

RISK ASSESSMENT PROCEDURES FOR  
MILITARY MUNITIONS RESPONSE PROJECTS

Property Name: KINGSLEY FIRING RANGE      Raters Name: CEMVS-ED-DO  
ANNEX  
Range Name: Range Complex  
Property Location: KLAMATH FALLS, OR      Phone: 309-794-5504  
DERP Project #: F10OR056901      Organization: CEMVR-ED-DO  
Property Type: FUDS      Date Completed: May 01, 2003  
Score: 1

**RISK ASSESSMENT**

This risk assessment (RAC) procedure was developed to address explosives safety hazards related to munitions. This procedure does not address environmental hazards associated with munitions constituents. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Directorate (CEHNC-OE) developed this procedure in accordance with MIL STD 882C and AR 385 10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Corps of Engineers to prioritize the response action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) actions, field observations (site visits), and interviews. This information is used to assess the risk involved based on the potential MMR hazards identified for the project. The risk assessment evaluates two factors, hazard severity and hazard probability.

**PART I. Hazard Severity.** Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of unexploded ordnance.

TYPE OF ORDNANCE: (Check all that apply)

A. InvestiConventional Ordnance and Ammunition

Other explosive item not previously stated	10
Bombs, explosive	10
Landmine, explosive	10
<b>Rockets, guided missile, explosive</b>	<b>10</b>
Grenades, hand or rifle, explosive	10
Explosive Projectiles (20 millimeter and larger)	10
Detonators, blasting caps, fuzes, boosters, bursters	6
<b>Bombs, practice (w/spotting charges)</b>	<b>6</b>
Practice ordnance (w/spotting charges)	4
<b>Small arms (ball only or blank), complete round (.50 cal or less)</b>	<b>1</b>
<b>Small arms (ball only or blank), expended (.50 cal or less)</b>	<b>0</b>
<b>Practice ordnance (w/o spotting charges)</b>	<b>0</b>
InvestiConventional Ordnance and Ammunition (Largest single value)	10

What evidence do you have regarding conventional unexploded ordnance?

\*\*\*No evidence\*\*\*

B. Pyrotechnics

Munition containing White Phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	10
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	10
Containers containing WP or other pyrophoric material or flame or incendiary material	6
Flares, signals, simulators, screening/burning smokes (other than WP)	4
Pyrotechnics (Largest single value)	0

What evidence do you have regarding pyrotechnics?

\*\*\*No evidence\*\*\*

C. Bulk High Explosives

Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
<b>Secondary Explosives (Demolition Charges, PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)</b>	<b>8</b>
Insensitive explosive substances (explosive contaminated soils, ammonium nitrate,	3
Bulk High Explosives (Largest single value)	8

What evidence do you have regarding bulk explosives?

\*\*\*No evidence\*\*\*

D. Bulk Propellants

Solid or Liquid Propellants	6
Bulk Propellants (Largest single value)	0

What evidence do you have regarding bulk propellants?

\*\*\*No evidence\*\*\*

E. Chemical Warfare Material (CWM) and Radiological Weapons

Toxic Chemical Agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite)	25
Chemical Agent Identification Sets	20
Radiological Materiel (If rad waste is identified, please call the HTRW-CX at (402) 697-2555)	15
Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG)	10

Riot Control Agents (vomiting, tear)	5
Chemical Warfare Material (CWM) and Radiological Weapons (Largest single value)	0

What evidence do you have regarding chemical/radiological OEW?

\*\*\*No evidence\*\*\*

Total Hazard Severity value: 18

#### Hazard Severity

Description	Category	Hazard Severity Value
CATASTROPHIC	I	21 OR GREATER
CRITICAL	II	10 TO 20
MARGINAL	III	5 TO 9
NEGLIGIBLE	IV	1 TO 4
*** NONE	V	0

\* IF HAZARD SEVERITY IS 0, YOU DO NOT NEED TO COMPLETE PART II OF THIS FORM.

Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

**PART II. Hazard Probability.** The probability that a hazard has been, or will be, created due to the presence and other rated factors of unexploded ordnance, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD

(Check all that apply)

A. Location of OEW Hazards

<b>On the surface</b>	<b>5</b>
Within tanks, pipes, vessels or other confined areas	4
Inside walls, ceilings, or other building/structure	3
<b>Subsurface</b>	<b>2</b>
Location of OEW Hazards (Largest single value)	5

What evidence do you have regarding location of OE?

Small arms casings on the ground

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard

<b>Less than 1,250 feet</b>	<b>5</b>
1,250 feet to 0.5 mile	4
0.5 mile to 1.0 mile	3
1.0 mile to 2.0 Miles	2
Over 2 miles	1
Distance to nearest inhabited location/structure likely to be at risk from OE hazard (Largest single value)	5

What are the nearest inhabited structures/buildings?

\*\*\*None\*\*\*

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary

<b>26 and over</b>	<b>5</b>
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary (Largest single value)	5

Narrative

\*\*\*No narrative\*\*\*

D. Types of Buildings

<b>Educational, child care, residential, hospitals, hotels, commercial, shopping centers</b>	<b>5</b>
Industrial, warehouse, etc.	4
Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of Buildings (Largest single value)	5

Describe the types of buildings

\*\*\*No description\*\*\*

\*\*\*None\*\*\*

E. Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance

No barrier nor security system	5
<b>Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.</b>	<b>4</b>
A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security Guard, but no barrier	2
Discontinued Question (Isolated Site)	0
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the ar	0
Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance (Largest single value)	4

Describe the site accessibility

\*\*\*No description\*\*\*

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility

<b>Expected</b>	<b>5</b>
None Anticipated	0

Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility (Largest single value) 5

Describe the site dynamics

\*\*\*No description\*\*\*

Total Hazard Probability value: 29

TABLE 2		
HAZARD PROBABILITY		
Description	Level	Hazard Probability Value
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASSIONAL	C	15 TO 20
REMOTE	D	8 to 14
IMPROBABLE	E	Less than 8
* Apply Hazard Probability Level to Table 3.		

Part III - Risk Assessment. The risk assessment value for this site is determined using the following table.					
Table 3					
PROBABILITY LEVEL	FREQUENT A	PROBABLE B	OCCASSIONAL C	REMOTE D	IMPROBABLE E
SEVERITY CATEGORY:					
CATASTROPHIC I	1	1	2	3	4
CRITICAL II	1	2	3	4	4
MARGINABLE III	2	3	4	4	4
NEGLIGIBLE IV	3	4	4	4	4
NONE (V) = RAC 5					

#### RISK ASSESSMENT CODE (RAC)

RAC 1-4 Recommend and approve further action as appropriate. Refer to EP 1110-1-18 for discussion of MMR Projects and the process to be followed for project execution.

RAC 5 Usually indicates that No DOD Action Indicated (NDAI) is necessary. Recommend and approve NDAI and follow instructions for project closeout in accordance with current program guidance.

PART IV. Narrative. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

Text1

RISK ASSESSMENT PROCEDURES FOR  
MILITARY MUNITIONS RESPONSE PROJECTS

Property Name: KINGSLEY FIRING RANGE      Raters Name: CEMVS-ED-DO  
ANNEX  
Range Name: Rifle Range  
Property Location: KLAMATH FALLS, OR      Phone: 309-794-5504  
DERP Project #: F10OR056901      Organization: CEMVR-ED-DO  
Property Type: FUDS      Date Completed: May 01, 2003  
Score: 5

**RISK ASSESSMENT**

This risk assessment (RAC) procedure was developed to address explosives safety hazards related to munitions. This procedure does not address environmental hazards associated with munitions constituents. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Directorate (CEHNC-OE) developed this procedure in accordance with MIL STD 882C and AR 385 10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Corps of Engineers to prioritize the response action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) actions, field observations (site visits), and interviews. This information is used to assess the risk involved based on the potential MMR hazards identified for the project. The risk assessment evaluates two factors, hazard severity and hazard probability.

