The following information must be presented in order to receive an Eagle Decal Pass:

- Vehicle registration and insurance
- Valid drivers license
- Colorado emission certificate if applicable
- Proof of Access training.

The Eagle Decal Pass will be displayed in the lower left hand corner of the windshield of the vehicle.

A maximum of three annual passes are allowed per Site Worker unless otherwise approved by the H&S Group.

All Eagle Decal Passes **MUST** be removed from the vehicle and returned to the point of issue when assigned work at the Arsenal is completed.

### 6.3 Activities Coordination

All RVO Personal and RVO Performers **MUST** submit an Activities Coordination Form for all activities performed on-site, except routine office activities, maintenance, repairs and service performed in the designated Open Areas. The Activities Coordination Form is included as Attachment 8.4 to this procedure.

**NOTE:** Groups such as media, citizens, and other special interest tours must also coordinate with the RMA Public Relations Office.

### 6.3.1 Scheduling

The Activities Coordination Form is to be submitted to the H&S Group one week in advance of scheduled activities. All other unscheduled activities or activity revisions must be submitted as soon as possible.

Activity Coordination Forms will be turned in on Monday mornings during the Contractors meeting or no later than 10:00 A.M. on Monday mornings via fax at (303) 289-0489 or E-mail to address on the form.

Activity Coordination Forms for unscheduled activities or revisions to existing activities must be submitted via FAX or E-mail as soon as possible. All Activity Coordination Forms will be reviewed and either approved or disapproved by an RVO Health and Safety Manager within one business day from the time that they are submitted. If an activity is disapproved, the RVO Health and Safety Manager will provide information to the submitter as to the problems and assist with resolving the issues.

Approved activities will be communicated to interested organizations by E-mail or through distribution of an activity report.

No activities are allowed to start on the Arsenal unless the Activity Coordination process has been completed. If activities occur without complying with these requirements, work will be stopped until activities are properly scheduled.

The Activity Coordination Form requires specific information on each activity including:

- Company/Agency name
- Point of Contact and Telephone Number
- Activity Description
- PPE Level
- Location of work
- Date and Start/Stop Time of the work

### 6.3.2 Issuing Access Cones

All activities outside designated Open Areas that are approved through the Activity Clerk will be issued a colored magnetic Access Cone to be placed on the hood of the vehicle(s) involved in the activity, except heavy equipment. This cone is issued to the activity and authorizes vehicles performing the activity with access to the requested work area. Access Cones are an easy means for those enforcing this procedure to detect violations. Each access cone will have an identification number and color which are tracked by the Activity Clerk and monitored by law enforcement. Cone colors are described below:

ORANGE - Oversight Vehicles  
RED - Remedy Activities  
GREEN - Restoration Activities  
BLUE - Maintenance Activities  
BROWN - BEMA Activities  
GREY - Treaty Activities

Access cones can be picked up at a designated location in advance of the activity. Cones must be returned to the point of issue at the end of the scheduled activity. Special arrangements are available for long term use of cones for routine operations and maintenance activities.

**NOTE:** Orange cones take precedence over all other colors and are issued to designated individuals involved with oversight responsibilities of multiple activities as determined by an RVO Health and Safety Manager. These vehicles do not need to schedule activities with the Activities Clerk, **except** for BEMA access.

#### 6.3.2.1 Exceptions

Access cones do not need to be issued for routine service, repairs, or maintenance activities that occur in the designated Open Areas.

6.4 After Hours Work

6.4.1 Communication

During after work hours between 6:00 P.M. and 6:00 A.M. all work crews will contact the Central Dispatcher using the proper site radio frequencies or telephones. Each work crew is required to check in with the Central Dispatch prior to after hours field activities, and check out when the after hours field work is complete. Certain activities may require more frequent check-ins with Central Dispatch as determined by the Dispatcher.

6.4.2 Emergencies

After hours emergencies do not require Activity Coordination or Access Cones, but must be reported the following day.

7.0 RECORDS AND REPORTS

All records generated in this procedure will be managed by the RVO H&S Group as Quality Assurance records.

8.0 ATTACHMENTS

8.1 Daily Pass

8.2 Temporary Pass

8.3 Eagle Decal Pass

8.4 Activities Coordination Form

8.5 Arsenal Access Map

- Closed Areas
- Central Remediation Area
- Open Areas

8.6 Arsenal Map

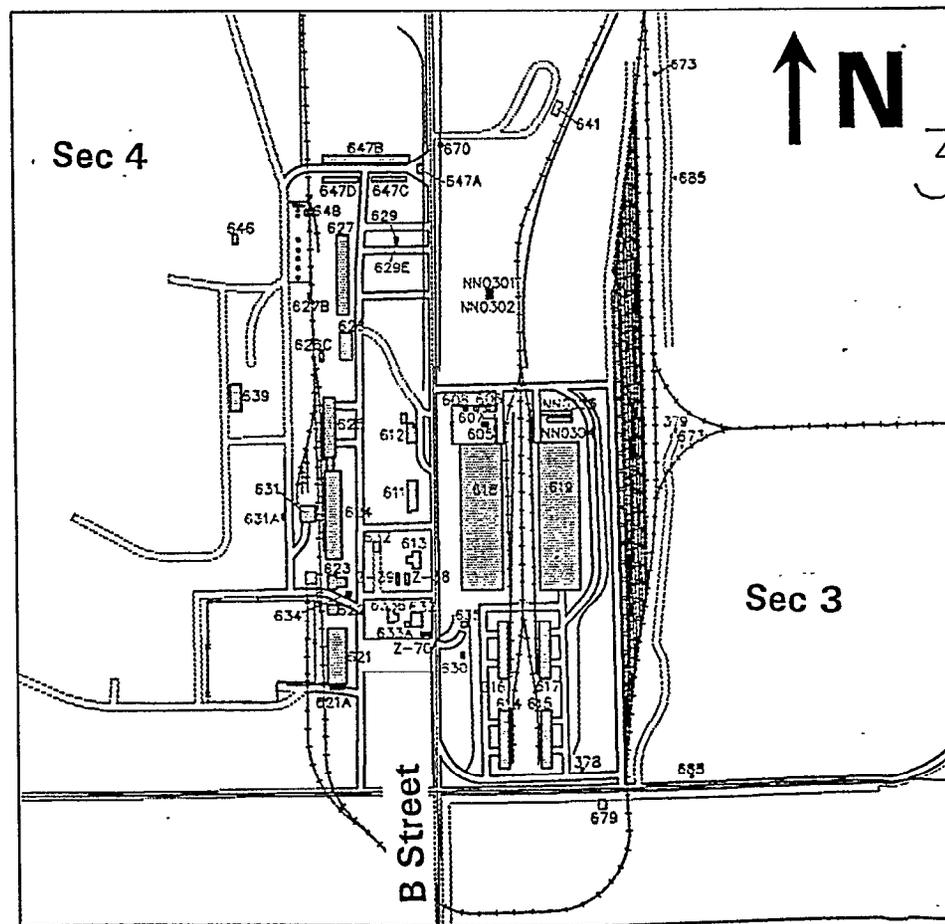
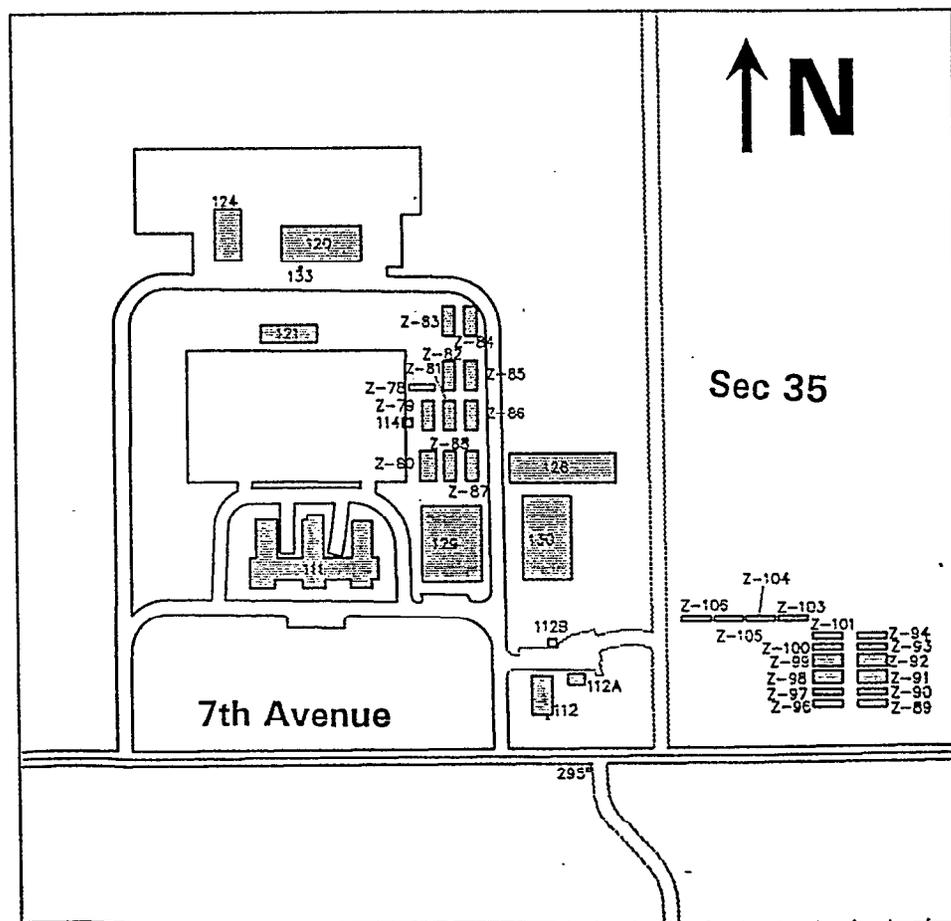
- BEMA Areas

# Rocky Mountain Arsenal Wildlife Refuge

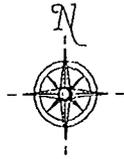
## Visiting Building

Date: \_\_\_\_\_

Access to Rocky Mountain Arsenal Wildlife Area is subject to compliance with Federal, state, local laws and Army regulations. Use of seat-belts is required when ever the vehicle is moving. Speed limits are strictly enforced. Entry into the closed area of the Arsenal , see back map, is prohibited unless approved by RVO Health & Safety Group. Vehicles entering, on and leaving the Arsenal are subject to being searched.



-  Closed Area
-  Open Area
-  Angler Parking Area

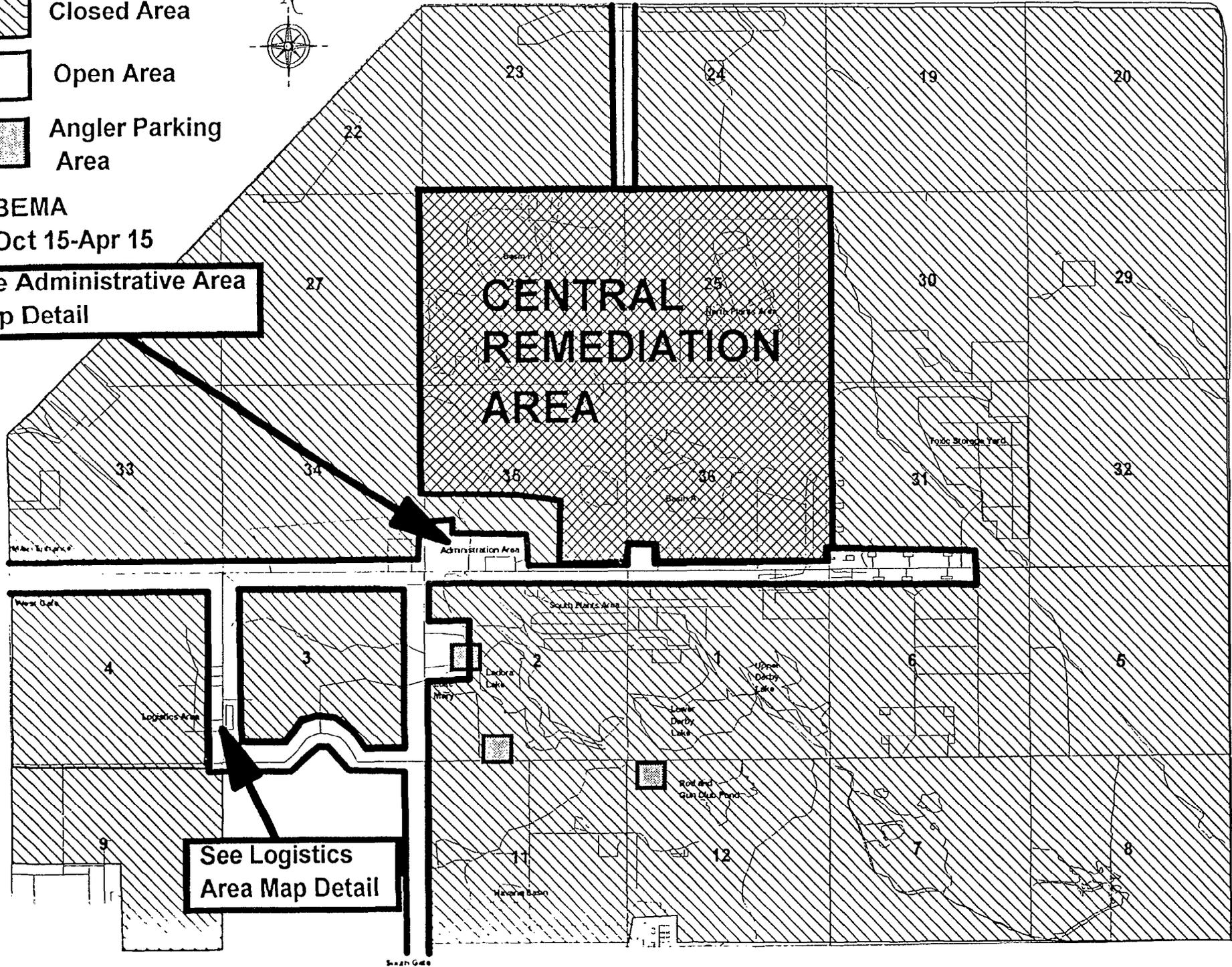


BEMA  
Oct 15-Apr 15

See Administrative Area  
Map Detail

**CENTRAL  
REMEDIATION  
AREA**

See Logistics  
Area Map Detail



**TEMPORARY PASS**

**NAME (LAST, FIRST, MI)**

**COMPANY NAME OR HOME ADDRESS & TELEPHONE NUMBER**

**LICENSE PLATE**

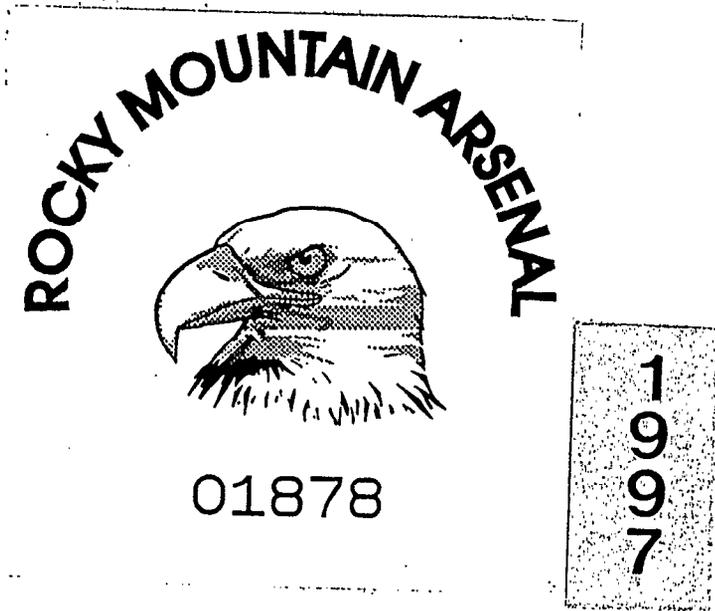
**DATE ISSUED**

**ISSUED BY (PRINTED NAME)**

**PURPOSE**

**EXPIRES**

EAGLE DECAL PASS



RMA ACTIVITIES COORDINATION

WEEK OF: \_\_\_\_\_ COMPANY/AGENCY: \_\_\_\_\_

POC: \_\_\_\_\_ PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

ACTIVITY: \_\_\_\_\_

PPE LEVEL: \_\_\_\_\_ LOCATION: \_\_\_\_\_

DURATION: (DATES) \_\_\_\_\_ TIME: \_\_\_\_\_

NUMBER OF VEHICLES: \_\_\_\_\_

ACTIVITY: \_\_\_\_\_

PPE LEVEL: \_\_\_\_\_ LOCATION: \_\_\_\_\_

DURATION: (DATES) \_\_\_\_\_ TIME: \_\_\_\_\_

NUMBER OF VEHICLES: \_\_\_\_\_

ACTIVITY: \_\_\_\_\_

PPE LEVEL: \_\_\_\_\_ LOCATION: \_\_\_\_\_

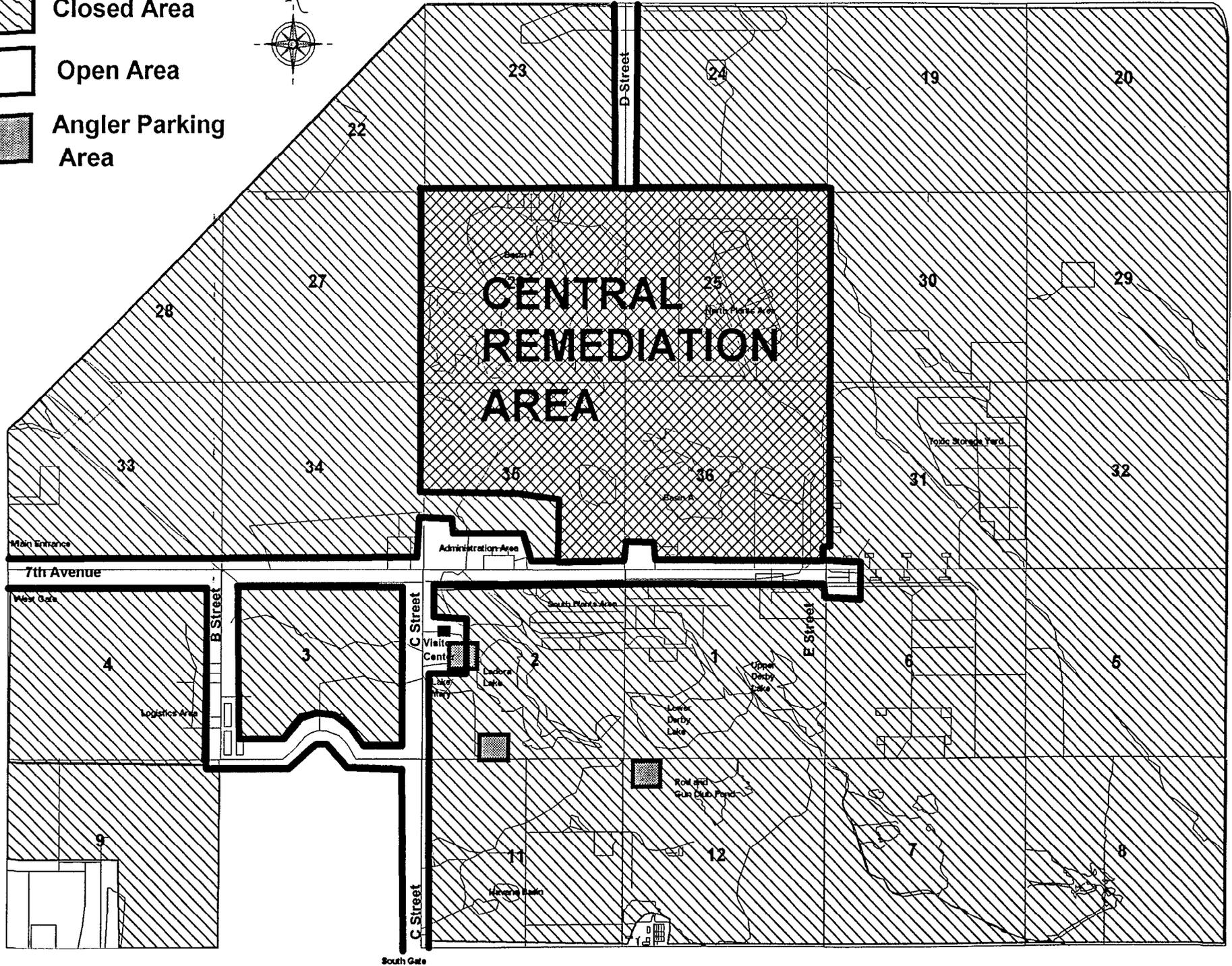
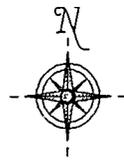
DURATION: (DATES) \_\_\_\_\_ TIME: \_\_\_\_\_

