

CENWD-MT-MH (200)

26 NOV 2001

MEMORANDUM FOR CDR, SEATTLE DISTRICT, ATTN: CENWS-PM-HW

SUBJECT: DERP-FUDS Inventory Project Report (INPR) Requiring an Ordnance and Explosives (OE) Engineering Evaluation and Cost Analysis (EE/CA)

1. Reference memorandum, CEHNC-OE-AI, 12 June 1996, subject as above (copy enclosed), regarding Ephrata Pattern Bombing Range #4, Douglas and Grant Counties, Washington.
2. HNC recommended project approval to HQUSACE in 1996. However, a project approval memorandum was apparently never generated. Project approval authority was subsequently delegated to the Divisions. This memorandum serves to document approval of OE Project No. F10WA057901, Ephrata Pattern Bombing Range. In accordance with the enclosed memorandum, the Risk Assessment Code is 3.
3. Please ensure that FUDSMIS is updated to reflect the approval.
4. Any questions may be referred to David Nusz at (402) 697-2523.

FOR THE COMMANDER:

Encl  
as

  
TEDDIE R. KELL, P.E.  
Chief, Military/HTRW/SFO Division

CF w/o Encl:  
CEMP-RF (Moeller)  
CEHNC-OE-DC (Douglas)  
CENWO-HX-T (K. Peterson)  
CENWD-MT-MH (Nusz)

200.1f

F10WA057901\_01.08\_0000\_p



DEPARTMENT OF THE ARMY  
HUNTSVILLE DIVISION, CORPS OF ENGINEERS  
P. O. BOX 1600  
HUNTSVILLE, ALABAMA 35807-4301

REPLY TO  
ATTENTION OF:

CEHNC-OE-AI (200-1c)

12 June 1996

MEMORANDUM FOR Commander, HQUSACE, ATTN: CEMP-RF,  
20 Massachusetts Avenue NW, Washington, DC  
20314-1000

SUBJECT: DERP-FUDS Inventory Project Report (INPR) Requiring an  
Ordnance and Explosives (OE) Engineering Evaluation and Cost  
Analysis (EE/CA)

1. The enclosed INPR has been submitted for further  
investigation or action by the Huntsville Engineering and Support  
Center. We have reviewed the INPR and recommend a phased EE/CA  
be scheduled for the following site:

DIVISION	PROJECT NO.	RAC	SITE NAME
NPD	F1OWA057901	3	Ephrata Pattern Bombing Range #4 (encl)

2. A cost model and risk assessment code score is included with  
the enclosure. The POC is Ms. Carrie Douglas at 205-895-1465 or  
Mr. Bill McPherson at 205-895-1595.

FOR THE DIRECTOR, ORDNANCE  
AND EXPLOSIVES TEAM:

KARL E. BLANKINSHIP, P.E.  
Manager, Ordnance and  
Explosives Team

Encl

CF:

Commander, U.S. Army Engineer Division, North Pacific,  
ATTN: CENPD-PM-M, P.O. Box 2870, Portland, OR 97208-2870  
Commander, U.S. Army Engineer District, Seattle,  
ATTN: CENPS-EN-GT-EM, P.O. Box 3755, Seattle, WA 98124-2255

5-80



DEPARTMENT OF THE ARMY  
NORTH PACIFIC DIVISION, CORPS OF ENGINEERS  
P.O. BOX 2870  
PORTLAND, OREGON 97208-2870

Reply to  
Attention of:

CENPD-PM-M (200-1a)

10 11 8 55  
15 APR 1996

MEMORANDUM FOR CDR, U.S. Army Engineering & Support Center,  
Huntsville, (CEHNC-PM-E), P.O. BOX 1600,  
Huntsville, AL 35807-4301

SUBJECT: Defense Environmental Restoration Program for Formerly Used  
Defense Sites (DERP-FUDS); Inventory Project Report (INPR), for Site  
No. F1OWA057900, Ephrata Pattern Bombing Range #4, Douglas and Grant  
Counties, Washington

1. I am forwarding the subject INPR for your action. This site is determined to be a formerly used defense site (FUDS). The proposed project is eligible for funding under the DERP-FUDS program.
2. I recommend that CEHND review the proposed ordnance and explosive waste (OEW) project and take the necessary actions.
3. The CENPD-PM-MP POC for this action is Mr. Moon-Yong Han, P.E., (503) 326-7361.