**PART I. Hazard Severity.** Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of unexploded ordnance.

TYPE OF ORDNANCE: (Check all that apply)

A. InvestiConventional Ordnance and Ammunition

Other explosive item not previously stated	10
Bombs, explosive	10
Landmine, explosive	10
Rockets, guided missile, explosive	10
Grenades, hand or rifle, explosive	10
Explosive Projectiles (20 millimeter and larger)	10
Detonators, blasting caps, fuzes, boosters, bursters	6
Bombs, practice (w/spotting charges)	6
Practice ordnance (w/spotting charges)	4
Small arms (ball only or blank), complete round (.50 cal or less)	1
<b>Small arms (ball only or blank), expended (.50 cal or less)</b>	<b>0</b>
Practice ordnance (w/o spotting charges)	0
InvestiConventional Ordnance and Ammunition (Largest single value)	0

What evidence do you have regarding conventional unexploded ordnance?

Small arms were used on this range.

B. Pyrotechnics

Munition containing White Phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	10
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	10
Containers containing WP or other pyrophoric material or flame or incendiary material	6
Flares, signals, simulators, screening/burning smokes (other than WP)	4
Pyrotechnics (Largest single value)	0

What evidence do you have regarding pyrotechnics?

\*\*\*No evidence\*\*\*

C. Bulk High Explosives

Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Secondary Explosives (Demolition Charges, PETN, Compositions A, B, C, Teteryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Insensitive explosive substances (explosive contaminated soils, ammonium nitrate,	3
Bulk High Explosives (Largest single value)	0

What evidence do you have regarding bulk explosives?

\*\*\*No evidence\*\*\*

D. Bulk Propellants

Solid or Liquid Propellants	6
Bulk Propellants (Largest single value)	0

What evidence do you have regarding bulk propellants?

\*\*\*No evidence\*\*\*

E. Chemical Warfare Material (CWM) and Radiological Weapons

Toxic Chemical Agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite)	25
Chemical Agent Identification Sets	20
Radiological Materiel (If rad waste is identified, please call the HTRW-CX at (402) 697-2555)	15
Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG)	10

Riot Control Agents (vomiting, tear)	5
Chemical Warfare Material (CWM) and Radiological Weapons (Largest single value)	0

What evidence do you have regarding chemical/radiological OEW?

\*\*\*No evidence\*\*\*

Total Hazard Severity value: 0

#### Hazard Severity

Description	Category	Hazard Severity Value
CATASTROPHIC	I	21 OR GREATER
CRITICAL	II	10 TO 20
MARGINAL	III	5 TO 9
NEGLIGIBLE	IV	1 TO 4
*** NONE	V	0

\* IF HAZARD SEVERITY IS 0, YOU DO NOT NEED TO COMPLETE PART II OF THIS FORM.

Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

**PART II. Hazard Probability.** The probability that a hazard has been, or will be, created due to the presence and other rated factors of unexploded ordnance, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD

(Check all that apply)

A. Location of OEW Hazards

<b>On the surface</b>	<b>5</b>
Within tanks, pipes, vessels or other confined areas	4
Inside walls, ceilings, or other building/structure	3
Subsurface	2
Location of OEW Hazards (Largest single value)	5

What evidence do you have regarding location of OE?

Small arms and practice 3.5 inch rockets (inert warheads) were used on the range.

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard

Less than 1,250 feet	5
<b>1,250 feet to 0.5 mile</b>	<b>4</b>
0.5 mile to 1.0 mile	3
1.0 mile to 2.0 Miles	2
Over 2 miles	1
Distance to nearest inhabited location/structure likely to be at risk from OE hazard (Largest single value)	4

What are the nearest inhabited structures/buildings?