NUMBER OF VEHICLES: \_\_\_\_\_

Return completed by Monday each week to:

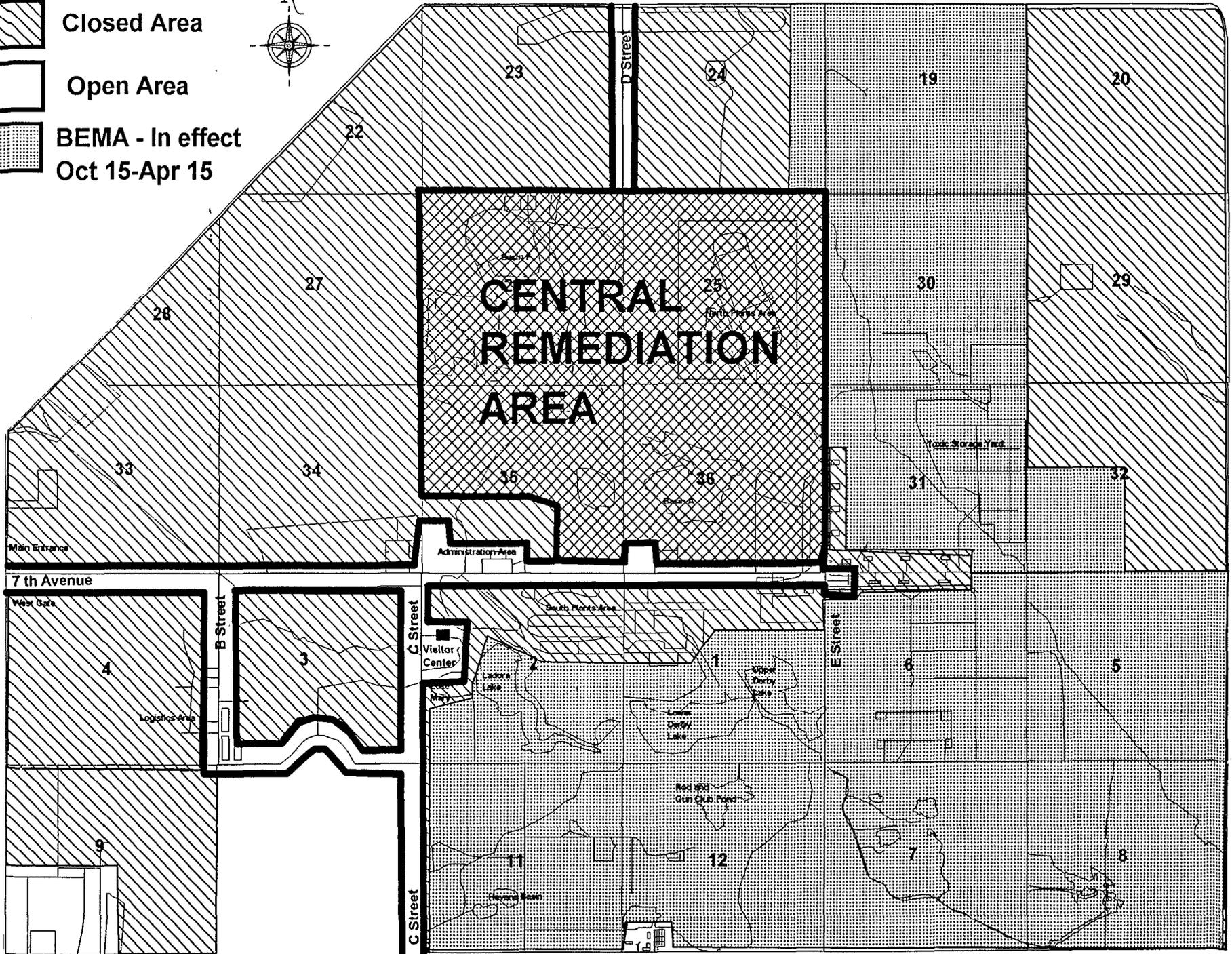
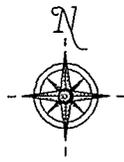
Casey McCutcheon  
U.S. Fish and Wildlife Service  
Rocky Mountain Arsenal, Building 111  
Commerce City, CO 80022-1748  
Phone: (303) 289-0207  
Fax: (303) 289-0489  
E-Mail: am258@freenet.uchsch.edu

-  Closed Area
-  Open Area
-  Angler Parking Area



South Gate

-  Closed Area
-  Open Area
-  BEMA - In effect Oct 15-Apr 15



South Gate

ROCKY MOUNTAIN ARSENAL

HEALTH AND SAFETY PROGRAM

RVO PERFORMER SAFETY AND HEALTH STEERING COMMITTEE REPORTING

Procedure No. 111, Rev. No. 0

Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 16, 1997

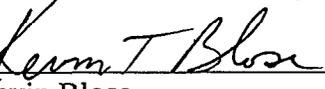
APPROVALS

  
\_\_\_\_\_  
John Isham  
Health and Safety Manager

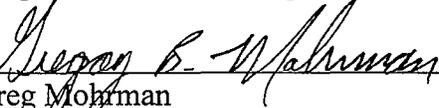
5-20-97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Jamie Griffin  
Quality Assurance Manager

5-20-97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Kevin Blase  
Program Controls Manager

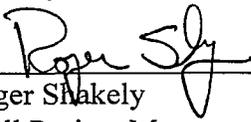
5/23/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Greg Mohrman  
Program Support Manager

6/8/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Charles Scharmann  
Remedy Execution Manager

5/23/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Roger Shakely  
Shell Project Manager

6/8/97  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Ronel Finley  
Fish and Wildlife Remediation Manager

6/12/97  
\_\_\_\_\_  
Date

**RVO PERFORMER  
SAFETY AND HEALTH STEERING COMMITTEE REPORTING**

1.0 PURPOSE

- 1.1 Establish a dialog at the Safety and Health Steering Committee for the sharing of information, problems and concerns.

2.0 SCOPE

- 2.1 This Standard Operating Procedure (SOP) applies to all RVO performers and their subcontractors.

3.0 REFERENCES

- 3.1 Safety and Health Steering Committee Operating Charter, Procedure 102 of this program.

4.0 DEFINITIONS

- 4.1 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager is responsible for supporting this SOP by providing the time and funds necessary to insure participation by the Safety Representative or designated individual in the Safety and Health Steering Committee.
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for providing the necessary information, lessons learned, and identification of safety concerns for presentation at the Safety and Health Steering Committee.
- 5.3 Safety Representative - The Safety Representative or designated individual of the involved organization is responsible for presenting the required information at the Safety and Health Steering Committee.

6.0 REQUIREMENTS

- 6.1 Monthly Report - An oral presentation will be presented for each RVO Performer, with current work activities on RMA. This presentation will include:

**ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

**HEALTH AND SAFETY PROGRAM**

**REV No.**

**PROCEDURE No.**

**PAGE No.**

**0**

**111**

**1 of 2**

- 6.1.1 Status, location, and description of current work activities.
- 6.1.2 Lessons learned about accidents, incidents and near-misses.
- 6.1.3 Identified safety concerns and possible solutions for the committee's discussion.

7.0 RECORDS

- 7.1 The Health and Safety Group will include a summary of the presentations in the minutes for each Safety and Health Steering Committee Meeting.

8.0 ATTACHMENTS

- 8.1 N/A

**ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

**HEALTH AND SAFETY PROGRAM**

**REV No.**

**PROCEDURE No.**

**PAGE No.**

**0**

**111**

**2 of 2**



*Remediation Venture Office*  
 Rocky Mountain Arsenal  
 Commerce City, CO 80022-1748  
 (303)289-0500

DRUG AND ALCOHOL TESTING

RVO SOP: ES&H.112  
 Rev: 0  
 Date: 10/10/97  
 Page: 1 of 3

APPROVALS

*BJW Jones for JI* 10-28-97  
 Originating RVO Organization Manager Date

*James H. ...* 10-29-97  
 RVO Health and Safety Manager Date

*Janie Griffin* 10-29-97  
 Janie Griffin/Quality Assurance Manager Date

*Kevin Blase* 11/4/97  
 Kevin Blase/Program Controls Manager Date

*Carol Occhionero* 11-6-97  
 Carol Occhionero/Program Support Manager Date

*Charles Scharmann* 10/31/97  
 Charles Scharmann/Remedy Execution Manager Date

*Roger Shively* 11/3/97  
 Roger Shively/Shell Project Manager Date

*Ron Finley* 11/03/97  
 Ron Finley/Fish and Wildlife Service Manager Date

## DRUG AND ALCOHOL TESTING

### 1.0 PURPOSE

- 1.1 To provide a drug and alcohol free work place by mandating an effective program which requires each RVO performer to have and consistently manage a Drug and Alcohol Testing Program while performing work at the Rocky Mountain Arsenal.

### 2.0 SCOPE

- 2.1 RVO performers responsible for performing work at the RMA shall comply with the requirements of this SOP, unless they are exempted by a federal or state regulation.

### 3.0 REFERENCES

- 3.1 None

### 4.0 DEFINITIONS

- 4.1 Alcohol - Any beverage made with or containing a liquid (C<sub>2</sub>H<sub>5</sub>OH) synthesized or derived from the fermentation of sugars and starches.
- 4.2 Drug - Any controlled substance other than a prescribed or over the counter medication.
- 4.3 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The manager responsible for the oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this SOP.

5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.

5.4 Employees - All RVO performers shall report to work mentally alert and physically fit as required to complete assigned tasks without endangering themselves or others. Employees will inform their supervisor when under the care of a physician requiring the use of prescription medication that could effect their mental or physical condition.

## 6.0 REQUIREMENTS

6.1 All RVO Performers shall have a Drug and Alcohol program which is available for review and approval by the RVO Health and Safety Group.

6.2 An immediate and mandatory testing policy shall be included for any employee(s) involved with a serious safety or property damage incident at the RMA.

6.3 Positive drug tests related to 6.2 shall be reported to the RVO Health and Safety office immediately.

## 7.0 RECORDS

7.1 None

## 8.0 ATTACHMENTS

8.1 None



*Remediation Venture Office*  
 Rocky Mountain Arsenal  
 Commerce City, CO 80022-1748  
 (303)289-0500

EMERGENCY RESPONSE REQUIREMENTS

RVO SOP: ES&H.113  
 Rev: 0  
 Date: 10/21/97  
 Page: 1 of 4

APPROVALS

*B. W. Jones for JI*  
 Originating RVO Organization Manager 10-28-97  
 Date

*Barrett S. ...*  
 RVO Health and Safety Manager 10-29-97  
 Date

*Janie Griffin*  
 Janie Griffin/Quality Assurance Manager 10-29-97  
 Date

*Kevin T. Blase*  
 Kevin Blase/Program Controls Manager 11/4/97  
 Date

*Carol J. Occhionero*  
 Carol Occhionero/Program Support Manager 11-6-97  
 Date

*Charles Scharmann*  
 Charles Scharmann/Remedy Execution Manager 10/31/97  
 Date

*Roger Shaky*  
 Roger Shaky/Shell Project Manager 11/3/97  
 Date

*Ronell Finley*  
 Ronell Finley/Fish and Wildlife Service Manager 11/03/97  
 Date

1.0 PURPOSE

- 1.1 To establish a requirement for all RVO Performers to develop an emergency action plan for their organization while performing work at the Rocky Mountain Arsenal.

2.0 SCOPE

- 2.1 This Standard Operating Procedure (SOP) applies to all RVO Performers and their subcontractors.

3.0 REFERENCES

- 3.1 RMA-RVO Emergency Response Integrated Contingency Plan

4.0 DEFINITIONS

- 4.1 Emergency Response Organization - The group of personnel trained and designated by each RVO Performer to respond, initiate action, and make decisions in emergency Situations.
- 4.2 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

5.0 RESPONSIBILITIES

- 5.1 Manager - The manager responsible for the oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this SOP.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - RVO performers shall comply with all portions of this SOP.

## 6.0 REQUIREMENTS

- 6.1 All RVO Performers shall develop a site specific Emergency Action Plan (EAP) and make it available for review by the RVO Health and Safety Office. This EAP may be included in the RMA Contingency Plan.
- 6.2 Contingency Plan - The RMA-RVO Integrated Emergency Response Contingency Plan (IERCP) shall be provided to the RVO Contractor as requirements to be included in the RVO Contractor's EAP.
- 6.3 Training - The RVO Performer shall provide documented EAP training to all employees working at the RMA. EAP training as a minimum will cover the topics as outlined in section 6.5 and will be documented accordingly. Refresher training shall be provided at least annually.
- 6.4 Assistance - The RMA Fire and Emergency Services will assist the RVO Performer with initial response to all medical, fire or rescue emergencies.
- 6.5 The EAP developed by the RVO Performer shall include discussion of the following topics:
  - 6.5.1 Availability of the EAP - Locations of copies for employee review shall be identified.
  - 6.5.2 Emergency Management Organization - RVO Performer members and their job titles shall be identified.
  - 6.5.3 Notification, Record keeping and Reports - The notification sequence and reporting requirements shall be identified. Copies of site specific communication forms, and a critique procedure for emergency events shall be included.
  - 6.5.4 Authority - Specify the line of authority within the RVO Performer organization.
  - 6.5.5 Site Evacuation Plan - Identify evacuation routes, location of safe refuges, and an employee accountability procedure should be included.
  - 6.5.6 Severe Weather Response Plan - All potential severe weather conditions which may threaten the site shall be identified. Actions and

response functions which employees and supervisors are to take or perform shall be included.

6.5.7 Fire/Explosion Response Plan - Employee actions in response to fire and explosions shall be identified. Conditions requiring employee evacuation and safe distances shall be specified.

6.5.8 Material Release Response Plan - Foreseeable release scenarios shall be discussed. Include on site transportation spills of realistic chemicals ( i.e., diesel fuel, oils, contaminated waste water, acids, caustics, etc.)

6.5.9 Employee Training - Topics to be discussed during training sessions and frequency and type of training shall be specified.

## 7.0 RECORDS

7.1 The Emergency Response Plan is a Quality Assurance (QA) document.

7.2 Employee training records are considered Quality Assurance (QA) documents.

## 8.0 ATTACHMENTS

8.1 None

ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM  
MEDICAL SURVEILLANCE AND SERVICES  
Procedure No. 114, Rev. No. 0

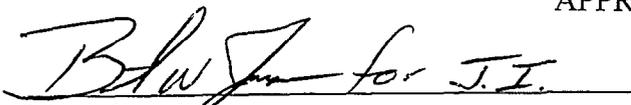
Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 16, 1997

APPROVALS

  
John Isham  
Health and Safety Manager

5-20-97  
Date

  
Janie Griffin  
Quality Assurance Manager

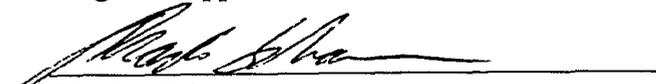
5-20-97  
Date

  
Kevin Blöse  
Program Controls Manager

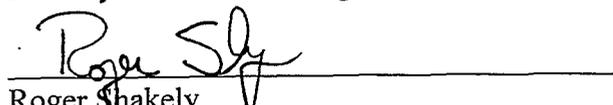
5/23/97  
Date

  
Greg Mohrman  
Program Support Manager

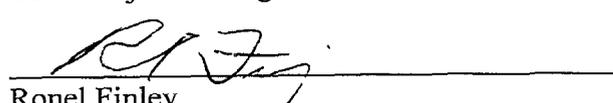
6/3/97  
Date

  
Charles Scharmann  
Remedy Execution Manager

5/23/97  
Date

  
Roger Shakely  
Shell Project Manager

6/9/97  
Date

  
Ronel Finley  
Fish and Wildlife Remediation Manager

6/12/97  
Date

## MEDICAL SURVEILLANCE AND SERVICES

### 1.0 PURPOSE

- 1.1 To establish a thorough and effective program necessary to ensure the availability and capabilities for providing prompt medical attention in case of injuries or illnesses and to ensure medical evaluation and consultation for employees.

### 2.0 SCOPE

- 2.1 RVO and RVO performers responsible for performing work at the RMA shall comply with the requirements of this SOP and applicable standards and regulations.

### 3.0 REFERENCES

- 3.1 OSHA 29 CFR Part 1926.50 Medical services and first aid
- 3.2 OSHA 29 CFR Part 1926.65 Hazardous waste operations and emergency response.
- 3.3 OSHA 29 CFR Part 1910.1030 Bloodborne Pathogens

### 4.0 DEFINITIONS

- 4.1 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements as outlined in this SOP.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - RMA employees shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

#### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

## 6.0 REQUIREMENTS

- 6.1 Baseline Examination. The RVO Performer shall provide a baseline medical examination for all RMA Site workers prior to work with hazardous material.
- 6.2 Annual Examination. The RVO Performer shall provide an annual medical exam within 12 months for each site worker who received a baseline exam and worked with hazardous material.
- 6.3 Exit Examination. The RVO Performer shall provide an exit exam to each worker, if the baseline or annual was greater than six months prior to termination of RMA site work.
- 6.4 Medical Exam Criteria. Medical exam criteria shall be established by an occupational physician based on the hazards at the Rocky Mountain Arsenal.
- 6.5 Qualified Workers. A list of approved workers is required to be kept available at the RVO Contractors site office for review by the RVO.
- 6.6 First Aid Response. The RVO Performer shall have a trained CPR and first aid responder with each crew who can adequately respond to render first aid.

## 7.0 RECORDS

- 7.1 All records generated by this SOP are Quality Control (QC) documents and are subject to review by the RVO Health and Safety office.