Encl  
Memo, CENPS-EN-GT-EM  
22 March 1996

RUSSELL L. FUHRMAN  
Major General, USA  
Commanding

CF (w/o encl)  
CEMP-RF  
CENPS-PM



DEPARTMENT OF THE ARMY  
SEATTLE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 3755  
SEATTLE, WASHINGTON 98124-2255

MAR 22 1996

REPLY TO  
ATTENTION OF

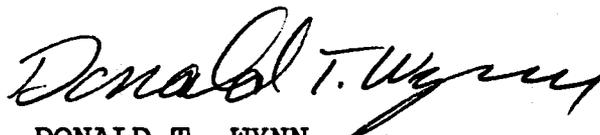
CENPS-EN-GT-EM (200-1a)

MEMORANDUM FOR Commander, U.S. Army Engineer Division,  
North Pacific, ATTN: CENPS-PM-MP, P.O.  
Box 2870, Portland, Oregon 97208-2870

SUBJECT: Defense Environmental Restoration Program for  
Formerly Used Defense Sites (DERP-FUDS) Inventory Project  
Report (INPR) for Site No. F1OWA057900, Ephrata Pattern  
Bombing Range #4, Douglas and Grant Counties, Washington.

1. The enclosed INPR presents the DERP-FUDS Preliminary Assessment (PA) for the above facility. A site visit was conducted on 2 November 1995. The site survey summary sheet and site map are included in the INPR.
2. We have determined that the site was formerly used by the United States Army. A recommended Findings and Determination of Eligibility (FDE) is included in the INPR.
3. Also, we have determined that there is a potential for ordnance or explosive waste (OEW) at the site which would be eligible for further evaluation and possible remediation under DERP-FUDS.
4. Seattle District Counsel has reviewed this INPR and concurs with site and project eligibility determinations.
5. I recommend:
  - a. Approval and signing the FDE;
  - b. Forwarding a copy of this INPR to CEHND requesting that they determine what further action is required and appropriate at this site.

Encls  
as

  
DONALD T. WYNN  
Colonel, Corps of Engineers  
Commanding

SITE SURVEY SUMMARY SHEET  
FOR  
DERP-FUDS SITE NO. F10WA057900  
EPHRATA PATTERN BOMBING RANGE #4  
DOUGLAS AND GRANT COUNTIES, WASHINGTON  
MARCH 1996

SITE NAME: Ephrata Pattern Bombing Range #4.

LOCATION: Douglas and Grant Counties, Washington (see attached map).

SITE HISTORY: The Ephrata Pattern Bombing Range #4 was established in late 1943 to provide a training facility for the U.S. Army 2nd Air Force assigned to the Ephrata Army Air Field (F10WA028100), Ephrata, Washington. The former range, consisting of 2460.12 acres leased from private owners and Douglas County, is located approximately 14 miles north of Ephrata. The leases were terminated in September and October of 1946. The site is flat, open, treeless land used for crops and stock grazing.

The Ephrata Army Air Field, active from 1942 to 1945, was initially a training facility for B-17 and B-24 bomber crews (June 1942 and December 1943). Since Range #4 was established after June 1943, it would appear that use of the property for bombing activity may have been rather brief. Documents indicate incendiary and demolition bombs including 300, 500 and 1000 pounders, and M38A2 100 pound training bombs (sand filled) were stored on base and may have been used at Range #4. (See Draft Archive Search Report, Ephrata Army Air Field, Grant County WA, F10WA028100, June 1994, prepared by St. Louis District.)