\*\*\*None\*\*\*

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary

26 and over	5
16 to 25	4
11 to 15	3
6 to 10	2
<b>1 to 5</b>	<b>1</b>
0	0
Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary (Largest single value)	1

Narrative

\*\*\*No narrative\*\*\*

D. Types of Buildings

<b>Educational, child care, residential, hospitals, hotels, commercial, shopping centers</b>	<b>5</b>
Industrial, warehouse, etc.	4
Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of Buildings (Largest single value)	5

Describe the types of buildings

\*\*\*No description\*\*\*

\*\*\*None\*\*\*

E. Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance

<b>No barrier nor security system</b>	<b>5</b>
Barrier is incomplete (e.g., in disrepair or does not completely surround the site).	4
Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.	3
A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security Guard, but no barrier	2
Discontinued Question (Isolated Site)	0
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the ar	0
Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance (Largest single value)	5

Describe the site accessibility

\*\*\*No description\*\*\*

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility

Expected	5
<b>None Anticipated</b>	<b>0</b>

Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility (Largest single value) 0

Describe the site dynamics

\*\*\*No description\*\*\*

Total Hazard Probability value: 20

TABLE 2		
HAZARD PROBABILITY		
Description	Level	Hazard Probability Value
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASSIONAL	C	15 TO 20
REMOTE	D	8 to 14
IMPROBABLE	E	Less than 8
* Apply Hazard Probability Level to Table 3.		

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Table 3					
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MARGINABLE III	2	3	4	4	4
NEGLIGIBLE IV	3	4	4	4	4
NONE (V) = RAC 5					

#### RISK ASSESSMENT CODE (RAC)

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RAC 5 Usually indicates that No DOD Action Indicated (NDAI) is necessary. Recommend and approve NDAI and follow instructions for project closeout in accordance with current program guidance.

PART IV. Narrative. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

Various munitions items were used or destroyed on the complex. The rifle range provided small arms training. The Army National Guard on occasion used the range for 3.5 Inch rocket practice and EOD/Munitions personnel trained with explosives and performed destruction by detonation of various misc. explosive items.

RISK ASSESSMENT PROCEDURES FOR  
MILITARY MUNITIONS RESPONSE PROJECTS

Property Name: KINGSLEY FIRING RANGE      Raters Name: CEMVS-ED-DO  
ANNEX  
Range Name: Rocket Range  
Property Location: KLAMATH FALLS, OR      Phone: 309-794-5504  
DERP Project #: F10OR056901      Organization: CEMVR-ED-DO  
Property Type: FUDS      Date Completed: May 01, 2003  
Score: 5

**RISK ASSESSMENT**

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**PART I. Hazard Severity.** Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of unexploded ordnance.

TYPE OF ORDNANCE: (Check all that apply)

A. InvestiConventional Ordnance and Ammunition

Other explosive item not previously stated	10
Bombs, explosive	10
Landmine, explosive	10
Rockets, guided missile, explosive	10
Grenades, hand or rifle, explosive	10
Explosive Projectiles (20 millimeter and larger)	10
Detonators, blasting caps, fuzes, boosters, bursters	6
Bombs, practice (w/spotting charges)	6
Practice ordnance (w/spotting charges)	4
Small arms (ball only or blank), complete round (.50 cal or less)	1
Small arms (ball only or blank), expended (.50 cal or less)	0
<b>Practice ordnance (w/o spotting charges)</b>	<b>0</b>
InvestiConventional Ordnance and Ammunition (Largest single value)	0

What evidence do you have regarding conventional unexploded ordnance?

The Army National Guard used this range occasionally for 3.5 rocket training.

B. Pyrotechnics

Munition containing White Phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	10
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	10
Containers containing WP or other pyrophoric material or flame or incendiary material	6
Flares, signals, simulators, screening/burning smokes (other than WP)	4
Pyrotechnics (Largest single value)	0

What evidence do you have regarding pyrotechnics?