## 8.0 ATTACHMENTS

- 8.1 None



HEALTH AND SAFETY PLANS

RVO SOP: ES&H.200  
 Rev: 0  
 Date: 10/16/97  
 Page: 1 of 4

APPROVALS

*John M. John*  
 \_\_\_\_\_  
 Originating RVO Organization Manager

*10/29/97*  
 \_\_\_\_\_  
 Date

*Benjamin D. [Signature]*  
 \_\_\_\_\_  
 RVO Health and Safety Manager

*10/29/97*  
 \_\_\_\_\_  
 Date

*Janie Griffin*  
 \_\_\_\_\_  
 Janie Griffin/Quality Assurance Manager

*10/29/97*  
 \_\_\_\_\_  
 Date

*Kevin T. Blase*  
 \_\_\_\_\_  
 Kevin Blase/Program Controls Manager

*11/4/97*  
 \_\_\_\_\_  
 Date

*Carol J. Occhionero*  
 \_\_\_\_\_  
 Carol Occhionero/Program Support Manager

*11-6-97*  
 \_\_\_\_\_  
 Date

*Charles Scharmann*  
 \_\_\_\_\_  
 Charles Scharmann/Remedy Execution Manager

*10/31/97*  
 \_\_\_\_\_  
 Date

*Roger Shakely*  
 \_\_\_\_\_  
 Roger Shakely/Shell Project Manager

*11/3/97*  
 \_\_\_\_\_  
 Date

*Ronell Finley*  
 \_\_\_\_\_  
 Ronell Finley/Fish and Wildlife Service Manager

*11/03/97*  
 \_\_\_\_\_  
 Date

## HEALTH AND SAFETY PLANS

### 1.0 PURPOSE

- 1.1 This procedure identifies the basic requirements for RVO Performer Site Specific Health and Safety Plans. Referring to RVO Health and Safety Procedures when applicable, is acceptable for compliance with this SOP.

### 2.0 SCOPE

- 2.1 RVO Performers responsible for performing work at the RMA shall comply with the requirements of this Standard Operating Procedure (SOP).

### 3.0 REFERENCES

- 3.1 29 CFR Part 1926.65 Hazardous Waste Operations and Emergency Response
- 3.2 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, prepared by the National Institute for Occupational Safety and Health (NIOSH).
- 3.3 RVO Health and Safety Program

### 4.0 DEFINITIONS

- 4.1 HAZWOPER - Hazardous Waste Operations and Emergency Response.
- 4.2 HASP - Health and Safety Plan, a site and organization specific document.
- 4.3 RVO Performers - Any federal, state, county or city government agency , private contractor, subcontractor, or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and resources necessary to implement an effective program, as outlined in this procedure.

5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this procedure.

5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.

## 6.0 REQUIREMENTS

6.1 All RVO performers responsible for performing work shall prepare a written HASP and submit it for review and approval to the RVO Health and Safety Office fifteen (15) working days prior to beginning work on the RMA.

6.2 Each Site Specific Safety and Health Plan will address the following topics:

- 1) Program Availability
- 2) Organizational Structure
- 3) Site Location and Description
- 4) Responsibilities
- 5) Comprehensive Work Plan
- 6) Site Hazards and Controls
- 7) General Safe Work Practices
- 8) Housekeeping
- 9) Training
- 10) Medical Surveillance
- 11) Personal Protective Equipment
- 12) Personal Exposure Monitoring
- 13) Decontamination
- 14) Sanitation
- 15) Exposure to the Elements
- 16) Illumination
- 17) Environmental Concerns
- 18) Emergency Preparedness
- 19) Emergency Procedures
- 20) Confined Space Entry
- 21) Substance Abuse Policy

## 7.0 RECORDS

7.1 Written Health and Safety Plans are considered Quality Assurance (QA) documents.

8.0 ATTACHMENTS

8.1 None

ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM

**SAFETY MEETINGS**  
**Procedure No. 201, Rev. No. 0**

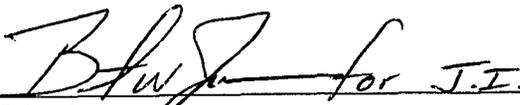
Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 16, 1997

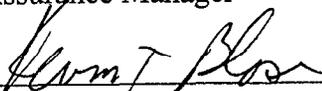
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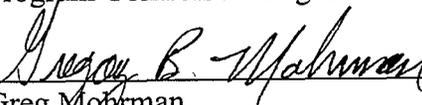
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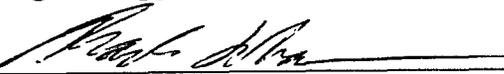
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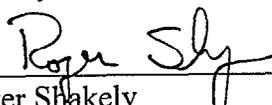
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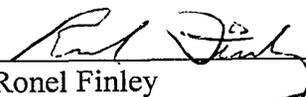
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Roger Shakely  
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6/9/97  
Date

  
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Ronel Finley  
Fish and Wildlife Remediation Manager

6/12/97  
Date

## SAFETY MEETINGS

### 1.0 PURPOSE

- 1.1 To communicate effectively and consistently the importance of integrating health and safety into all aspects of work. This includes pre-work planning, employee participation, ownership and feedback.

### 2.0 SCOPE

- 2.1 RVO performers shall comply with the requirements of this SOP.

### 3.0 REFERENCES

- 3.1 None

### 4.0 DEFINITIONS

- 4.1 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements as outlined in this SOP.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - RMA employees shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

### 6.0 REQUIREMENTS

- 6.1 Tail Gate Meetings - The RVO Performers shall conduct "Tail Gate" safety meetings with each work crew performing field work any time a change in condition or process happens to review workplace safety and proper work practices.

#### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

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6.2 Weekly Meetings - The RVO Performers shall conduct weekly safety meetings for all employees engaged in field activities to review and resolve safety and health issues associated with work activities. Employees shall be encouraged to participate. Safety meeting topics shall be documented and kept on file.

6.3 Monthly Meetings - The RVO Performer and appropriate subcontractor management (if requested) shall attend and participate in the monthly Safety and Health Steering Committee meeting. Each meeting lasts approximately two (2) hours and serves as a method to communicate contractor activities or concerns, address programmatic issues related to safety and review any other safety and health processes (see procedure 102).

## 7.0 RECORDS

7.1 All safety meeting topics and attendance lists shall be documented and kept on file at the RMA and be made available for review by the RVO Health and Safety group if requested. These documents are Quality Assurance (QA) records.

## 8.0 ATTACHMENTS

8.1 None

### **ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

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FALL PROTECTION

RVO SOP: ES&H.202  
 Rev: 0  
 Date: 10/16/97  
 Page: 1 of 12

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## FALL PROTECTION

### 1.0 PURPOSE

- 1.1 This procedure is intended to provide guidance to RVO Performers on the requirements of fall protection on the RMA.

### 2.0 SCOPE

- 2.1 All RVO performers responsible for performing work on the RMA shall comply with the requirements of this Standard Operating Procedure (SOP).

### 3.0 REFERENCES

- 3.1 29 CFR Part 1926, Subpart M, Fall Protection
- 3.2 29 CFR Part 1926.1051, General Requirements
- 3.3 29 CFR Part 1926.1052, Stairways

### 4.0 DEFINITIONS

- 4.1 Competent Person - A person who is capable of identifying and correcting fall hazards.
- 4.2 Guardrail System - A fixed or portable system comprised of a top rail, intermediate rail (mid rail), vertical posts spaced no more than eight (8) feet on center, and a toe board, installed to prevent personnel, materials, tools, or equipment from falling.
- 4.3 Lanyard - A rope or other suitable material used to fasten the safety harness to a lifeline or other suitable anchorage.
- 4.4 Lifeline - A lifeline is a flexible line used for connection to an anchorage at one end to hang vertically (vertical lifeline) or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting a lanyard or safety harness to the anchorage.
- 4.5 Personal Fall Arrest System - A system used to stop an employee from falling onto objects or surfaces. It consists of an anchorage, connectors, a

body harness, and may include a lanyard, deceleration device, lifeline, or a combination of these.

- 4.6 Qualified Person - A person who has been trained and is competent in the requirements of life lines.
- 4.7 RVO Performers - Any federal, state, county or city government agency , private contractor, subcontractor, or organization providing services to the RVO.
- 4.8 Safety Harness - A device consisting of straps which may be secured about the employee in a manner to distribute the fall arresting forces over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a personal fall arrest system.
- 4.9 Safety Monitoring System - A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards. The observer must be present at all times while the elevated work is being performed.
- 4.10 Safety net system - A system used to catch an employee in the event of a fall from an upper level.
- 4.11 Stair rail System - A permanent or temporary system comprised of a top rail intermediate rail, a handrail, vertical posts spaced no more than eight (8) feet on center, and/or a toeboard, installed to prevent personnel, materials, tools or equipment from falling.
- 4.12 Structural Metal Railings - All components, posts, top rails, and intermediate rails consist of at least two-by-two-by three eighth inch (2 x 2 x 3/8 in.) angle iron or other metal materials of equivalent strength.
- 4.13 Toe boards - A standard toe board consists of one by four inch (1x4 in.) nominal wood stock or material of equivalent strength installed with a maximum one-fourth inch (1/4 in.) space between the bottom edge of the toeboard and the floor, stairs platform, ramp, or runway.
- 4.14 Warning Line System - A barrier erected to warn employees that they are approaching an unprotected roof side or edge.
- 4.15 Wood railings - A wood rail system consists of lumber with minimum

(nominal) dimensions of two-by-four inches (2 x 4 in.) for all components except the intermediate rail, which may be one-by-six inch (1 x 6 in.) stock. The top rail must be smooth surfaced throughout the length, and free from splinters. Only good quality lumber, free from large or loose knots shall be used.

## 5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager responsible for the oversight of the work being performed shall support this SOP by providing the time and resources necessary to implement an effective program, as outlined in this procedure.
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this procedure.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - RVO Performers shall be responsible for following the procedures outlined in this SOP.

## 6.0 REQUIREMENTS

### 6.1 General Requirements

- 6.1.1 All RVO Performers performing work involving potential fall hazards shall adopt this SOP or develop an equivalent written fall protection plan, and submit it to the RVO Health and Safety Office for approval.
- 6.1.2 Employees working over any machinery, open spaces, hazardous substances, unguarded heights, steep slopes or otherwise subjected to falls 6 feet or greater shall be protected by fixed scaffolding, guard rails, safety nets, or secured by personal fall arrest systems.
- 6.1.3 A personal fall arrest system is designed to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or a suitable combination of these.

- 6.1.4 Safety harnesses, lanyards and lifelines shall be used only for safeguarding employees and for no other purpose.
- 6.1.5 Safety belts shall not be used for fall protection.
- 6.1.6 Safety harnesses, lanyards and lifelines shall be inspected and maintained in safe condition. Prior to use, they shall be visually inspected for any signs of damage or deterioration such as wear, thread damage, fraying, deformed or cracked buckles or D-rings, cuts, tears, or damage caused by heat (melting, charring, burning). Equipment which is found to be damaged shall be removed from service immediately.
- 6.1.7 Any safety harness, lanyard, or lifeline subjected to in-service loading as a result of a fall shall be removed from service.
- 6.1.8 Lifelines, lanyards, and safety straps shall be free of knots or splices except at their terminals.
- 6.1.9 The safety harness, lifeline and lanyard shall be so arranged that the worker cannot fall more than six feet.
- 6.1.10 All safety harness and lanyard hardware shall be drop forged or pressed steel, cadmium plated in accordance with type 1, Class B plating specified in Federal Specification Q-P-416. Surfaces shall be smooth and free of sharp edges.
- 6.1.11 All safety harness and lanyard hardware shall be capable of withstanding a tensile loading of 3600 pounds without cracking, breaking, or permanently deforming.
- 6.1.12 RVO performers shall ensure that all walking/working surfaces 6 feet or more above a lower level are protected by a guardrail system, safety net system, or fall arrest system. Whenever a conventional fall protection system is not used, an RVO approved task specific plan shall be implemented.

## 6.2 Safety Harnesses

- 6.2.1 Employees shall be provided with and required to use approved safety harnesses, adjusted to the correct size.

6.2.2 The safety harness shall be attached by means of a lanyard to either a fixed anchor or a lifeline.

6.2.3 Each employee will wear a safety harness with a safety lanyard secured to a separate lifeline while working from swing scaffolds, bos'n chairs, or other suspended work platforms where a falling hazard is present.

### 6.3 Lanyards

6.3.1 The lanyard will have a maximum length to provide for a fall of no greater than 6 feet.

6.3.2 Where a hook is used to attach a lanyard to a fixed anchor it shall be an approved safety hook.

6.3.3 A lanyard shall be attached to the safety harness in such a way that it cannot pass through the belt fittings, should either become loose from its anchorage.

6.3.4 When working in proximity to energized electrical circuits, non-conductive lanyards shall be worn.

### 6.4 Lifelines

6.4.1 Secure attachment points shall be used, and shall be visually inspected for damage or deterioration daily.

6.4.2 Each employee must have a separate lifeline when the lifeline is vertical, such as when working from swing scaffolds, bos'n chairs, or other suspended work platforms when a falling hazard is present, or when required to work on hoppers, tanks and similar storage areas.

6.4.3 The design of systems using horizontal lifelines must be done by qualified persons.

6.4.4 Each anchorage serving as an attachment point for lifelines shall be load tested prior to use, periodically, and after any modifications.

6.4.5 Thimbles shall be installed to protect ropes from chafing at points of connection to eyes, rings, and snaps.

6.4.6 Lifelines shall be secured above the point of operation to an anchorage point capable of supporting at least 5000 pounds per employee attached or maintain a safety factor of two or better.

6.4.7 When an employee is working under circumstances where he/she might become entrapped or overcome by any cause, he/she shall wear a safety harness attached to a lifeline or other device, attended by another person who shall be stationed, and capable of immediately executing a rescue.

## 6.5 Safety Nets

6.5.1 In circumstances where other fall protection cannot be used or is impractical, safety nets shall be provided.

6.5.2 Nets shall be inspected daily when in use, for damage or wear.

6.5.3 Nets shall extend beyond the edge of the work surfaces where employees are exposed and shall be no more than 30 feet below the working surfaces. Table 1 lists the specific requirements for extension beyond a work surface.

6.5.4 Maximum mesh size of the nets shall be 6 inches by 6 inches.

6.5.5 Attachment points for safety nets shall have a minimum breaking strength of 5000 pounds.

6.5.6 A drop test shall be performed with a weight of 400 pounds, 30 inches in diameter, from the working surface.

## 6.6 Temporary Flooring

6.6.1 Prior to dismantling or installing a temporary floor the responsible supervisor shall ensure all affected personnel are notified, and crew members understand their assigned tasks.

6.6.2 All temporary floors shall cover the entire area except where openings are required for access ladders, stairways, ramps, and for material or personnel hoisting machinery and equipment. These openings shall have standard guardrail systems installed around the perimeters.

6.6.3 Planks used for flooring shall not be less than two (2) inches thick, full size, undressed lumber. The planks shall be laid tightly abutting each other, supported on load-bearing structural members, and be securely fastened to the framework of the structure.

6.6.4 Employees shall be protected by a safety railing of ½ inch diameter wire rope or equivalent material, or standard guardrail system installed around the open sides and in unguarded periphery openings of above ground floors in tiered buildings and other multi-floored structures during demolition. All wire rope and equivalent material shall be kept taut to maintain three (3) inches maximum deflection.

#### 6.7 Stairs and Stairwells

6.7.1 Stairs with four (4) or more risers or greater than thirty (30) inches high, whichever is less, must be equipped with a proper stair rail system and, where necessary, a guardrail system.

6.7.2 All temporary stairs must be constructed to safely support a load of one hundred pounds per square foot (100 lb/ft<sup>2</sup>) of tread and landing surface. Temporary stairs shall be constructed so that the treads and risers are of uniform width and height in any one flight.

6.7.3 Temporary stairs shall have a landing not less than 30 inches in the direction of travel and 22 inches in width at every 12 feet or less of vertical rise.

6.7.4 Where doors or gates open directly onto a stairway, a platform will be provided that allows at least 20 inches of clearance from the swing of the door or gate.

6.7.5 All temporary stairs shall have a minimum of five foot candles of illumination during evening and night shifts, or periods of reduced natural light. All open sides of stairways and landings shall be guarded with standard guard and stair railing systems including toe boards.

6.7.6 Temporary railings or enclosures removed for the purpose of handling materials or other work shall be immediately replaced upon completion of such work.

6.7.7 Stairways designed and installed with steel treads and landings to receive concrete or other filling material, shall have temporary full width wooden filler treads and landings installed to the height of the nosing. All wooden filler material will be firmly fitted and secured in place.

6.7.8 The wooden filler treads shall be free from protruding nails and splinters. Treads shall be replaced when any part is worn below the height of the nosing.

## 6.8 Standard Guardrail and Stair Rail Systems

6.8.1 All guardrail and stair rail systems shall be constructed of wood, metal pipe, angle iron or other equivalent strength metal materials. Guardrail and stair rail systems shall withstand a minimum applied (from any direction) load of two hundred (200) pounds with minimal deflection.

6.8.2 Standard stair rail and guardrail systems shall consist of a top and intermediate rail, upright supports spaced no less than eight (8) feet on center, and four (4) inch high toe boards. Additionally, stair rail systems will incorporate a separate or integrated standard handrail.

6.8.3 The top rail shall be forty-two (42) inches plus or minus three (3) inches from the floor or platform to the upper surface of the top rail. The intermediate railing shall be midway between the floor or platform and the top edge of the guardrail system.

6.8.3.1 A stair rail system top rail used as a handrail shall be no more than thirty-seven (37) inches nor less than thirty-six (36) inches from the tread at the face of the riser to the top surface of the rail.

6.8.3.2 A handrail installed as a separate component of a stairrail system will not be more than thirty-seven (37) inches nor less than thirty (30) inches from the top of the handrail to the surface of the tread.

6.8.4 Light wood rails or scantlings resting on barrels, boxes or other makeshift supports are not to be used as guardrails.

6.8.5 Where material is piled to such a height that a standard toeboard does not provide protection, solid paneling or mesh screening with openings no greater than one-half (1/2) inch shall be installed from the floor to the intermediate or top rail.

#### 6.9 Open-Sided Floors, Platforms and Runways

6.9.1 Every open-sided floor, platform, and runway six (6) feet or more above adjacent surfaces shall be guarded on all open sides by a standard railing system with toe boards. Entrances to ramps, stairways or fixed ladders required for employee access and egress are exempt, unless work is performed in the immediate vicinity of such openings.

6.9.2 Wherever materials are regularly passed over the edge of the floor, a removable section of the railing may be installed. A personal fall arrest system must be provided if an employee must lean through the access opening to receive or guide equipment or material.

6.9.3 Every inclined runway erected for the use of workers, shall be provided with cleats not more than sixteen inches (16") apart to prevent slipping and to aid workers in maneuvering the incline.

6.9.4 Walkways extending from shore to a floating pump or equipment platform shall have standard guardrails installed.

#### 6.10 Floor and Wall Openings

6.10.1 Every permanent or temporary floor opening shall be guarded either by a guardrail system and toeboard on all exposed sides (except at entrances to stairways), or a cover of sufficient strength to safely support at least twice the expected loads. Coverings shall be secured to prevent accidental removal or displacement. Openings from which covers have been removed shall be constantly attended by assigned personnel, protected by a portable guardrail system or by other effective means.

6.10.2 Wall openings from which there is a drop of more than six (6) feet, and the bottom of the opening is less than thirty-nine (39) inches above the working surface, shall be guarded.

7.0 RECORDS

7.1 Written fall protection plans when applicable.

8.0 ATTACHMENTS

8.1 Table 1

TABLE 1

<b>Vertical distance From Work Surface to Net</b>	<b>Minimum Horizontal Distance to Outer Edge of Net From Work Surface</b>
0 to 5 feet	8 feet
5 to 10 feet	10 feet
10 to 30 feet	13 feet



*Remediation Venture Office*  
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PERSONAL PROTECTIVE EQUIPMENT

RVO SOP: ES&H.204  
 Rev: 0  
 Date: 10/16/97  
 Page: 1 of 7

APPROVALS

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*Charles Scharmman*  
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*Roger Shakely*  
 Roger Shakely/Shell Project Manager 11/3/97  
 Date

*Ronell Finley*  
 Ronell Finley/Fish and Wildlife Service Manager 11/03/97  
 Date

## PERSONAL PROTECTIVE EQUIPMENT

### 1.0 PURPOSE

- 1.1 To establish effective and consistent Personal Protective Equipment requirements for all RVO Performers.