From December 1943 to April 1944 the air field was on stand-by status and designated as a sub-port of McChord Army Air Field near Tacoma. It was then reactivated for 4th Air Force fighter pilot training in P-38, P-39 and P-63 aircraft. This mission continued until February 1945 when the base returned to stand-by under McChord. No indication of use of Range #4 during this re-activation period was found.

In July and August 1945, Ephrata Army Air Field was briefly re-activated for 4th Air Force B-24 bomber crew training and then returned to stand-by. It is not known if Range #4 was in use at this time.

The documents consulted did not identify any military structures constructed at the facility; however, a long-time property owner reported knowing of a target located on his land in the western half of the range. Reports of bomb fragments and occasionally training bombs with intact spotting devices came from two informants, but no one

DERP-FUDS SITE NO. F10WA057900 cont.

interviewed could recall any finds of unexploded HE ordnance or incendiaries.

**SITE VISIT:** A site visit was conducted on 2 November 1995 by David Wigle and Victor Ramos, CENPS-EN-GT-ET. While on the site, they spoke with Mr. Paul Malone and Mr. Wesley Roberts, property owners. Other owners were contacted by telephone before and after the site visit. A small pile of bomb fragments collected by one property owner was observed.

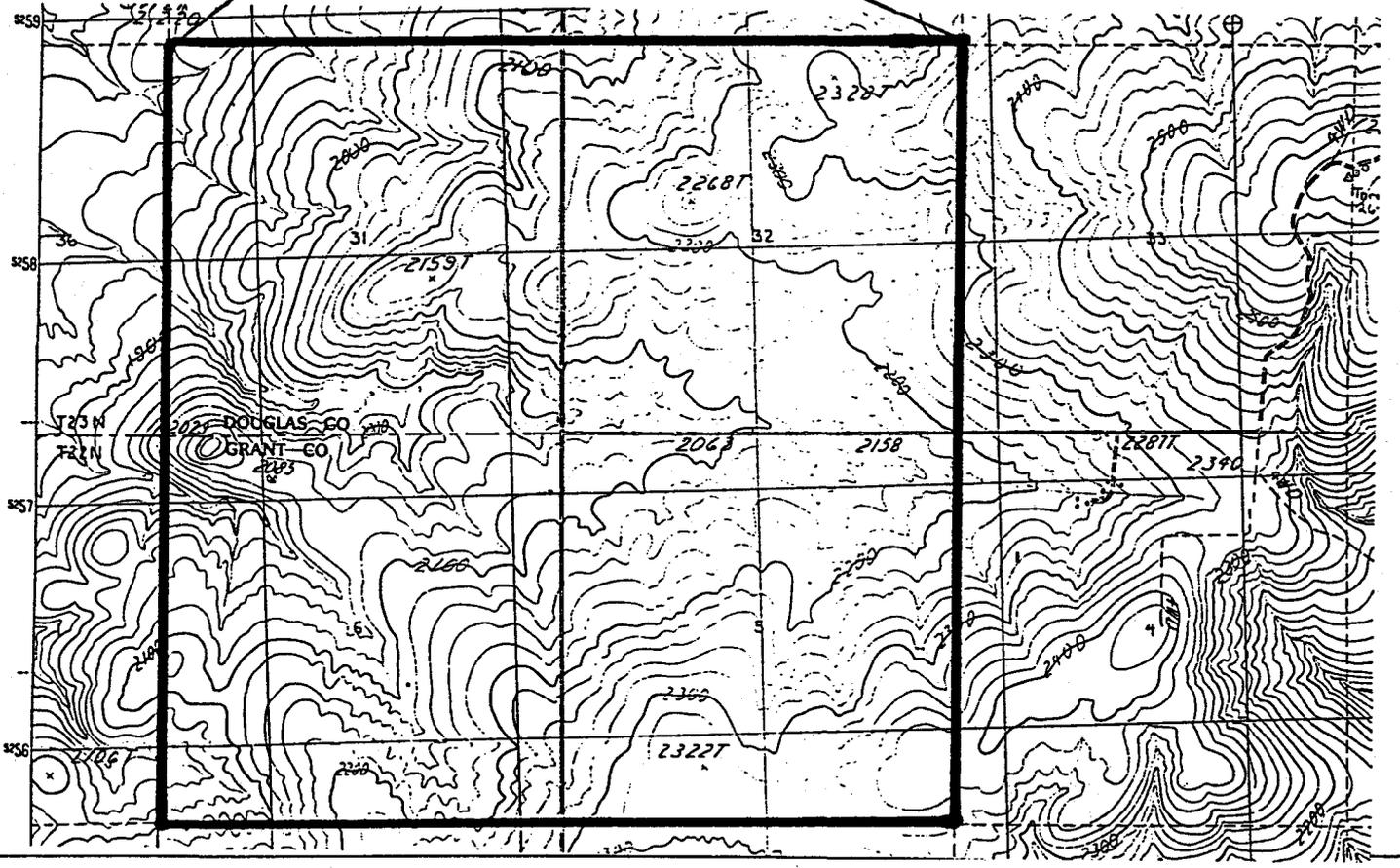
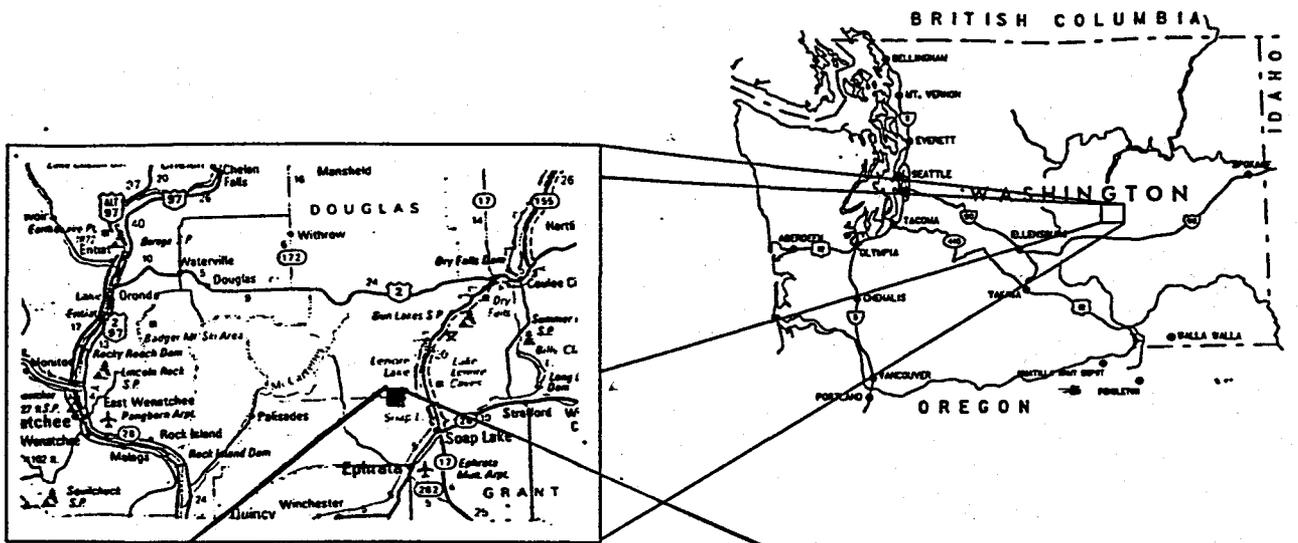
**CATEGORY OF HAZARD:** OEW.