\*\*\*No evidence\*\*\*

C. Bulk High Explosives

Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Secondary Explosives (Demolition Charges, PETN, Compositions A, B, C, Teteryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Insensitive explosive substances (explosive contaminated soils, ammonium nitrate,	3
Bulk High Explosives (Largest single value)	0

What evidence do you have regarding bulk explosives?

\*\*\*No evidence\*\*\*

D. Bulk Propellants

Solid or Liquid Propellants	6
Bulk Propellants (Largest single value)	0

What evidence do you have regarding bulk propellants?

\*\*\*No evidence\*\*\*

E. Chemical Warfare Material (CWM) and Radiological Weapons

Toxic Chemical Agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite)	25
Chemical Agent Identification Sets	20
Radiological Materiel (If rad waste is identified, please call the HTRW-CX at (402) 697-2555)	15
Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG)	10

Riot Control Agents (vomiting, tear)	5
Chemical Warfare Material (CWM) and Radiological Weapons (Largest single value)	0

What evidence do you have regarding chemical/radiological OEW?

\*\*\*No evidence\*\*\*

Total Hazard Severity value: 0

#### Hazard Severity

Description	Category	Hazard Severity Value
CATASTROPHIC	I	21 OR GREATER
CRITICAL	II	10 TO 20
MARGINAL	III	5 TO 9
NEGLIGIBLE	IV	1 TO 4
*** NONE	V	0

\* IF HAZARD SEVERITY IS 0, YOU DO NOT NEED TO COMPLETE PART II OF THIS FORM.

Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

**PART II. Hazard Probability.** The probability that a hazard has been, or will be, created due to the presence and other rated factors of unexploded ordnance, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD

(Check all that apply)

A. Location of OEW Hazards

<b>On the surface</b>	<b>5</b>
Within tanks, pipes, vessels or other confined areas	4
Inside walls, ceilings, or other building/structure	3
Subsurface	2
Location of OEW Hazards (Largest single value)	5

What evidence do you have regarding location of OE?

\*\*\*No evidence\*\*\*

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard

<b>Less than 1,250 feet</b>	<b>5</b>
1,250 feet to 0.5 mile	4
0.5 mile to 1.0 mile	3
1.0 mile to 2.0 Miles	2
Over 2 miles	1
Distance to nearest inhabited location/structure likely to be at risk from OE hazard (Largest single value)	5

What are the nearest inhabited structures/buildings?

\*\*\*None\*\*\*

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary

26 and over	5
16 to 25	4
<b>11 to 15</b>	<b>3</b>
6 to 10	2
1 to 5	1
0	0
Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary (Largest single value)	3

Narrative

\*\*\*No narrative\*\*\*

D. Types of Buildings

<b>Educational, child care, residential, hospitals, hotels, commercial, shopping centers</b>	<b>5</b>
Industrial, warehouse, etc.	4
Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of Buildings (Largest single value)	5

Describe the types of buildings

\*\*\*No description\*\*\*

\*\*\*None\*\*\*

E. Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance

No barrier nor security system	5
<b>Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.</b>	<b>4</b>
A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security Guard, but no barrier	2
Discontinued Question (Isolated Site)	0
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the ar	0
Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance (Largest single value)	4

Describe the site accessibility

\*\*\*No description\*\*\*

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility

<b>Expected</b>	<b>5</b>
None Anticipated	0

Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility (Largest single value) 5

Describe the site dynamics

\*\*\*No description\*\*\*

Total Hazard Probability value: 27

TABLE 2		
HAZARD PROBABILITY		
Description	Level	Hazard Probability Value
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASSIONAL	C	15 TO 20
REMOTE	D	8 to 14
IMPROBABLE	E	Less than 8
* Apply Hazard Probability Level to Table 3.		