### 2.0 SCOPE

- 2.1 RVO Performers responsible for performing work at the RMA shall comply with the requirements of this Standard Operating Procedure (SOP). It establishes the minimum Personal Protective Equipment requirements necessary for most routine, non-intrusive work activities on the RMA. Separate, task specific procedures will be utilized for intrusive and non-routine activities.

### 3.0 REFERENCES

- 3.1 29 CFR Part 1926.65 Hazardous Waste Operations and Emergency Response
- 3.2 29 CFR Part 1926.28 Personal Protective Equipment .
- 3.3 29 CFR Part 1926 Subpart E, Personal Protective and Lifesaving equipment
- 3.4 29 CFR Part 1910 Subpart I, Personal Protective Equipment
- 3.5 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response

### 4.0 DEFINITIONS

- 4.1 Personal Protective Equipment (PPE) - Clothing and equipment designed to provide employees protection from chemical, physical, and biological hazards that may be encountered in the workplace..
- 4.2 RVO Performers - Any federal, state, city or county government agency, private contractor, subcontractor or organization providing services to the RVO.

- 4.3 **Intrusive Work Activities** - Any activity that disturbs or disrupts a potentially harmful chemical, physical, or biological hazard, thus creating a work zone that could expose unprotected personnel to hazardous conditions. Intrusive work activities include but are not limited to the following types of work: excavation, demolition, alteration of a structure, soil boring, soil sampling, opening drums, drilling, etc.
- 4.4 **Non-Intrusive Work Activities** - Any activity that does not disrupt or disturb potentially harmful chemical, physical, or biological hazards. Non-Intrusive work activities include but are not limited to the following types of work: surveying, visual inspections, magnetometer screenings, etc.
- 4.5 **Routine Activities** - For the purposes of this procedure, Routine Activities are defined as activities that have been approved by the RVO Health and Safety Group for the level of PPE currently required in a specified work area.
- 4.6 **Non-Routine Activities** - For the purposes of this procedure, Non-Routine Activities are defined as activities that have not been approved by the RVO Health and Safety Group for the level of PPE currently required in a specified work area.
- 4.7 **Moderate Skin Hazards** - No liquid or splash hazards exist, but exposures to chemical, physical, or biological skin hazards resulting from contact with contaminated soil, vegetation, structures, wildlife etc, are possible.
- 4.8 **Minimal Skin Hazards** - No liquid or splash hazards exists and exposures to chemical, physical, or biological skin hazards resulting from contact with contaminated soil, vegetation, structures, wildlife, etc, are possible but unlikely.
- 4.9 **Modified Level D Personal Protective Equipment** - Personal Protective Equipment required when moderate skin hazards may exist but no respiratory protection is required. Modified Level D protection includes but is not limited to the following:
- Chemical resistant work boots or work boots with chemical resistant covers
  - Tyvek coveralls or the equivalent
  - Hard hat (when required)
  - Safety glasses with side shields
  - Hearing Protection (when required)

4.10 Level D Personal Protective Equipment - Personal Protective Equipment required when minimal skin hazards may exist, but no respiratory protection is required. Level D protection consists of but is not limited to the following:

- Work boots adequate for the hazards
- Cotton coveralls
- Hard hat (when required)
- Safety glasses with side shields (when required)
- Hearing Protection (when required)

4.11 General Work Clothes and Equipment - Personal Protective Equipment required when working in areas where no respiratory or chemical skin hazards exist. General Work Clothes and Equipment consist of but are not limited to the following:

- Work boots adequate for the hazards
- Full length pants
- Shirt with sleeves
- Hard Hat (when required)
- Safety Glasses with side shields (when required)
- Hearing Protection (when required)

## 5.0 RESPONSIBILITIES

5.1 Manager - The Manager responsible for the work being performed shall support this SOP by providing the time and resources necessary to implement an effective program, as outlined in this procedure.

5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this procedure.

5.3 Safety Representative - The Safety Representative(s) of the involved organizations(s) is responsible for ensuring that their employees are properly trained in the use of PPE.

5.4 Employees - Employees shall use the PPE prescribed by their employer only in the manner in which they have been trained.

## 6.0 REQUIREMENTS

- 6.1 Respirators - MSHA/NIOSH approved respirators shall be used when harmful dusts, mists, gases, fumes, or other respiratory hazards are known or suspected to be present at potentially hazardous concentrations.
- 6.2 Protective Clothing - Employees will wear protective clothing that is appropriate for the task being performed. The minimum requirements are listed in table 7.1.
- 6.3 Ear Plugs and Ear Muffs - A Hearing Conservation Program is required when noise levels exceed the 85 dB(A) action level. Hearing protection devices must be worn when noise levels exceed the OSHA PEL for noise exposure.
- 6.4 Safety Harnesses, Lanyards, and Lifelines - Employees will use safety harnesses, lanyards, and lifelines when working from unguarded surfaces six (6) feet or more above a lower level, or anytime a fall may result in impalement, immersion into a chemical, or entanglement in moving equipment (see RVO Health and Safety Procedure # 202, Fall Protection).
- 6.5 Goggles, Safety Glasses with side shields, and Face Shields. - Appropriate eye and face protection are required when performing tasks such as:
- Welding, burning, or cutting with torches
  - Using abrasive wheels, portable grinders, or files
  - Working with hazardous chemicals
  - Chipping concrete, stone, or metal
  - Working with any materials subject to scaling, flaking, or chipping
  - Lawn mowing/trimming
  - Drilling
  - Working under dusty conditions
  - Sand or water blasting
  - Using explosive actuated fastening or nailing tools
  - Working with compressed air or other gasses
  - Working near any of the operations listed above
  - Any other task presenting eye hazards
- 6.6 Hard Hats - All construction job sites are considered Hard Hat Areas. All individuals shall wear approved hard hats while inside construction areas, and other areas where potential overhead hazards exist.

6.7 Foot and Leg Protection - Employees will wear foot and leg PPE to protect against hazards associated with a task. The minimum requirement for foot protection usually consists of substantially constructed work boots.

6.8 Safety Vests - Site workers will wear safety vests while working in the vicinity of operating heavy equipment. Employees will wear safety vests with reflective strips when exposed to vehicular traffic, and during evening and night work.

6.8.1 Safety vests shall be removed when working on machinery with rotating or moving parts, or in the vicinity of such machinery.

6.9 General area specific PPE requirements

6.9.1 Table 1 summarizes the minimum PPE requirements for routine, nonintrusive work in various areas of the RMA. These requirements are subject to modification at the discretion of the RVO Health and Safety Group. PPE requirements for Non-routine and intrusive activities are addressed in Task Specific PPE requirement plans.

## 7.0 RECORDS

7.1 All records associated with this SOP are considered Quality Assurance (QA) documents.

## 8.0 ATTACHMENTS

8.1 Table 1, Area Specific PPE Requirements

TABLE 1 Area Specific PPE Requirements

<b>WORK AREA</b>	<b>TYPE OF ACTIVITY</b>	<b>MINIMUM PPE REQUIREMENT</b>
Sections 36, 20	Routine, non-intrusive work	Modified level D
North Plants, South Plants	Routine, non-intrusive work	Level D
Water treatment plants	Routine, non-intrusive work	Level D
Other areas outside of the General Access Area with potential for contamination	Routine, non-intrusive work	Level D
Inside the General Access Area	Routine maintenance	General Work Clothes and Equipment
Office areas	Office work	none



*Remediation Venture Office*  
 Rocky Mountain Arsenal  
 Commerce City, CO 80022-1748  
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MOTOR VEHICLES AND HEAVY EQUIPMENT

RVO SOP: ES&H.205  
 Rev: 0  
 Date: 10/09/97  
 Page: 1 of 3

APPROVALS

*BTW* for JI  
 Originating RVO Organization Manager  
 10-29-97  
 Date

*[Signature]*  
 RVO Health and Safety Manager  
 10-29-97  
 Date

*Janie Griffin*  
 Janie Griffin/Quality Assurance Manager  
 10-29-97  
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*Kevin Blose*  
 Kevin Blose/Program Controls Manager  
 11/4/97  
 Date

*Carol Occhionero*  
 Carol Occhionero/Program Support Manager  
 11-6-97  
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*Charles Scharmman*  
 Charles Scharmman/Remedy Execution Manager  
 10/21/97  
 Date

*Roger Shakely*  
 Roger Shakely/Shell Project Manager  
 11/3/97  
 Date

*Ronel Finley*  
 Ronel Finley/Fish and Wildlife Service Manager  
 11/03/97  
 Date

## MOTOR VEHICLES AND HEAVY EQUIPMENT

### 1.0 PURPOSE

- 1.1 To establish inspection processes and maintenance programs necessary to achieve safe operating conditions for motor vehicles and heavy equipment used at the Rocky Mountain Arsenal (RMA) project.

### 2.0 SCOPE

- 2.1 This Standard Operating Procedure (SOP), all applicable requirements and regulations shall apply to all RVO performers.

### 3.0 REFERENCES

- 3.1 29 Code of Federal Regulations Part 1926 Subpart O

### 4.0 DEFINITIONS

- 4.1 Competent Person - As defined in 29 CFR 1926.32(f)
- 4.2 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The manager responsible for the oversight of the work being performed shall support and promote this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this SOP. The supervisor shall ensure all equipment is operated in a safe manner.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.

- 5.4 Employees - All RVO performers shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

## 6.0 REQUIREMENTS

- 6.1 Passengers. Passengers are only allowed if the equipment is designed for passengers with proper seats and seat belts.
- 6.2 Initial Inspection. The RVO Performer shall conduct a documented initial safety inspection of all motorized equipment to ensure it is in safe operating condition using a standard form which is kept on file for RVO review.
- 6.3 Pre-shift Inspection. Operators shall inspect their equipment before use each day and document the findings. This pre-shift inspection shall include, at a minimum, basic equipment and motor vehicle components and systems such as windshields, windows, mirrors, tires, lights, back up alarms and fluid leaks to ensure it does not exhibit damage and is in safe operating condition.
- 6.4 Preventive Maintenance. The RVO Performer shall have a preventive maintenance program for equipment and motor vehicles.
- 6.5 Training Documentation. Equipment operators shall have adequate experience and knowledge of equipment and be able to demonstrate their abilities either by field observation or experience documentation.

## 7.0 RECORDS

- 7.1 All records associated with this SOP are Quality Assurance (QA) documents.

## 8.0 ATTACHMENTS

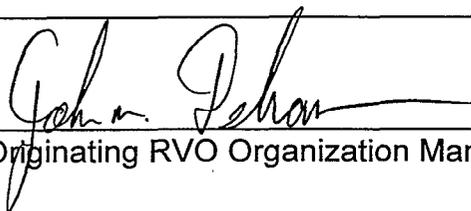
- 8.1 None



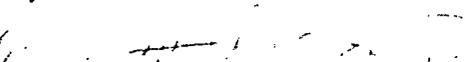
HOISTING AND RIGGING

RVO SOP: ES&H.206  
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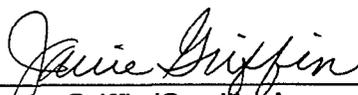
APPROVALS

  
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 Originating RVO Organization Manager

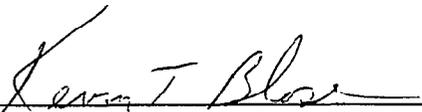
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 RVO Health and Safety Manager

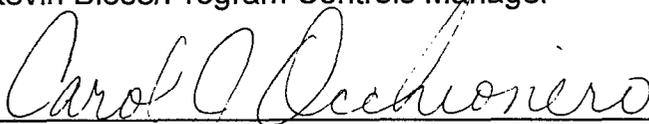
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 Jamie Griffin/Quality Assurance Manager

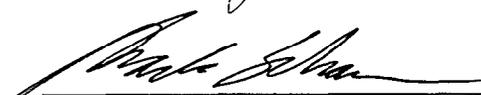
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 Kevin Blose/Program Controls Manager

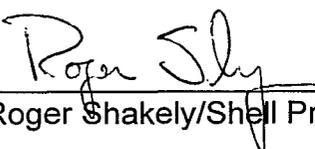
11/4/97  
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 Date

  
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 Carol Occhionero/Program Support Manager

11-6-97  
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 Date

  
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 Charles Scharmann/Remedy Execution Manager

10/31/97  
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 Date

  
 \_\_\_\_\_  
 Roger Shakely/Shell Project Manager

11/3/97  
 \_\_\_\_\_  
 Date

  
 \_\_\_\_\_  
 Ronel Finley/Fish and Wildlife Service Manager

11/03/97  
 \_\_\_\_\_  
 Date

## HOISTING AND RIGGING

### 1.0 PURPOSE

- 1.1 This procedure identifies the basic requirements for safe material hoisting and rigging on the RMA.

### 2.0 SCOPE

- 2.1 All RVO Performers responsible for performing work on the RMA shall comply with the requirements of this Standard Operating Procedure and all applicable regulations and requirements (SOP).

### 3.0 REFERENCES

- 3.1 29 CFR Part 1926, Subpart H, Materials Handling, Storage, Use and Disposal.
- 3.2 29 CFR Part 1926, Subpart N, Cranes, Derricks, Hoists, Elevators, and Conveyors

### 4.0 DEFINITIONS

- 4.1 Competent Person - A person who, by reason of his/her education, training and experience, is capable of identifying potential and existing hazards relating to hoisting and rigging.
- 4.2 Critical Lift - Lifting operations which, if an accident occurred, could cause a significant delay of work, damage to equipment, materials or other property, a release of a hazardous substance, or present an unacceptable risk of personal injury.
- 4.3 RVO Performer - Any federal, state, county or city government agency, private contractor, subcontractor, or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The manager responsible for oversight of the work being performed shall support this SOP by providing the time and resources necessary to implement an effective program as outlined in this procedure.

- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this procedure.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - RVO Performers shall be responsible for following the requirements outlined in this procedure.

## 6.0 REQUIREMENTS

### 6.1 General Requirements

- 6.1.1 Written Critical Lift Plan - All RVO performers shall develop a written hoisting and rigging plan for all critical lift operations. This plan shall be submitted to the RVO Health and Safety Group for review and approval at least five working days prior to the lift.
- 6.1.2 RVO performers will have competent person inspect all hoisting and rigging equipment prior to and during each use, to ensure safe operating conditions. Defects shall be corrected before continued use of the equipment.

### 6.2 Rigging

- 6.2.1 Rigging equipment shall be stored in a manner and area which prevents equipment damage, and does not pose a hazard to employees.
- 6.2.2 Rigging equipment shall not be loaded in excess of its recommended safe working load.
- 6.2.3 Before use, custom-designed lifting accessories will be proof-tested to 125% of their rated load, and will have the safe working load marked on the accessory. RVO Performers shall maintain records of these proof tests in their files.
- 6.2.4 Job or shop hooks, links, and make-shift fasteners will not be used.

6.2.5 Durable tags stating size, grade, rated capacity, and manufacturer's name shall be attached to all welded steel chain slings.

6.2.6 Worn or defective rigging equipment shall be removed from the job site or clearly marked so that employees will not inadvertently use the equipment.

### 6.3 Hoisting

6.3.1 Rated loading capacities, recommended operating speeds, hazard warnings, and instructions will be conspicuously posted or marked on the equipment. Instructions and warnings shall be visible to the operator while at the control station.

6.3.2 Hand signals, as prescribed by applicable ANSI standards, shall be posted at the job site of the involved RVO Performers.

6.3.3 A competent person or an organization recognized by the U.S. Department of Labor, shall conduct an annual inspection of all hoisting equipment. Records of these inspection must be maintained by the involved RVO Performers.

6.3.4 All accessible areas within the swing radius of a crane's infrastructure shall be barricaded.

6.3.5 Prior to beginning hoisting operations in the immediate vicinity of an overhead power line, the involved RVO Performer shall determine the status of the line (energized or de-energized). The minimum energized line clearances are shown in the Energized line Clearance Table (Attachment 1).

6.3.6 When use of a ladder or other acceptable means for workers to access elevated job sites is hazardous or not feasible due to structural design or work site conditions, a personnel platform may be hoisted by a crane or derrick, if the operation is approved by the RVO Health and Safety Group. Personnel platform work is subject to the requirements of applicable OSHA standards ie. trial lifts, inspections, loading requirements, fall protection etc.

6.3.7 Man-lifts and other personnel lifting devices shall not be used for hoisting material.

7.0 RECORDS

7.1 Critical Lift Plan - This is a Quality Assurance (QA) record.

7.2 Hoisting and rigging equipment inspections - Documented inspections are QA records.

7.3 Load tests - Documentation load tests are QA records.

8.0 ATTACHMENTS

8.1 Attachment 1, Energized Line Clearances

## ATTACHMENT 1

## ENERGIZED LINE CLEARANCES

Type	Clearance	Comments
Lines < 50 kV	10 ft.	A spotter is required if the operator cannot visually maintain clearance.
Lines > 50 kV	10 ft. + 4 in. for every 10 kV over 50 KV	A spotter is required if the operator cannot visually maintain clearance.
Transit, no load and boom lowered	4 ft. for lines < = 50 kV 4 ft. + 4 in. for every 10 kV over 50 kV	A spotter is required if the operator cannot visually maintain clearance.

ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM

**LOCK OUT/TAGOUT**  
**Procedure No. 208, Rev. No. 0**

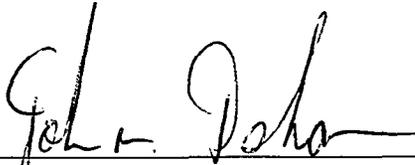
Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 15, 1997

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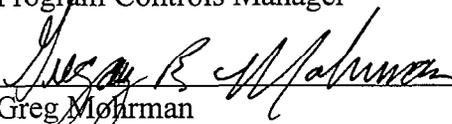
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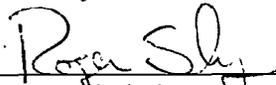
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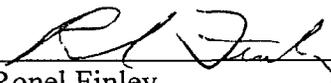
Date



Roger Shakely  
Shell Project Manager

6/30/97

Date



Ronel Finley  
Fish and Wildlife Remediation Manager

6/12/97

Date

# LOCK OUT/TAG OUT

## Energy Source Lockout/Tagout

### 1.0 PURPOSE:

To create an effective and consistent Energy Source Lockout/Tagout Program which places the highest value on the welfare of the individual.

### 2.0 SCOPE:

This standard operating procedure (SOP) establishes the minimum requirements for the Lockout/Tagout of energy isolating devices. It shall be used to insure that a machine or a piece of equipment is isolated from all potentially hazardous energy, and is locked out/tagged out before employees perform any new work, service or maintenance activities when the unexpected energization, start-up or release of stored energy could cause injury and/or equipment damage.

RVO and RVO PERFORMERS responsible for conducting work at the RMA shall comply with the requirements of this SOP. Specific areas of responsibility include controlling energy during service and/or maintenance of machines or equipment (except motor vehicles and heavy equipment). This standard operating procedure shall supersede any and all previous Energy Source Lockout/Tagout documents at the RMA.

### 3.0 REFERENCES:

- 3.1 OSHA Standard 29 CFR, 1910.147 - The control of hazardous energy(Lockout/Tagout)
- 3.2 OSHA Standard 29 CFR, 1926.417 - Lockout and tagging of circuits
- 3.3 OSHA Standard 29 CFR, 1910, Subpart S - Electrical
- 3.4 OSHA Standard 29 CFR, 1926, Subpart K - Electrical
- 3.5 OSHA Standard 29 CFR, 1910.331 - Safety - Related Work Practices
- 3.6 OSHA Standard 29 CFR, 1926, Subpart G - Signs, Signals and Barricades

### 4.0 DEFINITIONS:

- 4.1 Affected Employee - An employee whose job requires operation or use of a machine or equipment, while maintenance is being performed under lockout or Tagout; or whose job requires working in an area in which such maintenance is being performed.
- 4.2 Authorized Employee - A person who locks out or tags out machines or equipment in order to perform a service or maintenance. An affected employee becomes an authorized employee when that employee's duties include performing maintenance covered under this section.

#### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

4.3 Capable of Being Locked Out - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed; or it has a locking mechanism built into it. Other energy isolating devices are considered to be capable of being locked out, if lockout can be achieved through some method without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

4.4 Energized - Connected to an energy source or containing residual or stored energy.

4.5 Energy Isolating Device - A mechanical device that physically blocks or isolates the transmission or release of energy, including, but not limited to:

- manually operated electrical circuit breaker
- disconnect switch
- manually operated switch that disconnects the conductors of a circuit from all ungrounded supply conductors and in which no pole can be operated independently
- line valve
- block

Note: Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

4.6 Energy Source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.

4.7 Hot Tap - A procedure used in the repair and maintenance activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for electrical, air, gas, water, steam, and petrochemical distribution systems.

4.8 Lockout - The placement of a locking device on an energy isolating device in accordance with an established procedure to ensure that the energy isolating device and the equipment being controlled cannot be operated until the locking device is removed.

4.9 Lockout Device - A device that utilizes a positive means to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.

4.10 Multi Locking Device - A device used that will accommodate several locks at one Lockout/Tagout location.

**ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

- 4.11 Safety and Health Steering Committee - A committee developed to review and discuss federal standards and RMA site safety issues. This committee has representatives from organizations that perform work at the RMA.
- 4.12 Servicing and/or Maintenance - Workplace activities such as installing, adjusting, or inspecting machines or equipment. These activities may include cleaning or un-jamming of equipment and making adjustments where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.
- 4.13 Symbolic Lockout - Use of a non-referenced method of lockout such as a barricade, sign or other device that does not ensure a physical lockout.
- 4.14 Tagout - The placement of a tagging device on an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagging device is removed.
- 4.15 Try - A verification to ensure that all breakers, valves, or other devices are effectively locked and tagged and that all energy sources have been isolated after a Lockout device has been applied. Verification is testing the system to demonstrate that the intended components are de-energized and isolated. De-energization testing shall include and attempt to activate the system if possible.

5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager is responsible for supporting the coordinator and the safety representative by providing the time and funds necessary to implement an effective program as outlined in this procedure.
- 5.2 Coordinator - A supervisor(s) or designee shall be responsible for the administration and implementation of this Lockout/Tagout program. The coordinator's name and phone number shall be submitted to the RVO SHO.
- 5.3 Safety Representative - The company's safety representative is responsible for monitoring the Lockout/Tagout program and providing technical guidance and support to the supervisor when necessary.

6.0 REQUIREMENTS

- 6.1 General
  - 6.1.1 All locks and tags shall be capable of meeting the requirements of this SOP.

6.1.2 All locks and tags required for the Lockout/Tagout program shall be provided by the coordinator for his/her organizations Lockout/Tagout needs. A record shall be maintained for each lock and tag issued. This record shall include at a minimum the employees name, the locks unique identification number, the date of issue and the employees contact number. Only one key shall be available for each lock.

6.1.3 The record referenced in 6.1.2 shall be submitted to the RVO safety and Health office on a quarterly basis.

6.1.4 The Safety and Health Steering Committee shall review this Lockout/Tagout program at least annually to make revisions or changes if necessary.

## 6.2 Training

6.2.1 Each organization shall conduct documented training annually and issue certificates to document that the purpose and function of the Energy Source Lockout/Tagout Program is understood by the employees. Updated training shall also be conducted whenever there is a change in the work environment, or as needed by the organizations Safety and Health office.

6.2.2 At a minimum the training shall include the following:

6.2.2.1 Each authorized employee shall be trained to recognize applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

6.2.2.2 All employees shall be trained on the use of tags and the requirements for completion of a tag.

6.2.2.3 When a tag is attached to an energy isolation means, it shall not be removed without approval of the authorized person responsible for it, and it is never to be ignored. If the authorized person is not available the supervisor shall make all reasonable efforts to contact him/her and refer to section 6.8.1 of this SOP.

6.2.2.4 Tags shall be securely attached to the energy isolating device and made of materials which will withstand the workplace environment.

### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

### 6.3 Lockout/Tagout Permit

- 6.3.1 When an authorized employee determines that a machine or piece of equipment requires a Lockout/Tagout, a Lockout/Tagout permit shall be completed and submitted to their supervisor for review, and approval signature(s). The permit provided as attachment 2 can be used or equivalent.
- 6.3.2 If a specific machine or piece of equipment is locked out and tagged out on a routine basis a single permit may be utilized repeatedly as long as there are no changes or modifications to the system or Lockout/Tagout process.
- 6.3.3 No work shall be permitted on any system until the Lockout/Tagout permit has been reviewed and signed by the supervisor indicating verification and concurrence.

### 6.4 Lockout Steps

- 6.4.1 All affected employees shall be notified that servicing or maintenance is required on a machine or a piece of equipment and that the machine or piece of equipment will need to be shut down Tagged and Locked Out.
- 6.4.2 The machine or piece of equipment shall be shut down using the normal "shut down" procedures, a survey shall be conducted to locate and identify all energy isolating devices to ensure which devices apply to the equipment to be locked/tagged out. More than one energy source (electrical, mechanical or other) may be involved.
- 6.4.3 De-activate the energy isolating device(s) so that the machine or piece of equipment is isolated from all possible energy sources.
- 6.4.4 Each individual working on the equipment requiring Lockout/Tagout shall be responsible for placing their assigned lock and tag on the piece of equipment before starting work. The individual will retain the key and affix their "Danger" tag indicating who installed the lock, organizations name, contact/phone number, and the reason for the lockout. The tag should be completed in black indelible ink. Multi-locking devices are available and shall be used when several locks are involved.
- 6.4.5 No employee or contractor shall work on a piece of equipment unless their lock and tag is part of the lockout.

- 6.4.6 The proper piece of equipment shall be located; locked out and tagged. All stored energy shall be dissipated or restrained in accordance with this SOP.
- 6.4.7 After ensuring that no personnel are exposed and that no adverse conditions exist the machine or piece of equipment shall be tried by operating the "start" switch or other normal operating controls to make certain the system will not function.
- 6.4.8 The operating controls shall be returned to the "off" position.
- 6.4.9 The system or equipment is now locked out.
- 6.4.10 All organizations who perform Lockout/Tagout shall develop a disciplinary procedure for personnel who violate the requirements of this SOP. This procedure shall be submitted to the RVO SHO for review and approval.

6.5 Restoring Equipment to Service

- 6.5.1 In preparation for restoring energy to the machine or equipment the immediate area shall be reviewed to ensure all employees and non-essential items have been removed and that the equipment components are operationally intact.
- 6.5.2 The controls shall be verified that they are in either the off or the neutral position.
- 6.5.3 Each individual shall remove their lock and tag.
- 6.5.4 The equipment shall be re-energized only after notifying the affected employees that the servicing or maintenance is completed, and the system is ready for use.

6.6 Equipment Specific Procedures

- 6.6.1 Each unique machine or piece of equipment that has more than one energy source shall have a specific written procedure or Job Hazard Analysis to cover the individual steps required to secure a positive Lockout/Tagout for that machine or piece of equipment. These may be included as part of the area's standard operating procedures, or in the equipment maintenance procedures. These procedures will be updated as job conditions change. All new equipment shall have Lockout/Tagout procedures written and reviewed with area personnel prior to equipment startup.

## 6.7 Special Considerations

- 6.7.1 In the event that a Lockout/Tagout occurs through shift or personnel changes a multi-locking device shall be utilized and the employee(s) who is reporting to work to continue the service or maintenance shall apply his / her lock to the multi-locking device before the employee(s) who 's shift is over removes their lock.
- 6.7.2 In cases where repair or maintenance is not immediately continued beyond the end of the shift, the coordinator shall make all necessary arrangements to ensure that the Lockout/Tagout will be maintained until the repair or maintenance is resumed. At least one lock and tag shall remain on the multi-locking device at all times.
- 6.7.3 In some instances equipment or machinery may be capable of moving itself even though all energy sources have been locked out. This is a common occurrence on fan blades which rotate when powered by wind or partially disassembled equipment rolling due to gravity. Supervision shall be responsible for identifying these potential hazards so they may be eliminated by the person(s) performing the Lockout/Tagout. Applying a mechanical stop (i.e., mechanical blocks, chains, etc.) may be necessary to prevent accidental machinery movement.
- 6.7.4 It is recognized that this procedure may not address every situation encountered in the field. If a situation arises that poses concern or questions personnel shall consult with their companies Safety representative to decide on the best approach. A Task Specific Safety Plan may be required. The intent of a Lockout/Tagout program is to protect employees from injury and prevent equipment damage.
- 6.7.5 A "symbolic lockout" is not acceptable as a Lockout/Tagout method at the RMA. Removal of fuses is not recommended and should be used only when no other means of positive de-energization exists, and always in conjunction with a Tagout. Should the case arise where normal lockout is not possible, the equipment shall be isolated by whatever means necessary to positively prevent operation (i.e., electrical disconnection, removal of belts).
- 6.7.6 It is recognized that breakers in lighting panels are not always capable of being positively locked out. Those breakers that cannot be locked out shall be tagged and physically restrained in the "OFF" position. Any area with equipment, control circuits, or instrumentation feeding from a lighting panel circuit shall install a switch for positive lockout

### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

of that piece of equipment. (See Attachment 3 for an example of such a switch.)

6.8 Lock Removal Procedure Form

6.8.1 If someone inadvertently leaves their lock on a piece of equipment and all work has been completed, the appropriate supervisor will attempt to reach them at home to "OK" lock removal. If they cannot be reached, the supervisor may remove the lock after it has been verified that it is safe to start the equipment, and the Lockout/Tagout Removal Form (Attachment 4), or equivalent has been completed. A copy of this form shall be sent to the RVO Safety and Health Office.

6.9 Hot Work

6.9.1 Although journeymen/master electricians are trained in the technique of working on live electric circuits (hot work), they shall follow the lockout procedure and work on energized circuits only under the following situations.

6.9.2 Hot work is permitted when working on circuits that have a potential less than 130 volts to ground if, in the judgement of the certified electrician, the work can be performed safely and the area supervisor agrees that hot work cannot be avoided.

6.9.3 Hot work on circuits having a potential greater than 130 volts to ground will be by exception. In emergency situations, approval by a master electrician and a member of the involved organization Safety Department is required.

6.9.4 Voltage and/or current measurements are permitted on live electrical circuits regardless of voltage when performed by a certified electrician familiar with the circuit and measuring equipment. In this situation, where circuits have a potential greater than 300 volts to ground or for high power rated circuits, the person making the measurement shall have a qualified safety back-up individual.

6.9.5 The qualified safety back-up individual shall be an identified individual who will remain within visual and speaking distance of the individual performing hot work on circuits that have a potential greater than 300 volts to ground at all times that work is being done. The safety back up shall:

- 1) Know how and where to de-energize the circuit.

**ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

- 2) Maintain a close vigilance of the worker's activities and of the surroundings to anticipate and prevent any unwanted happenings in the area.
- 3) Know how and be ready to remove the worker from the energized circuit in an emergency situation.
- 4) Know how to administer immediate first aid (CPR).
- 5) Have an acceptable form of communication to call for assistance (i.e., radio or phone).

## 7.0 RECORDS:

### 7.1 Training Records

Training shall be documented and kept on file at the employers safety office and be available for review. A list of "qualified personnel" should be submitted to the RVO SHO. This is a Quality Assurance (QA) record.

### 7.2 Permits/Forms

7.2.1 Lockout/Tagout Permits and Removal Forms associated with this procedure shall be maintained on file at the organizations safety office and be available for review. These are QA records.

## 8.0 ATTACHMENTS

- 8.1 Attachment 1 - Tags
- 8.2 Attachment 2 - Lockout/Tagout Permit
- 8.3 Attachment 3 - Lockable Toggle Switch
- 8.4 Attachment 4 - Lockout/Tagout Removal Form
- 8.5 Attachment 5 - Approach Distances for Authorized Employees - Alternating Current

### **ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

**HEALTH AND SAFETY PROGRAM**

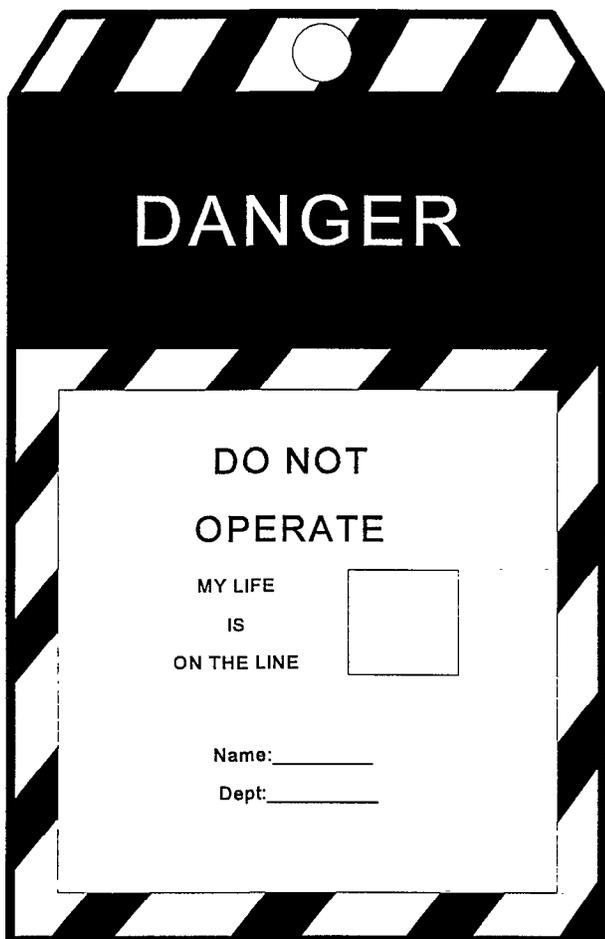
**REV No. PROCEDURE No. PAGE No.**

**0**

**208**

**9 of 9**

## DANGER TAGS



**\*This is an Example only.**

**Note - Refer to section 6.4.4 of this sop for the required information that the tag must contain.**

# LOCKOUT/TAGOUT PERMIT

DATE \_\_\_\_\_

## LOCKOUT/TAGOUT

1. EQUIPMENT / SYSTEM TO BE ISOLATED: \_\_\_\_\_
2. BUILDING / AREA: \_\_\_\_\_
3. PURPOSE OF ISOLATION: \_\_\_\_\_
4. ANTICIPATED DURATION OF ISOLATION: (DAYS) \_\_\_\_\_ (HOURS) \_\_\_\_\_
5. AUTHORIZED EMPLOYEE(s):    LOCK/TAG NUMBER(s):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## ACCOUNTABILITY

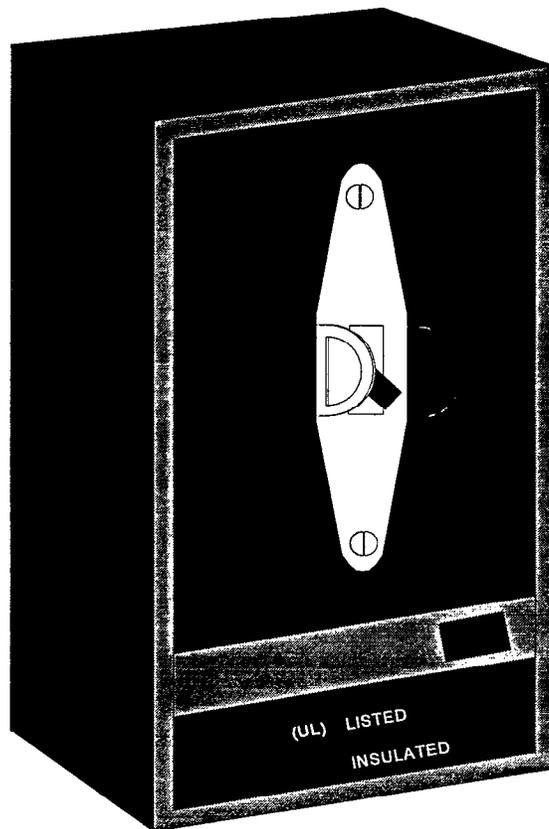
1. SUPERVISOR(s) NAME  
\_\_\_\_\_

	COMPLETED INITIALS	
AFFECTED EMPLOYEES NOTIFIED	_____	_____
ALL ENERGY ISOLATING DEVICES IDENTIFIED	_____	_____
ALL REQUIRED LOCKS/TAGS APPLIED	_____	_____
VERIFIED ENERGY ISOLATION	_____	_____
SUPERVISOR(s) SIGNATURE(s):	_____	DATE: _____
_____	_____	_____
_____	_____	_____

## LOCKABLE TOGGLE SWITCH

Square D - Class 2510, Type KG-1

Rating - 2 Pole, 30 AMP @ 250 V., 20 AMP @ 600V,  
NEMA 1 Enclosure



**LOCKOUT/TAGOUT REMOVAL FORM**

**EMPLOYEES LOCKOUT/TAGOUT**

DEVICE BEING REMOVED: \_\_\_\_\_

DEPT. \_\_\_\_\_

NAME: \_\_\_\_\_

SUPERVISOR: \_\_\_\_\_

ENERGY ISOLATION DEVICE(S) USED: \_\_\_\_\_

DATE DEVICE APPLIED: \_\_\_\_\_

REASON FOR LOCKOUT/TAGOUT: \_\_\_\_\_

REASON FOR REMOVAL: \_\_\_\_\_

DESCRIBE ALL REASONABLE ATTEMPTS TO CONTACT EMPLOYEE: \_\_\_\_\_

**CERTIFICATION THAT EMPLOYEE COULD NOT BE LOCATED**

ON SITE:  Y  N

CALLED:  Y  N

RESPONDED AT HOME:  Y  N

OK TO REMOVE:  Y  N

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

REQUESTED BY: \_\_\_\_\_

**REVIEW OF EQUIPMENT/MACHINE/PROCESS  
TO ENSURE SAFETY FOR LOCKOUT/TAGOUT REMOVAL**

<input type="checkbox"/>	NO EMPLOYEE EXPOSED	<input type="checkbox"/>	NO EXPOSED ELECTRICAL WIRES
<input type="checkbox"/>	GUARDS IN PLACE	<input type="checkbox"/>	OTHER
<input type="checkbox"/>	NO OPEN PIPES	<input type="checkbox"/>	

REVIEW CONDUCTED BY ( SUPERVISOR ): \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

**REMOVED LOCK(S) / DEVICES(S) AND TAGS WILL BE KEPT  
WITH THE SUPERVISOR FOR RETURN TO OWNER**

**TO BE COMPLETED BY SUPERVISOR**

EMPLOYEE INSTRUCTED BY SUPERVISOR TO PICK UP LOCKOUT/TAGOUT DEVICE(S) UPON RETURN TO WORK:  Y  N

SUPERVISOR'S NAME: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

EMPLOYEE SIGNATURE FOR LOCKOUT/TAGOUT DEVICES PICKED UP: \_\_\_\_\_

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

**ROUTE COMPLETED FORMS TO RVO S&H DEPARTMENT**

REVIEWED BY RVO S&H:

NAME \_\_\_\_\_

DATE \_\_\_\_\_

**APPROACH DISTANCES FOR AUTHORIZED EMPLOYEES****ALTERNATING CURRENT**

<u>Voltage Range</u> <u>(phase to phase)</u>	<u>Minimum Approach Distance</u>
300 V and less	Avoid contact
Over 300 V, not over 750 V	1 ft. 0 in. (30.5 cm)
Over 750 V, not over 2 kV	1 ft. 6 in. (46 cm)
Over 2 kV, not over 15 kV	2 ft. 0 in. (61 cm)
Over 15 kV, not over 37 kV	3 ft. 0 in. (91 cm)
Over 37 kV, not over 87.5 kV	3 ft. 6 in. (107 cm)
Over 87.5 kV, not over 121 kV	4 ft. 0 in. (122 cm)
Over 121 kV, not over 140 kV	4 ft. 6 in. (137 cm)

Note - This table is located in OSHA 29 CFR, part 1926.