Part III - Risk Assessment. The risk assessment value for this site is determined using the following table.					
Table 3					
PROBABILITY LEVEL	FREQUENT A	PROBABLE B	OCCASSIONAL C	REMOTE D	IMPROBABLE E
SEVERITY CATEGORY:					
CATASTROPHIC I	1	1	2	3	4
CRITICAL II	1	2	3	4	4
MARGINABLE III	2	3	4	4	4
NEGLIGIBLE IV	3	4	4	4	4
NONE (V) = RAC 5					

#### RISK ASSESSMENT CODE (RAC)

RAC 1-4 Recommend and approve further action as appropriate. Refer to EP 1110-1-18 for discussion of MMR Projects and the process to be followed for project execution.

RAC 5 Usually indicates that No DOD Action Indicated (NDAI) is necessary. Recommend and approve NDAI and follow instructions for project closeout in accordance with current program guidance.

PART IV. Narrative. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

The Army National Guard used the range on occasions for training with practice (inert) 3.5 inch rockets. No energetic OE was observed on the range

RISK ASSESSMENT PROCEDURES FOR  
MILITARY MUNITIONS RESPONSE PROJECTS

Property Name: KINGSLEY FIRING RANGE      Raters Name: CEMVS-ED-DO  
ANNEX  
Range Name: Disposal Range  
Property Location: KLAMATH FALLS, OR      Phone: 309-794-5504  
DERP Project #: F10OR056901      Organization: CEMVR-ED-DO  
Property Type: FUDS      Date Completed: May 01, 2003  
Score: 1

**RISK ASSESSMENT**

This risk assessment (RAC) procedure was developed to address explosives safety hazards related to munitions. This procedure does not address environmental hazards associated with munitions constituents. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Directorate (CEHNC-OE) developed this procedure in accordance with MIL STD 882C and AR 385 10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Corps of Engineers to prioritize the response action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) actions, field observations (site visits), and interviews. This information is used to assess the risk involved based on the potential MMR hazards identified for the project. The risk assessment evaluates two factors, hazard severity and hazard probability.

**PART I. Hazard Severity.** Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of unexploded ordnance.

TYPE OF ORDNANCE: (Check all that apply)

A. InvestiConventional Ordnance and Ammunition

Other explosive item not previously stated	10
Bombs, explosive	10
Landmine, explosive	10
<b>Rockets, guided missile, explosive</b>	<b>10</b>
Grenades, hand or rifle, explosive	10
Explosive Projectiles (20 millimeter and larger)	10
Detonators, blasting caps, fuzes, boosters, bursters	6
<b>Bombs, practice (w/spotting charges)</b>	<b>6</b>
Practice ordnance (w/spotting charges)	4
<b>Small arms (ball only or blank), complete round (.50 cal or less)</b>	<b>1</b>
<b>Small arms (ball only or blank), expended (.50 cal or less)</b>	<b>0</b>
<b>Practice ordnance (w/o spotting charges)</b>	<b>0</b>
InvestiConventional Ordnance and Ammunition (Largest single value)	10

What evidence do you have regarding conventional unexploded ordnance?

\*\*\*No evidence\*\*\*

B. Pyrotechnics

Munition containing White Phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	10
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	10
Containers containing WP or other pyrophoric material or flame or incendiary material	6
Flares, signals, simulators, screening/burning smokes (other than WP)	4
Pyrotechnics (Largest single value)	0

What evidence do you have regarding pyrotechnics?

\*\*\*No evidence\*\*\*

C. Bulk High Explosives

Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
<b>Secondary Explosives (Demolition Charges, PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)</b>	<b>8</b>
Insensitive explosive substances (explosive contaminated soils, ammonium nitrate,	3
Bulk High Explosives (Largest single value)	8

What evidence do you have regarding bulk explosives?

\*\*\*No evidence\*\*\*

D. Bulk Propellants

Solid or Liquid Propellants	6
Bulk Propellants (Largest single value)	0

What evidence do you have regarding bulk propellants?

\*\*\*No evidence\*\*\*

E. Chemical Warfare Material (CWM) and Radiological Weapons

Toxic Chemical Agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite)	25
Chemical Agent Identification Sets	20
Radiological Materiel (If rad waste is identified, please call the HTRW-CX at (402) 697-2555)	15
Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG)	10

Riot Control Agents (vomiting, tear)	5
Chemical Warfare Material (CWM) and Radiological Weapons (Largest single value)	0

What evidence do you have regarding chemical/radiological OEW?