EXCAVATION

RVO SOP: ES&H.210  
 Rev: 0  
 Date: 10/16/97  
 Page: 1 of 8

APPROVALS

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Originating RVO Organization Manager

*10/29/97*

Date

*[Signature]*

RVO Health and Safety Manager

*10/29/97*

Date

*Janie Griffin*

Janie Griffin/Quality Assurance Manager

*10/29/97*

Date

*Kevin T. Blose*

Kevin Blose/Program Controls Manager

*11/4/97*

Date

*Carol Occhionero*

Carol Occhionero/Program Support Manager

*11-6-97*

Date

*Charles Scharm*

Charles Scharm/Remedy Execution Manager

*10/31/97*

Date

*Roger Shakely*

Roger Shakely/Shell Project Manager

*11/3/97*

Date

*Ronell Finley*

Ronell Finley/Fish and Wildlife Service Manager

*11/03/97*

Date

---

## EXCAVATION

### 1.0 PURPOSE

- 1.1 This procedure identifies the basic requirements for the protection of personnel working in and around excavations, including identification of hazards, classification of soils, protective systems, and inspection.

### 2.0 SCOPE

- 2.1 RVO and RVO contract support personnel responsible for performing work at the RMA shall comply with the requirements of this Standard Operating Procedure (SOP). It provides guidance for the protection of personnel working in and around excavations.

### 3.0 REFERENCES

- 3.1 29 CFR Part 1926, Subpart P, Excavations

### 4.0 DEFINITIONS

- 4.1 Benching - This is a method of protecting employees from cave-ins by shaping the sides of an excavation to form one or a series of horizontal levels or steps, usually with near-vertical surfaces between levels.
- 4.2 Competent Person - A person who has specific training in and is knowledgeable about soil analysis, the use of protective systems, and the requirements of the excavation standard. He/she must also be capable of identifying existing and predictable hazards in the surroundings, or working conditions which are hazardous, unsanitary, or dangerous to employees, and must have the authority to take prompt corrective measures to eliminate these conditions.
- 4.3 Excavation - Any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal, regardless of dimensions, which produces unsupported soil conditions.
- 4.4 Infrastructure Group - Managers responsible for the overall maintenance and planning associated with all infrastructure systems as they relate to short and long-term remedy and refuge requirements. This includes logistics, transportation, real property, master planning, facilities, utilities,

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roads and grounds, dams borrow areas and associated systems. They may be reached at 289-0102 or 286-4831.

- 4.5 RVO Performers - Any federal, state, city or county government agency, private contractor, subcontractor or organization providing services to the RVO.
- 4.6 Stable Rock - Natural solid rock that can be excavated with vertical sides and remain intact while exposed.
- 4.7 Trench - A narrow excavation below the surface of the ground, less than 15 feet wide as measured at the bottom. In general, the depth is greater than the width.
- 4.8 Type A Soil - Cohesive soil with an unconfined compression strength of 1.5 tons per square foot (TPSF) or greater. Examples include: clay, silty clay, sandy clay, clay loam, and sandy clay loam. Caliche and hardpan are also considered type A. However, no soil is considered Type A if:
- The soil is fissured, or subject to heavy vibration
  - The soil has been previously disturbed
  - The soil is sloped and layered, and the layers protrude into the excavation on a slope greater than four horizontal to one vertical.
- 4.9 Type B Soil - Cohesive soil with an unconfined compression strength between .5 TPSF and 1.5 TPSF. Examples include: most disturbed soil that would otherwise be classified as Type A soil, angular gravel, silt, silty loam, sandy loam, and in some cases, silty clay loam and sandy clay loam.
- 4.10 Type C Soil - Cohesive soil with an unconfined compression strength of .5 TPSF or less. Type C soils include: gravel, sand, loamy sand, soil from which water is seeping, unstable submerged rock, or other soils not classified as type A, B, or Stable Rock.
- 4.11 Unexploded Ordinance (UXO) - Ammunition, ammunition components, chemical warfare materiel or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried or fired. Such ammunition, ammunition components and explosives are no longer under accountable record control of any DOD organization or activity.

4.12 Written Plan -A pre-work planning tool used to identify hazards associated with the work. These plans may be "task specific plans, "job safety analysis," or appropriate information supplied with the excavation permit.

## 5.0 RESPONSIBILITIES

5.1 Manager - The manager responsible for oversight of the work being performed shall promote this SOP by providing the time and resources necessary to implement an effective program, as outlined in this procedure.

5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this procedure.

5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.

5.4 Competent Person - A Competent Person shall be available during all excavation evaluations and activities.

5.5 Employees - RVO Performers shall be responsible for following the procedures outlined in this SOP.

## 6.0 REQUIREMENTS

### 6.1 GENERAL REQUIREMENTS

6.1.1 Written Plan - A written plan is required prior to work in excavations, which identifies methods of protection from cave-ins and falling material, inspection criteria, inspection frequency, soil testing, means of egress, control of hazardous atmospheres and emergency rescue.

6.1.2 Competent Person - A competent person must be identified in the written plan and available on-site during excavation evaluations and activities.

6.1.3 Excavation Permit - RVO Performers are required to contact geographical information systems (GIS at 289-0368 in order to

obtain existing underground utility locations. An excavation permit is required for any work involving digging or excavation of material in areas where there is potential for encountering UXO, Chemical Agent or other soil contaminants, utilities, or when there is risk to workers or the general public. Excavation designs not consistent with this procedure or 29 CFR Part 1926 Subpart P, and excavations exceeding 20 feet in depth also require an excavation permit. These permits shall be kept at the work site by the field supervisor and shall document that effective planning and hazard analysis have taken place. An excavation permit is included in this procedure (Attachment 2).

- 6.1.4 Training - Training is required for all RVO Performer employees who are involved with excavation work. Training must include the applicable OSHA requirements, details of the written plan and responsibilities of employees and supervisors.
- 6.1.5 Open Excavations - The extent of open excavations shall be minimized, and shall be backfilled as soon as work is completed.
- 6.1.6 Utilities - Prior to commencing an excavation, Jacobs Engineering shall be contacted to identify the exact locations of underground installations; i.e. sewer, water, fuel, etc. All utility locating services shall be requested by noon on Thursday of the previous week prior to the proposed excavation. Infrastructure System shall be contacted and advised of the proposed work prior to starting. When the excavation approaches the estimated location of an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation.
- 6.1.7 UXO - In areas where the potential for UXO exists, a clearance will be needed prior to excavating. (see RVO Health and Safety Procedure # 212).
- 6.1.8 Atmosphere Testing - In locations where oxygen deficiency or other hazardous atmospheres may exist, the air in the excavation shall be tested prior to employee entry. Controls shall be established to insure acceptable atmospheric conditions. When flammable gases are present, adequate ventilation shall be provided, or sources of ignition shall be eliminated. Equipment

such as supplied air, safety harnesses and rescue lines will be used or available when abnormal atmospheric condition may exist. A log shall be maintained of all atmospheric test results.

- 6.1.9 In excavations where personnel are required to enter, excavated or other material shall be effectively stored at least 2 feet or more from the edge of the excavation or retained in a manner that prevents the material from falling into the excavation.
- 6.1.10 Mechanical Disturbances - Precautions by way of shoring and sloping shall be taken to prevent slides or cave-ins when excavating, or where excavations are subjected to vibrations from railroad or highway traffic, the operation of machinery, or any other source.
- 6.1.11 Protection from cave-ins - When personnel are required to work in excavated areas, all slopes shall be excavated to at least the angle of repose, or otherwise safely supported to prevent cave-ins. The angle of repose and design of the supporting system shall be based on careful evaluation of pertinent factors such as: type of soil; depth of cut; anticipated changes in materials exposed to air, sun, water, or freezing; loading imposed by structures, equipment, overlying material, or stored material; and vibration from equipment, blasting, traffic, or other sources.
- 6.1.12 Water Accumulation - Employees shall not work in excavations where water is accumulating unless adequate precautions have been taken to protect the employees against the associated hazards.
- 6.1.13 Personal Protective Equipment - All employees shall wear the proper protective equipment while working in and around excavations.
- 6.1.14 Barricading of Open Excavations - Open excavations near vehicle, equipment, or pedestrian traffic shall be demarcated using guardrails, fences, berms, barricade tape, or other means.

- 6.1.15 Daily Inspections - Daily inspections for evidence of instability or other hazards associated with excavations shall be made by a Competent Person.
- 6.1.16 Access - In trenches 4 feet or more in depth, ladders, steps, ramps, or other safe means of egress shall be provided and located at intervals of 25 feet or less of lateral travel. Walkways, ramps, or bridges with standard guardrails will be provided at all excavations where employees are required or permitted to cross over. The crossing will be made of tightly secured, uniformly sized planking. Trenches, ditches, etc., over which employees or equipment are required to cross shall be equipped with walkways or bridges with standard guardrails.

## 6.2 PROTECTION REQUIREMENTS

- 6.2.1 Employee Protection - Each employee in an excavation shall be protected from cave-ins by an appropriate and effective system, except when excavations are less than 5 feet in depth and examination of a competent person provides no indication of a cave-in possibility.
- 6.2.2 Maximum depth - Excavations shall not be greater than 20 feet in depth unless the design is approved by a registered Professional Engineer.
- 6.2.3 Sloping Requirements - When using protective systems requiring soil classification, the slopes and configurations of sloping and benching systems shall be classified by a competent person. The classification shall be made based on the results of at least one visual and one manual analysis. Such analysis shall be conducted using acceptable visual and manual tests or other recognized methods of soil classification. The manual test consists of soil plasticity dry strength, thumb penetration, pocket penetrometer or hand operated shear vane. (Attachment 1 lists slope requirements for the different soil classifications).
- 6.2.4 Design of Supporting Systems - Supporting systems; ie., piling, cribbing shoring etc., shall be designed by a qualified person and meet accepted engineering requirements.

## 7.0 RECORDS

7.1 The following records, when required, shall be maintained in the respective RVO Performer files, and made available for review by the RVO Health and Safety Group.

- Excavation Permits
- Soil classification test records (if not using Type C designation)
- Approved tabulated data used for protective systems
- Protective systems designed by a registered Professional Engineer
- Excavation inspection records

## 8.0 ATTACHMENTS

8.1 Attachment 1, Soil Classification

8.2 Attachment 2, Excavation Permit

ATTACHMENT 1

<b>Soil or Rock Type</b>	<b>Maximum Allowable Slope</b>
Stable Rock	Vertical (90°)
Type A	3/4 to 1 (53°)
Type B	1 to 1 (45°)
Type C	1-1/2 to 1 (34°)





*Remediation Venture Office*  
 Rocky Mountain Arsenal  
 Commerce City, CO 80022-1748  
 (303)289-0500

DEMOLITION

RVO SOP: ES&H.211  
 Rev: 0  
 Date: 10/10/97  
 Page: 1 of 4

APPROVALS

*Blw Jones for JI* 10-28-97  
 Originating RVO Organization Manager Date

*[Signature]* 10-29-97  
 RVO Health and Safety Manager Date

*Janie Griffin* 10-29-97  
 Janie Griffin/Quality Assurance Manager Date

*Kevin T. Blase* 11/4/97  
 Kevin Blase/Program Controls Manager Date

*Carol J. Occhionero* 11-6-97  
 Carol Occhionero/Program Support Manager Date

*Charles Scharmann* 10/31/97  
 Charles Scharmann/Remedy Execution Manager Date

*Roger Shakely* 11/3/97  
 Roger Shakely/Shell Project Manager Date

*[Signature]* 11/23/97  
 Ronet Finley/Fish and Wildlife Service Manager  
 Fish and Wildlife Remediation Manager Date

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**DEMOLITION**

**1.0 PURPOSE**

- 1.1 To ensure pre-planning and safe work practices during the demolition of structures and removal of associated debris.

**2.0 SCOPE**

- 2.1 This Standard Operating Procedure (SOP) and all applicable requirements and regulations shall apply to all RVO performers.

**3.0 REFERENCES**

- 3.1 Title 29 Code of Federal Regulations Part 1926 Subpart T- Demolition

**4.0 DEFINITIONS**

- 4.1 Competent Person - As defined in 29 CFR 1926.32(f)
- 4.2 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

**5.0 RESPONSIBILITIES**

- 5.1 Manager - The manager responsible for the oversight of the work being performed shall support and promote this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this SOP.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - RVO performers shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills,

near misses and any other unusual events to their supervisor as soon as practical.

## 6.0 REQUIREMENTS

6.1 Prior to demolition activities The "Demolition Review Form" (attachment 8.1) or equivalent shall be completed by a competent person and submitted to the RVO Health and Safety Office for review and approval.

## 7.0 RECORDS

7.1 All records associated with this SOP are Quality Assurance(QA) documents.

## 8.0 ATTACHMENTS

8.1 Demolition Review Form

Attachment 8.1

# DEMOLITION REVIEW FORM

1. COMPANY(s): \_\_\_\_\_ 2. DATE: \_\_\_\_\_

3. STRUCTURE(s): \_\_\_\_\_

4.	COMPLETE (YES/NO/NA)	INITIALS
ENGINEERING SURVEY:	_____	_____
ALL UTILITIES DISCONNECTED:	_____	_____
FALLING DEBRIS HAZARDS REMOVED:	_____	_____
FALL PROTECTION IN PLACE:	_____	_____
AREA BARRICADED SUFFICIENTLY:	_____	_____
MASONRY OR OTHER UNSTABLE WALLS NOT LEFT FREE-STANDING:	_____	_____
FLOOR LOADS DO NOT EXCEED ALLOWABLE LOAD LIMITS:	_____	_____
INSPECTION OF STRUCTURE BY COMPETENT PERSON AS WORK PROGRESSES:	_____	_____
ASBESTOS ABATEMENT	_____	_____
HAZARDOUS MATERIALS REMOVED	_____	_____
IN COMPLIANCE WITH ALL PARTS OF 29 CFR 1926 SUBPART T-DEMOLITION	_____	_____

5. COMPETENT PERSON SIGNATURE : \_\_\_\_\_

6. SAFETY REPRESENTATIVE SIGNATURE : \_\_\_\_\_

7. SUPERVISOR SIGNATURE: \_\_\_\_\_



UNEXPLODED ORDNANCES (UXO)

RVO SOP: ES&H.212  
 Rev: 0  
 Date: 04/18/97  
 Page: 1 of 6

APPROVALS

*Blaine Jones for JI*

Originating RVO Organization Manager

11-21-97

Date

*Kenneth W. Lopez*

RVO Health and Safety Manager

11-21-97

Date

*Janie Griffin*

Janie Griffin/Quality Assurance Manager

11-21-97

Date

*Kevin T. Blose*

Kevin Blose/Program Controls Manager

11-21-97

Date

*Carol Occhionero*

Carol Occhionero/Program Support Manager

11-21-97

Date

*Charles Schermann*

Charles Schermann/Remedy Execution Manager

11/21/97

Date

*Roger Shakely*

Roger Shakely/Shell Project Manager

11/21/97

Date

*Ronel Finley*

Ronel Finley/Fish and Wildlife Service Manager

11/21/97

Date

## UNEXPLODED ORDNANCES (UXO)

### 1.0 PURPOSE

- 1.1 Establish a uniform explosive-safety procedure for all work involving disturbance of soils being conducted at the Rocky Mountain Arsenal (RMA) during cleanup operations and transition to a national wildlife refuge.

### 2.0 SCOPE

- 2.1 This Standard Operating Procedure applies to all Remediation Venture Office (RVO) Performers conducting work at the Rocky Mountain Arsenal.

### 3.0 REFERENCES

- 3.1 Draft Memorandum, No Date, Headquarters, Department of the Army, Subject: HQDA Explosives Safety Policy on Real Property Containing Ordnance and Explosives.

### 4.0 DEFINITIONS

- 4.1 Chemical Agent - A chemical substance intended for use in military operations to kill, seriously injure, or incapacitate a person through its physiological effects. Excluded from consideration are industrial chemicals, riot control agents, chemical herbicides, smoke, and incendiary materials.
- 4.2 Cleanup Operations - An operation where hazardous substances are removed, contained, neutralized, stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment.
- 4.3 Magnetometer - An instrument for comparing the intensity and direction of magnetic fields. This instrument is used to locate subsurface metal objects including possible UXO.
- 4.4 Chemical Warfare Materiel (CWM) - Chemical agent contaminated materials or chemical agent that is recovered during post production operations.

- 
- 4.5 RVO Performer - A term used to describe any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.
- 4.6 Unexploded Ordnance (UXO) - ammunition, ammunition components, or explosives that have been abandoned, expelled from demolition pits or burning pads, discarded, buried or fired. Such ammunition, ammunition components and explosives are no longer under accountable record control of any DoD organization or activity.

## 5.0 RESPONSIBILITIES

- 5.1 All RVO Performers shall coordinate with the the RVO Health and Safety Group to investigate the possibility of unexploded ordnance (UXO) or chemical warfare materiel (CWM) existing at or in proposed soil disturbance areas before executing any cleanup operations, borrow operations or any intrusive work on RMA.

## 6.0 REQUIREMENTS

### 6.1 Evaluation

RVO Performers will execute and document the following procedures before conducting any soil disturbance at any cleanup site or borrow site on RMA. Training on RMA UXO and associated hazards will be provided during the site orientation training conducted by the RVO.

#### 6.1.1 Historical Research

A thorough historical search of existing RMA documentation will be completed prior to soil disturbance by the RVO performer conducting the work. This search should conclude whether the area being disturbed has ever been used in conjunction with UXO or CWM. If historical records suggest any possibility of the area used in conjunction with UXO or CWM, the RVO Performer will conduct a surface survey. If there is no determinable historical use in conjunction with UXO or CWM indicated, then no further actions are required beyond documenting the historical research.

### 6.1.2 Surface Survey

The surface survey will be conducted by an individual(s) certified in military explosives ordnance disposal, or equivalent experience and training as approved by the RVO Health and Safety Group. This individual(s) will visually inspect the area for the presence of any fragments or unnatural ground disturbances. If any fragments, soil discoloration, slag, ash, any UXO related items or unnatural ground disturbances exist, the RVO Performer will conduct a geophysical survey of the area before excavation. If no evidence of potential UXO are found and the ground appears natural and undisturbed, then no further actions are required beyond documenting the surface survey.

### 6.1.3 Geophysical Survey

The RVO Performer will conduct the geophysical survey with a magnetometer, or equivalent, before excavation to learn the location and depth of possible UXO or CWM. If the depth of the proposed excavation could possibly expose the UXO or CWM or if the cover before or after excavation is less than the depth of the frost line, then the appropriate RVO Senior Management Official will decide UXO and CWM clearance.

### 6.1.4 Identification

Areas that have been checked with a magnetometer will be identified by stakes. A green stake will be used to signify cleared areas and a red stake will be used to signify an anomaly or potential UXO. No foot or vehicular traffic is allowed over a red-staked area or outside cleared boundaries.

### 6.1.4 UXO and CWM Clearance Safety Plan

In the event that UXO or CWM must be removed from below the surface a comprehensive safety plan must be developed by the RVO Performer which complies with Army UXO and CWM clearance requirements with final approval by the Army.

### 6.1.5 Documentation

The RVO Performer will maintain documentation to support all procedural steps and decisions made during the evaluation process. The outcome of all area investigations will be documented. This documentation will become part of the permanent records of the Arsenal.

## 6.2 Encountering Suspect UXO

RVO Performers will execute and document the following procedures whenever a suspect UXO object is encountered.

### 6.2.1 Hazards

The Contractor shall not approach, handle, or move any suspect UXO objects before proper review is performed by the RVO Health and Safety Group.

### 6.2.2 Discovery

In the event that UXO is discovered, all work in the area shall stop and personnel will move a minimum of 900 feet from the area, or farther as directed by the RVO Health and Safety Group, until the suspect UXO is properly identified and disposed of. If possible, the Contractor shall clearly mark the UXO location with a suitable material such as colored tape or a cone. The marker should be visible from all approaches. The marker should be placed no closer than the point where the potential UXO was first discovered. Do not place the marker on the potential UXO and do not touch, handle, or in any way disturb the object.

### 6.2.3 Notification

Fire and Emergency Services and the RVO Health and Safety Group must be immediately notified if any suspect object is discovered, as required by the RVO *Emergency Response Contingency Plan*.

#### 6.2.4 Surveillance

The RVO Performer shall ensure that constant visual surveillance of soils disturbed or placed during clean up operations which are performed in areas designated by the RVO Health and Safety Group as potential UXO areas. Visual surveillance shall be performed by an individual(s) certified in military explosives ordnance disposal, or equivalent experience and training as approved by the RVO Health and Safety Group.

#### 6.2.5 Disposal

In the event that suspect UXO is discovered, the RVO Health and Safety Group shall establish a safe zone and contact the Army Explosive Ordnance Detachment (EOD) to review the UXO situation and determine the proper disposal method. UXO may be exploded in place or over packed and transported off site. The time frame for this evaluation and disposal process depends on the nature and type of UXO. Work in the area will not be allowed to commence until the UXO has been removed.

### 7.0 RECORDS AND REPORTS

All associated records and reports are Quality Assurance records.

### 8.0 ATTACHMENTS

- 8.1 Draft Memorandum, Undated, HQDA, Subject: HQDA Explosives Safety Policy on Real Property Containing Ordnance and Explosives.

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# DRAFT

SUBJECT: HQDA Explosives Safety Policy on Real Property  
Containing Ordnance and Explosives

SEE DISTRIBUTION

1. Purpose. This letter prescribes policies and procedures for DA explosives safety controls to real property containing ordnance and explosives (OE).
2. Applicability. This letter applies to the U. S. Army, National Guard, and U. S. Army Reserve agencies.
3. Proponent. The proponent of this memorandum is the Assistant Secretary of the Army, Installations, Logistics, & Environment, Washington DC. The ASA(IL&E) has the authority to approve exceptions to this memorandum that are consistent with controlling law and regulation. The ASA(IL&E) may delegate the approval, in writing, to a division chief under their supervision within the proponent agency who holds the grade of colonel or civilian equivalent.
4. References.
  - a. Chapter 12, DoD 6055.9-STD
  - b. Draft AR 385-64.

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5. Explanation of abbreviations.

- a. AR..... Army Regulation.
- b. DA..... Department of the Army.
- c. HQDA..... Headquarters, Department of the Army.
- d. DoD..... Department of Defense

6. Policy. This policy addresses the identification and control of real property containing OE and specifies risk management procedures for use in OE project planning. It stipulates when soils containing explosives are considered an explosive hazard; provides guidance on clearance depths and land use restrictions; addresses the detection and clearance of explosive residues from buildings; and addresses unique OE situations, such as off-post OE clearance actions at locations adjacent to Army real property.

7. General.

a. Real property includes land, buildings, and bodies of water. Real property may contain OE as the result of Research, Development, Test and Evaluation (RDTE); manufacturing; weapons firing; training; Open Burn/Open Detonation (OB/OD) operations; disposal; loss; or waste collection. Examples of such property include pads, pits, basins, ponds, streams, impact areas, maneuver areas, training areas, burial sites, and buildings used for ammunition or explosives operations.

b. Explosives safety is paramount in the management of real property containing OE.

c. All OE planning and response actions must include participation of explosive safety technical personnel.

8. Scope. This policy applies to the following:

- a. Army real property containing OE.

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b. Formerly Used Defense Sites (FUDS) that contain OE, regardless of which Service used the site. The Army, as the Executive Agent for DoD, is the lead authority for OE at all FUDS.

c. This policy does not apply to the following:

(1) Biological Warfare Materiel and Chemical Warfare Materiel Response Activities which are addressed in ASA, IL&E Memorandum, Subject: Policy for Biological Warfare Materiel and Buried Non-Stockpile Chemical Warfare Materiel Response Activities.

(2) Military Explosive Ordnance Disposal (EOD) or Technical Escort Unit (TEU) emergency response actions, whether conducted on DoD or non-DoD property.

(3) Interim response actions (Emergency Actions, Time Critical Removal Actions or any similar action) taken to abate an immediate, extremely high explosives hazard. (Example: An area that contains hazardous unexploded ordnance on the ground surface is discovered. The area is open to personnel. Immediate action must be taken to deny access and/or clear OE posing a risk.) Active installations have authority to take these actions on their property. For FUDS, the U.S. Army Corps of Engineers (USACE) has authority to act where permission to enter the property is first obtained from the current land owner.

(4) Normal maintenance operations conducted on active ranges.

(5) OE response actions conducted by an Army agency for Navy, Air Force, or Marine Corps customers. For these actions, the customer's explosives safety policies apply provided they comply with the intent of this policy.

(6) Response actions for other types of materiels such as radioactive materiel that require special consideration beyond the scope of this guidance. Specific guidance can be obtained from the Army Safety Office.

9. Definitions. For the purposes of this policy, the following definitions apply:

a. Active and Base Realignment and Closure (BRAC) .. installations. Active installations are defined as installations under the custody and control of the Army. They include operating installations, installations in a standby or layaway status, and installations awaiting closure under the Base Realignment and Closure (BRAC) legislation. Examples include but are not limited to posts, camps (including National Guard camps), forts, depots, activities, ports, ammunition supply points, basic load ammunition storage areas, and ammunition plants.

b. Anomaly Review Board. A technical group established to provide technical guidance and quality assurance oversight of the review and resolution of geophysical information related to unresolved anomalies at a site.

c. Chemical Warfare Materiel. Chemical agents or military munitions containing chemical agents (See AR 50-6 and Policy for Biological Warfare Materiel and Buried Non-Stockpile Chemical Warfare Materiel Response Activities).

d. Ordnance and Explosives (OE): OE consists of either (1) or (2) below:

(1) Ammunition, ammunition components, or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried, or fired. Such ammunition, ammunition components and explosives are no longer under accountable record control of any DoD organization or activity.

(2) Explosives soil. Explosives soil refers to mixtures of explosives in soil, sand, clay, or other solid media at concentrations such that the mixture itself is explosive.

(a) The concentration of a particular explosive in soil necessary to present an explosion hazard depends on whether the particular explosive is classed as "primary or "secondary." Guidance on whether a particular explosive is classified as primary or secondary is available from the U.S. Army Technical Center for Explosives Safety (USATCES), (815) 273-

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8784/8876/8741; or the U.S. Army Environmental Center (USAEC), (410) 612-6851.

(b) Primary explosives are those extremely sensitive explosives (or mixtures thereof) which are used in primers, detonators, and blasting caps. The USAEC is currently conducting studies to determine what concentration of primary explosives in soil renders the mixture explosive. Until these studies are completed, soils with primary explosives must be sampled and tested to determine if they present explosion hazards. Guidance on sampling and testing is available from the USAEC, (410) 612-6851.

(c) Secondary explosives are bursting and boosting explosives, (i.e., they are used as the main bursting charge or as the booster which sets off the main bursting charge.) Secondary explosives are much less sensitive than primary explosives. They are less likely to react if struck or exposed to friction or to electrical sparks.

(d) Soil containing 10 percent or more by weight of any secondary explosive or mixture of secondary explosives is considered "explosives soil." This determination was based on information provided by the USAEC as a result of studies conducted and reported in USAEC Report AMXTH-TE-CR 86096.

e. Formerly Used Defense Sites (FUDS). A facility or site owned by, leased to, or otherwise possessed by the United States and formerly under the jurisdiction of the Secretary of Defense or War Department which has been released outside DoD custody and control.

f. On-site. The area containing OE and all areas in proximity to the OE that are necessary to implement the response action.

g. Real property. Real property consists of land, buildings, and water bodies. Real property may contain OE as the result of manufacturing, weapons firing, training, demolition ground operations, disposal, loss, abandonment, or waste collection. Examples of such property include pads, pits, basins, ponds, streams, impact areas, maneuver areas, training

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areas, burial sites, and buildings used for ammunition or explosives operations.

h. Recovered Chemical Warfare Materiel (RCWM). (See Policy for Biological Warfare Materiel and Buried Non-Stockpile Chemical Warfare Materiel Response Activities.)

i. Response Action. The process of reducing the risk of public exposure resulting from military ordnance and explosives. Actions may include detecting OE and either eliminating its explosive properties on site, transporting it off site to a storage or demilitarization facility, isolation of the hazard, or other action necessary to protect the public.

j. Stakeholder. Federal, state and local officials, community organizations, property owners and others having a personal interest or involvement, or having a monetary or commercial involvement in the property which is to undergo an OE response action.

10. Risk Assessment and Prioritization of OE Projects.

a. Potential OE sites for which an Archives Search Report (ASR) or similar historical background study is being prepared will be subjected to a risk assessment IAW AR 385-10, The Army Safety Program. Risk assessments must be performed by personnel experienced in evaluating explosive safety risks.

b. Other risk assessment methods may be used if they meet the intent of the method in AR 385-10. The U.S. Army Engineering and Support Center (Huntsville) worksheet entitled "Risk Assessment Procedure for Ordnance and Explosive (OE) Sites" is one alternate method that can be tailored to site-specific conditions. Another acceptable method is the program "OE CERT." Copies of either method can be obtained from: Commander, U.S. Army Engineering and Support Center, ATTN: CEHNC-OE, P.O. Box 1600, Huntsville, AL 35807-4301.

c. Projects to be included in work plans will be prioritized based on factors such as relative risk, stakeholder concerns (public and property owners, political concerns, regulators, and cultural/social/environmental justice issues),

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program execution considerations (technology feasibility, project continuity, impact of delayed action, consistency with program goals) and economic considerations (property values, economic development, reuse, geographic equity/balance, potential for cost recovery, resource competition). For FUDS, the USACE is responsible for considering all these factors, as appropriate, in setting project priorities. For active installation land disposal (such as BRAC), the MACOM is responsible but will consider advice from USACE and USAEC.

11. Identification, Control, OE Response Actions, Buildings Containing Explosives Residues, and Deed Restrictions OE at Active and BRAC Installations.

a. Identification of Property Containing OE at Active and BRAC Installations. Active Army installations will maintain permanent records identifying all areas known or suspected to contain OE. For BRAC projects, the required records will be a part of the Administrative Record.

(1) For Resource Conservation and Recovery Act (RCRA) permitted sites, such as OB/OD grounds, installations will keep records in accordance with RCRA requirements.

(2) At other than RCRA permitted sites, the installation will permanently maintain all records of activities at the site that could lead to the presence of OE. Examples of such records include range firing records, training records, and demolition ground shot records.

(3) At many installations, older OE sites exist for which records are either nonexistent or scant. These areas will be characterized to the maximum extent possible using available information.

(4) Installations will permanently maintain records of all site characterizations (such as historical records searches, interviews with current or former employees, geophysical surveys, etc.).

(5) Installations will permanently maintain records of all OE response actions.

(6) Installations will permanently maintain records of all emergency Explosives Ordnance Disposal (EOD) actions taken at their installation.

(7) Installations will show all known or suspected OE areas on their master planning maps.

(8) Installations slated to become inactive or closed will ensure records related to OE are maintained and transferred as specified by higher headquarters.

(9) Installations slated for closure, which have current permitted OB/OD areas, should maintain the permits. Maintaining these permits can support on-site destruction of OE found during OE response actions performed in support of base closure.

b. Control of Property Containing OE at Active and BRAC Installations.

(1) Real property containing OE will be marked with permanent signs warning of the hazard and prohibiting the entrance of unauthorized personnel. These signs will be multi-lingual, when appropriate, and maintained in a legible condition. Access to these areas will be determined by the installation through consideration of the type, amount, and depth of OE present and the uses to which authorized entry personnel will put the real property.

(2) When accountability and control of Army real property containing OE is transferred to another DoD component or Federal agency, the action will be accompanied by a transfer of the OE records to be permanently maintained by the receiving agency.

c. OE Response Actions at Active Installations.

(1) Determination of response action depends upon whether the land is to be kept under DoD control or released outside DoD control.

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(a) If the property is to be kept under DoD control (example: installation restoration projects), response action shall be determined by the installation and approved by the MACOM.

(b) If the property is to be released outside DoD control, OE response action must be based upon site-specific information contained in preliminary assessments, archives searches, site visits, risk assessments, and installation documents and the expected end use of the property.

(c) When the response action is an OE clearance, the preferred method to establish a clearance depth is to first estimate the OE depth using site specific information, particularly data from surface and intrusive sampling. For impact areas, an alternate method to estimate OE depth in the absence of site specific information is to use a maximum penetration source document. This method can be used if site characterization information is deemed inadequate. One such source document is the Conventional Weapons Effects Program (CONWEP), a computer program to model penetration depths. It is available to U.S. Government agencies from the U.S. Army Waterways Experiment Station, ATTN: CEWES-SS-R, 3909 Halls Ferry Road, Vicksburg, Mississippi 39180, commercial (601) 634-3668.

(d) The response action is approved via the OE safety submission (see paragraph 13). However, the response action may be modified based on actual conditions encountered. For example, when OE is consistently found at less than the estimated depths, the clearance depth may be reduced. Such modifications will be submitted as an amendment to the approved OE safety submission.

(e) At some sites, OE can be located down to or below the frost line. In these situations, clearance depth to the frost line shall be considered.

(1) In determining the clearance depth, the risk assessment must consider the area frost line. A phenomenon known as frost heave can move objects to the surface during the freeze and thaw cycles. Frost line depths can be obtained from the local Corps of Engineers Geographic District.

(2) In cases where OE is not cleared to at least the depth of the frost line, the safety submission must address the plan and procedures for performing geophysical surveys and maintenance for the life cycle of the site.

(f) When site-specific information is not sufficient to determine clearance depths, the following default clearance depths may be used for interim planning purposes.

#### DEFAULT CLEARANCE DEPTHS

<u>PLANNED END USE</u>	<u>REMOVAL DEPTH</u>
Commercial, residential, recreational, or utility construction activity	10 ft. or excavation depth plus 4 ft. whichever is greater
Farming, surface recreation, vehicle parking, or surface supply storage	4 ft
Livestock grazing or wildlife preserve	1 ft

(g) Lesser depths than required by the above chart are permissible under the following conditions:

(1) The Army has determined that a lesser depth of clearance is adequate to provide public safety based on coordination with and input received from appropriate sources.

(2) Appropriate land use restrictions are placed in the land transfer documents. See paragraph 11e.

(3) Where allowed by the risk assessment.

#### d. Buildings Containing Explosives Residues.

(1) Property excessing actions may result in the need to dispose of buildings that were used for explosives operations.

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Such buildings may have been used for production, shipping, storage, maintenance, or demilitarization of ammunition or explosives.

(2) Guidance on the clean-up and transfer of such buildings outside DoD control is available from the U.S. Army Technical Center for Explosives Safety. This guidance does not apply to clean-up of Army owned facilities to be used by commercial firms. Determination of clean-up of these types of buildings is the responsibility of the MACOM or its designee.

e. Deed Restrictions to be Placed in Land Transfer or Lease Documents.

(1) Unless OE is cleared as deep as it is known or estimated to exist, land transfer documents will contain deed restrictions on the use of the property. If deed restrictions are necessary, they will stipulate the permissible end uses of the property consistent with the clearance depth. If the OE clearance depth was determined using site-specific information or penetration data [see paragraph 11c(1)(c)], then land transfer documents will prohibit soil disturbance below the OE clearance depth. If the clearance depth was based on the default depths listed in paragraph 11c(1)(f), then the land will be restricted to the uses commensurate with the chosen default depth.

(2) Land transfer documents will state that any future use of the property that is inconsistent with the use restrictions will present explosion hazards.

(3) Land transfer documents will detail past amount and type of known or suspected OE, describe the OE response actions taken, and, if applicable, provide an estimate of type and amount of OE remaining on the site.

(4) When OE is above the frost line yet located below the removal depth, land transfer documents will provide the Army the right of access to the property in order to conduct periodic surveys. The length of time this right of access will be granted shall be determined by USACE using site specific information.

(5) The information in paragraphs 11e(1)-(4) will be

ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM

DECONTAMINATION  
Procedure No. 214, Rev. No. 0

Prepared by

Rocky Mountain Arsenal Remediation Venture Office

Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 16, 1997

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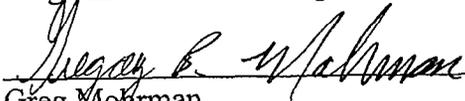
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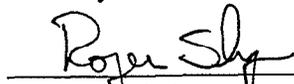
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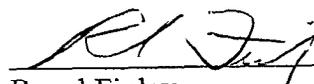
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## DECONTAMINATION

### 1.0 PURPOSE

This section describes procedures for personnel, vehicle, equipment and material decontamination during remedy activities.

### 2.0 SCOPE

RVO Performers are required to develop and implement written decontamination procedures in compliance with the requirements of this procedure.

### 3.0 REFERENCES

3.1 Title 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response for general industry.

3.2 Title 29 CFR 1929.65 Hazard Waste Operations and Emergency Response for construction.

### 4.0 DEFINITIONS

4.1 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure

5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements as outlined in this SOP.

5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.

5.4 Employees - RMA employees shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

#### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

## 6.0 REQUIREMENTS

- 6.1 Personnel decontamination is required before a worker exits a designated work zone. The level of decontamination shall be based on the nature of the work and the work area contaminants. Decontamination must effectively remove all visible contamination from the PPE and prevent the spread of contaminants. Decontamination solutions must be compatible with the PPE and contaminants. Decontamination solutions may require collection for treatment at the on-site CERCLA Wastewater Treatment Plant, as directed by the RVO.
- 6.2 The RVO Performer shall be responsible for the decontamination of all material and equipment that comes in contact with potentially contaminated soils or water. The decontamination shall be performed at the following locations based on requirements specified in later sections:
- a. Contractor's local decontamination station located at the work site.
  - b. Section 36 decontamination facility located on the north side of 7<sup>th</sup> Avenue approximately midway between D and E streets.
  - c. Decontamination facility located at the CERCLA Wastewater Treatment Plant.
- 6.3 Acceptable decontamination is defined as the removal by mechanical means or washing of all visible dirt and soil from the exterior of vehicles and equipment. All decontamination procedures and activities shall be subject to inspection and approval by the RVO. All decontamination solutions must be compatible with the equipment and contaminants.
- 6.4 Decontamination shall be performed at either the Contractor's local decontamination station or at the Section 36 decontamination facility prior to the use of a vehicle, equipment or material at a different contaminated work site; or the travel of a vehicle into uncontaminated areas within RMA including paved roadways.
- 6.5 Prior to exiting the RMA site, all vehicles, equipment and material shall be decontaminated at the decontamination facility located at the CERCLA Wastewater Treatment Plant. This exit decontamination shall be performed regardless of prior decontamination at the work site or at the Section 36 decontamination facility.
- 6.6 Field decontamination shall be performed using a portable steam cleaner and a clean water tank, or equivalent, and provided by the RVO Performer.