\*\*\*No evidence\*\*\*

Total Hazard Severity value: 18

#### Hazard Severity

Description	Category	Hazard Severity Value
CATASTROPHIC	I	21 OR GREATER
CRITICAL	II	10 TO 20
MARGINAL	III	5 TO 9
NEGLIGIBLE	IV	1 TO 4
*** NONE	V	0

\* IF HAZARD SEVERITY IS 0, YOU DO NOT NEED TO COMPLETE PART II OF THIS FORM.

Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

**PART II. Hazard Probability.** The probability that a hazard has been, or will be, created due to the presence and other rated factors of unexploded ordnance, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD

(Check all that apply)

A. Location of OEW Hazards

<b>On the surface</b>	<b>5</b>
Within tanks, pipes, vessels or other confined areas	4
Inside walls, ceilings, or other building/structure	3
Subsurface	2
Location of OEW Hazards (Largest single value)	5

What evidence do you have regarding location of OE?

It appeared that EOD and munitions personnel performed limited ob/od operations and also explosive training.

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard

<b>Less than 1,250 feet</b>	<b>5</b>
1,250 feet to 0.5 mile	4
0.5 mile to 1.0 mile	3
1.0 mile to 2.0 Miles	2
Over 2 miles	1
Distance to nearest inhabited location/structure likely to be at risk from OE hazard (Largest single value)	5

What are the nearest inhabited structures/buildings?

\*\*\*None\*\*\*

C. Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary

<b>26 and over</b>	<b>5</b>
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of buildings within a 2 mile radius measured from the OE hazard area, not the installation boundary (Largest single value)	5

Narrative

\*\*\*No narrative\*\*\*

D. Types of Buildings

<b>Educational, child care, residential, hospitals, hotels, commercial, shopping centers</b>	<b>5</b>
Industrial, warehouse, etc.	4
Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of Buildings (Largest single value)	5

Describe the types of buildings

\*\*\*No description\*\*\*

\*\*\*None\*\*\*

E. Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance

No barrier nor security system	5
<b>Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.</b>	<b>4</b>
A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security Guard, but no barrier	2
Discontinued Question (Isolated Site)	0
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the ar	0
Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance (Largest single value)	4

Describe the site accessibility

\*\*\*No description\*\*\*

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility

**Expected** **5**

None Anticipated 0

Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility (Largest single value) 5

Describe the site dynamics

\*\*\*No description\*\*\*

Total Hazard Probability value: 29

TABLE 2		
HAZARD PROBABILITY		
Description	Level	Hazard Probability Value
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASSIONAL	C	15 TO 20
REMOTE	D	8 to 14
IMPROBABLE	E	Less than 8
* Apply Hazard Probability Level to Table 3.		

Part III - Risk Assessment. The risk assessment value for this site is determined using the following table.					
Table 3					
PROBABILITY LEVEL	FREQUENT A	PROBABLE B	OCCASSIONAL C	REMOTE D	IMPROBABLE E
SEVERITY CATEGORY:					
CATASTROPHIC I	1	1	2	3	4
CRITICAL II	1	2	3	4	4
MARGINABLE III	2	3	4	4	4
NEGLIGIBLE IV	3	4	4	4	4
NONE (V) = RAC 5					

RISK ASSESSMENT CODE (RAC)

RAC 1-4 Recommend and approve further action as appropriate. Refer to EP 1110-1-18 for discussion of MMR Projects and the process to be followed for project execution.

RAC 5 Usually indicates that No DOD Action Indicated (NDAI) is necessary. Recommend and approve NDAI and follow instructions for project closeout in accordance with current program guidance.

PART IV. Narrative. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

Various munitions items were used or destroyed on the complex.. EOD/Munitions personnel trained with explosives and performed destruction by detonation of various misc. explosive items.