- 6.7 If a local decontamination station is used, a design and construction plan shall be prepared and submitted to the RVO for approval a minimum of two weeks prior to construction. The plan shall include drawings showing dimensions, liquid control measures, etc.; methods and equipment to handle rinse water and waste solids; and details relating to run-on and run-off controls.
- 6.8 Materials that cannot be adequately decontaminated using the Contractor's approved procedures shall be turned over to the RVO for disposal.
- 6.9 All vehicles, equipment and materials brought onto the RMA site to conduct work in contaminated areas shall undergo a visual inspection to ensure that said items are free of visual dirt or soil that may have originated from a previous work site. If such visible contamination is found, the items will not be allowed to enter the site until they have been decontaminated at the Contractor's offsite decontamination facility.
- 6.10 Decontamination wastewater generated at the Contractor's local decontamination station shall be containerized and transported to the CERCLA Wastewater Treatment Plant for disposal. Other disposal options may be submitted to the RVO for review and approval as appropriate.
- 6.11 All tanks used to temporarily store decontamination wastewater shall be decontaminated prior to removal from the RMA site. Decontamination shall include removal of all sediment accumulated within the tank and steam cleaning the tank interior.
- 6.12 The decontamination wastewater generated at the Section 36 decontamination facility is collected in an underground sump and recirculated for reuse. When no longer appropriate for reuse, the contents of the sump will be removed by the RVO and replaced with fresh water.
- 6.13 The decontamination wastewater generated at the decontamination facility located at the CERCLA Wastewater Treatment Plant is treated and recirculated for reuse. When no longer appropriate for reuse, the decontamination water will be replaced by the RVO.
- 6.14 The RVO Performer shall provide documented employee training on all decontamination procedures so employees can properly implement the requirements.

## 7.0 RECORDS

- 7.1 The RVO Performer shall maintain all records at the RMA site. These records shall be available for review and will be Quality Assurance (QA) records.

### **ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

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8.0 ATTACHMENTS

8.1 None.

**ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE**

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*Remediation Venture Office*  
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PERSONAL EXPOSURE MONITORING

RVO SOP: ES&H.300  
 Rev: 0  
 Date: 10/16/97  
 Page: 1 of 6

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## PERSONAL EXPOSURE MONITORING

### 1.0 PURPOSE

- 1.1 This procedure outlines the requirements for personal exposure monitoring at the RMA.

### 2.0 SCOPE

- 2.1 All RVO performers responsible for performing work on the RMA shall comply with the requirements of this Standard Operating Procedure (SOP).

### 3.0 REFERENCES

- 3.1 29 CFR Part 1910.120, Hazardous Waste Operations and Emergency Response
- 3.2 29 CFR Part 1910.1000, Subpart Z - Toxic and Hazardous Substances, Air Contaminants
- 3.3 National Institute for Occupational Safety and Health (NIOSH) Publication, Manual of Analytical Methods, fourth edition
- 3.4 American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices, 1995-1996.

### 4.0 DEFINITIONS

- 4.1 Action Level - The exposure level at which action is taken to prevent higher exposures. The Action Level in use at the RMA is 50% of the PEL.
- 4.2 Calibrate - To check, adjust or systematically standardize a quantitative measuring instrument according to manufacturer recommendations or specifications.
- 4.3 OSHA - Occupational Safety and Health Administration

- 4.4 PEL - Permissible Exposure Limit - An exposure limit that is published and enforced by OSHA as a legal standard.
- 4.5 RVO Performer - Any federal, state, city or county government agency, private contractor, subcontractor, or organization providing services to the RVO.

## 5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and resources necessary to implement an effective program, as outlined in this procedure.
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements outlined in this procedure.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.
- 5.4 Employees - Employees will report any hazardous conditions to their supervisor immediately upon their identification. Employees will not tamper with monitoring equipment nor turn it on or off without authorization. When selected to wear personal monitoring equipment, the employee will follow all instructions given.

## 6.0 REQUIREMENTS

- 6.1 RVO Performers shall eliminate or reduce occupational injuries and illnesses through safe work practices, engineering controls, and Personal Protective Equipment (PPE).
- 6.2 Personal exposure monitoring shall be performed by RVO performers for work activities or work areas that have the potential to exceed the RMA action level of the OSHA PELs.

- 6.3 Instrument Calibration - All Industrial Hygiene instrumentation used on the RMA shall be maintained and calibrated according to the manufacturers' recommendations.
- 6.4 RVO Performers shall insure that their employees are not exposed to workplace hazards in excess of the OSHA PELs.
- 6.5 The RVO Health and Safety Group shall provide chemical agent monitoring support, as needed.
- 6.6 Action Level - When worker exposures exceed 50% of the PEL for particular hazards, further controls, shall be implemented to prevent greater exposures.
- 6.7 Approved Monitoring Strategies - Monitoring strategies shall be developed by the RVO Performers and approved by the RVO Health and Safety Group. Development of sampling strategies is dependent upon: the current activities; number of workers; type of work being performed; the hazards present; the weather; and other factors. New strategies will be developed as site activities change. RVO Performer monitoring strategies shall be submitted to the RVO Health and Safety Group on the attached form (attachment 1) or an equivalent.
  - 6.7.1 Monitoring strategies shall address the following areas:
    - 6.7.1.1 Air sampling for dusts, mists, gases, vapors, and fumes.
    - 6.7.1.2 Noise monitoring of all equipment, other noise sources, and placing dosimetry on personnel working around noise sources.
    - 6.7.1.3 Monitoring physical and health hazards such as heat stress, and entry into confined spaces.
- 6.8 The RVO Health and Safety Group will assist RVO Performers with the identification of occupational health hazards, and the development of a monitoring and control measures program.

6.9 Personal Exposure Monitoring shall be conducted in accordance with all applicable regulations and standards.

## 7.0 RECORDS

7.1 All records associated with this SOP are Quality Assurance (QA) documents.

## 8.0 ATTACHMENTS

8.1 Attachment 1, Personal Exposure Monitoring Strategy



ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM

HAZARD COMMUNICATION  
Procedure No. 302, Rev. No. 0

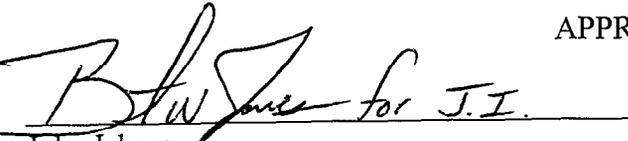
Prepared by

Rocky Mountain Arsenal Remediation Venture Office

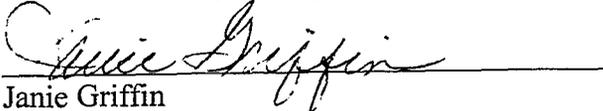
Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 21, 1997

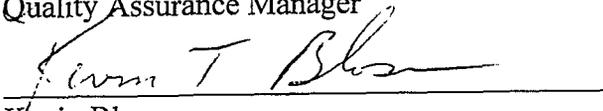
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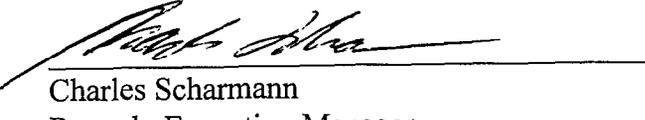
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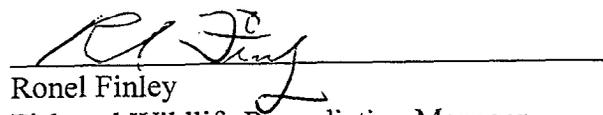
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Ronel Finley  
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6/12/97  
Date

## HAZARD COMMUNICATION

### 1.0 PURPOSE

This procedure is intended to provide minimum requirements for the RVO Performers in developing and implementing a Hazard Communication program for employees working at RMA.

### 2.0 SCOPE

This procedure is applicable to all RVO Performers who conduct work at the RMA involving a hazardous chemical or other material which through its use could generate a hazard.

### 3.0 REFERENCES

3.1 Title 29, CFR Part 1910.1200 Hazard Communication for general industry.

3.2 Title 29, CFR Part 1926.59 Hazard Communication for construction.

### 4.0 DEFINITIONS

4.1 Hazardous Chemical - Any chemical which presents a physical hazard or a health hazard.

4.2 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure

5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements as outlined in this SOP.

5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.

5.4 Employees - RMA employees shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

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## 6.0 REQUIREMENTS

- 6.1 Each RVO Performer shall develop and implement an effective written hazard communication program for all their employees involved with hazardous chemicals in compliance with the references in Section 3.0
- 6.2 All material safety data sheets (MSDS) must be readily available at the work site and cross indexed between chemical/product name and manufacturer name and alphabetized by product name prior to commencing work. Copies of all MSDS's shall be submitted to the RVO Safety and Health office upon request.
- 6.3 The RVO Performer shall submit to the RVO Safety and Health office the Chemical Inventory Report (Attachment 8.1) for any material whose volume exceeds 50 gallons in one container or one location, or any extremely hazardous substance or reactive material in excess of one pound or one quart.

## 7.0 RECORDS

- 7.1 RVO Performers shall keep all MSDS's, training records and hazard communication compliance documents at the RMA site office or have them readily available. These are quality assurance (QA) records.

## 8.0 ATTACHMENTS

- 8.1 RMA Chemical Inventory Report.

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**CHEMICAL INVENTORY REPORT**

(Acutely Toxic Chemical, Reactive Chemical or Greater than 50 gallons in one container)

1. Contractor/Organization: \_\_\_\_\_
2. Location of Chemical: \_\_\_\_\_
3. Chemical Name: \_\_\_\_\_
4. Chemical Abstract Society (CAS)Number: \_\_\_\_\_
5. Emergency Manufacturer's Number: \_\_\_\_\_
6. Required monitoring equipment: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. Decontamination Procedures: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. Neutralization Material and Location: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. Safe-Withdraw Distance (ft): \_\_\_\_\_

Attach a copy of MSDS.

ROCKY MOUNTAIN ARSENAL  
HEALTH AND SAFETY PROGRAM  
**RESPIRATORY PROTECTION**  
**Procedure No. 303, Rev. No. 0**

Prepared by

Rocky Mountain Arsenal Remediation Venture Office

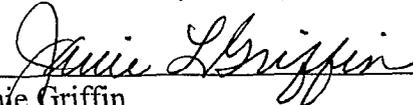
Department of Army  
Shell Oil Company  
U.S. Fish and Wildlife Service

May 16, 1997

APPROVALS

  
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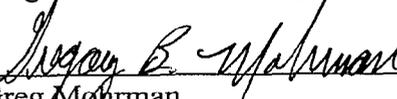
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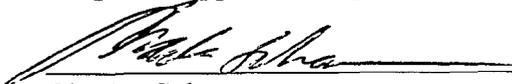
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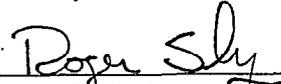
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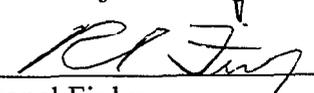
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6/12/97  
Date

## RESPIRATORY PROTECTION

### 1.0 PURPOSE

The purpose of this procedure is to require the RVO Performers to implement an effective respiratory protection program in keeping with the standards set forth in the American National Standard Institute (ANSI) Z88.2-1992, Practices for Respiratory Protection. A respiratory protection program shall be used in conjunction with generally accepted engineering practices for air contaminant control.

### 2.0 SCOPE

This procedure shall apply to all RVO Performers determining and requiring the use of respiratory protective equipment during the course of work.

### 3.0 REFERENCES

- 3.1 Title 29, Code of Federal Regulations Part 1910.134 Respiratory Protection for general industry.
- 3.2 Title 29, Code of Federal Regulations Part 1926.103 Respiratory Protection for construction.
- 3.3 ANSI Standard Z-88.2 - Practices for Respiratory Protection.

### 4.0 DEFINITIONS

- 4.1 RVO Performers - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

#### 5.1 Respiratory Protection Program Administrator

The Respiratory Protection Program Administrator shall establish procedures to control respiratory hazards through engineering or administrative controls, product/material substitution, respiratory protective devices or a combination of these methods. The administrator/designee shall also perform annual evaluations of the effectiveness of the respiratory protection program. These evaluations shall be documented and made available for review upon request.

The Administrator shall select and provide adequate respiratory protective devices for use on the RMA only after all engineering and administrative controls have been evaluated and determined not be feasible.

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This selection shall be based upon the specific type of air contaminant(s), the concentration of the contaminant(s) and acceptable oxygen levels in the work area.

The Administrator, through feedback from the RVO Safety and Health Group, shall ensure respiratory protection as required by the U.S. Department of Labor Occupational Safety and Health Standards and ANSI Z88.2 - 1992 is being enforced.

## 6.0 REQUIREMENTS

- 6.1 The RVO Performer shall develop and implement a written respiratory protection program in compliance with the references in Section 3.0 and the additional requirements of this procedure.
- 6.2 The RVO Performer shall have at the site a written medical qualification statement for each employee who wears a respirator. This medical qualification exam shall be current and maintained on file at the RMA.
- 6.3 All respiratory protection shall be certified by the National Institute of Occupational safety and Health (NIOSH) and shall be provided to all employees subject to harmful concentrations of dusts, gases, fumes, mists, radio nuclides, toxic materials or atmospheres deficient in oxygen.
- 6.4 All respirator cartridges and canisters shall be approved by NIOSH and/or the Mine Safety and Health Administration.
- 6.5 The RVO Performer shall be responsible for maintenance, cleaning and storage of employee's respirators.
- 6.6 The RVO Performer shall have documentation that the employee required to wear a respirator have a fit test and training record for the specific respirator issued.
- 6.7 The RVO Performer shall develop a program and procedures for disposal of used respiratory protection equipment and cartridges.

## 7.0 RECORDS

- 7.1 The RVO Performer shall keep all applicable records related to an effective respiratory protection program, including, but not limited to medical qualification statements, training, fit testing, maintenance, selection and hazard evaluation at the RMA office. These records are Quality Assurance (QA) records and shall be available for review by the RVO Safety and Health office.

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8.0 ATTACHMENTS

None.

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HEALTH AND SAFETY PROGRAM

**HEARING CONSERVATION**  
**Procedure No. 304, Rev. No. 0**

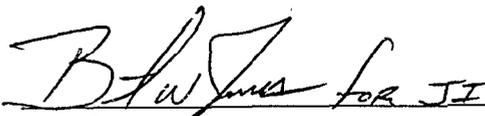
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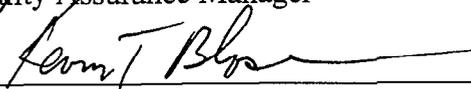
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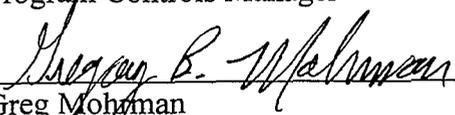
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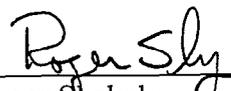
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Ronel Finley  
Fish and Wildlife Remediation Manager

6/12/97  
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## HEARING CONSERVATION

### 1.0 PURPOSE

This procedure provides requirements to RVO Performers in implementing an effective and consistent hearing conservation program.

### 2.0 SCOPE

This procedure is applicable to all personnel who work at or visit the RMA and are exposed above a sound pressure level of 85dB(A) for an 8-hour time weighted average (TWA).

### 3.0 REFERENCES

- 3.1 Title 29 CFR 1926.52 Occupational Noise Exposure for construction.
- 3.2 Title 29 CFR 1926.101 Hearing Protection for construction.
- 3.3 Title 29 CFR 1910.95 Occupational Noise Exposure for general industry.

### 4.0 DEFINITIONS

- 4.1 Hearing Conservation - The prevention or minimization of noise-induced hearing loss through the control of noise by administrative or engineering controls, annual audiometric testing, employee training, and the use of hearing protective devices.
- 4.2 RVO Performer - Any federal, state or county government agency, private contractor, subcontractor or organization providing services to the RVO.

### 5.0 RESPONSIBILITIES

- 5.1 Manager - The Manager responsible for oversight of the work being performed shall support this SOP by providing the time and funds necessary to implement an effective program as outlined in this procedure.
- 5.2 Supervisor - The Supervisor or designee of the involved organization is responsible for implementing the requirements as outlined in this SOP.
- 5.3 Safety Representative - The Safety Representative of the involved organization is responsible for providing technical guidance and support to the Supervisor, when necessary, to ensure compliance with this SOP.

#### ROCKY MOUNTAIN ARSENAL REMEDIATION VENTURE OFFICE

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5.4 Employees - RMA employees shall be responsible to report all injuries (no matter how minor), illnesses, equipment damage, hazardous material spills, near misses and any other unusual events to their supervisor as soon as practical.

## 6.0 REQUIREMENTS

6.1 Each RVO Performer shall develop and implement a written Hearing Conservation program for all employees and visitors affected by noise above an 8-hour TWA of 85 dB(A) during work at the RMA. This written program shall comply with the Section 3.0 referenced standards and the requirements of this procedure.

6.2 A sound level survey or alternate method shall be made by the RVO Performer on each equipment type (dozers, loaders, etc.) operating on the site and all work areas in order to determine noise control methods and hearing protection requirements. These surveys shall be made initially and whenever work area conditions change that effect employee exposures to noise.

6.3 Feasibility and cost-benefit analyses of administrative and engineering controls shall be conducted to assess options other than hearing protection devices to reduce noise exposures. OSHA requires that engineering controls to reduce employee noise exposures be implemented, if practical, before the alternative of a hearing protection device is used. Engineering controls must be employed where noise exposure to personnel is 115 dB(A) or greater.

6.4 Employees potentially exposed to an 8-hour TWA of 85 dB(A) or greater must receive training as outlined in 29 CFR 1910 .95 (k) Training Program.

6.5 Exposed personnel shall be monitored by the RVO Performer for a TWA and percent noise dose. From this information, requirements for hearing protection can be determined.

6.6 Proper procedures and documentation of all noise data collected will be achieved by the RVO Performer. Accurate records of all employee exposure measurements must be maintained at the RMA site office.

6.7 Each employee exposed at or above an 8-hour TWA of 85 dB(A) or 50% noise dose must be notified of the results of the monitoring by the employer.

6.8 Hearing conservation training for all effected employees must include the requirements of 29 CFR 1910.95 (k) Training Program.

6.9 Each RVO Performer shall provide baseline and annual audiometric testing to any employee exposed above an 8-hour TWA of 85 dB(A). For purposes of determining audiometric test applicability, employee noise exposure calculations

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must be computed without regard to any attenuation provided by the use of personal protective equipment. Audiometric testing shall be performed or reviewed by a licensed or certified technician, audiologist, otolaryngologist, or physician.

- 6.10 Use of hearing protection will require that the Noise Reduction Rating (NRR) be adjusted by the following calculation when determining the adequacy of protection for the specific device:

NRR minus 7, divided by 2, equals adjusted NRR.

## 7.0 RECORDS

- 7.1 Personnel audiometric baseline exams, annual exams, audiogram evaluations, noise sampling data and training records are to be kept on file by the RVO Performer. These are Quality Assurance (QA) records.

## 8.0 ATTACHMENTS

- 8.1 None.

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