**PROJECT DESCRIPTION:** Bomb debris and, occasionally, intact spotting charges, have been found at various locations within the boundaries of Range #4 for nearly 50 years. There is a possibility that HE demolition and incendiary bombs may also have been used.

**AVAILABLE STUDIES AND REPORTS:** Various historical materials and real estate records.

**SEATTLE DISTRICT PROGRAM POC:** Robert L. Monson, CENPS-PM-PM, (206) 764-6587.

**SEATTLE DISTRICT PROJECT POC:** Jonathan A. Maas, CENPS-EN-GT-EM, (206) 764-6745.



SITE VICINITY & LOCATION MAP  
 EPHRATA PATTERN BOMBING RANGE  
 EPHRATA, WA  
 SITE NO. F1OWA057900

LEGEND:

NOT TO SCALE



SITE LOCATION

US Army Corp of Engineers  
 Seattle District  
 DERP-FUDS



DEFENSE ENVIRONMENTAL RESTORATION PROGRAM  
FOR FORMERLY USED DEFENSE SITES  
FINDINGS AND DETERMINATION OF ELIGIBILITY

Ephrata Pattern Bombing Range #4  
Douglas and Grant Counties, Washington

Site No. F10WA057900

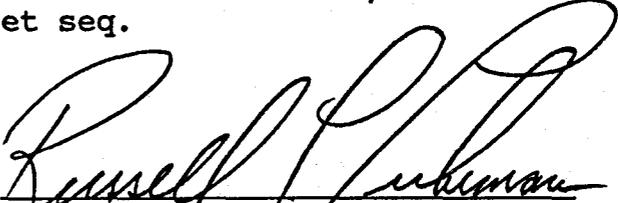
FINDINGS OF FACT

1. The former Ephrata Pattern Bombing Range #4 is located in Douglas and Grant Counties, 14 miles north of the town of Ephrata, Washington. The site consisted of 16 contiguous tracts totaling 2,460.12 acres acquired by leases in 1943.
2. The site was used by Army Air Corps units attached to the Ephrata Army Air Field for bombing practice.
3. The leases were terminated in September and October 1946.

DETERMINATION

Based on the foregoing findings of fact, the site has been determined to be formerly used by the Department of Defense. It is therefore eligible for the Defense Environmental Restoration Program - Formerly Used Defense Sites, established under 10 USC 2701 et seq.

12 Apr 1990  
DATE

  
RUSSELL L. FUHRMAN  
Major General, USA  
Commanding

PROJECT SUMMARY SHEET  
FOR  
DERP-FUDS OEW PROJECT F10WA057901  
EPHRATA PATTERN BOMBING RANGE #4  
DOUGLAS AND GRANT COUNTIES, WASHINGTON  
SITE NO. F10WA057900  
MARCH 1996

PROJECT DESCRIPTION: Metal bomb debris and, occasionally, intact spotting charges have been found at various locations within the boundaries of Range #4 for nearly 50 years. There is a possibility that HE demolition and incendiary bombs may also have been used at the site.

PROJECT ELIGIBILITY: The property was controlled and used by the Army between 1943 and 1946.

POLICY CONSIDERATIONS: Potential OEW sites with a RAC of 4 or higher are to be referred to CEHND for recommendations for further action.

PROPOSED ACTIVITIES: The INPR should be referred to CEHND for recommendations for further action.

RAC: II-C, 3 (Form attached).

SEATTLE DISTRICT PROJECT POC: Jonathan A. Maas, CENPS-EN-GT-EM, (206) 764-6745.

17 March 1995  
Previous editions obsolete

RISK ASSESSMENT PROCEDURES FOR  
ORDNANCE AND EXPLOSIVE WASTE (OEW) SITES

Site Name Ephrata Pattern Bomb Rng # 4  
Site Location Ephrata, WA  
DERP Project # F10WA057900  
Date Completed 21 May 96

Rater's Name Bill McPherson  
Phone No. (205) 895-1595  
Organization CEHNC-OE-AI  
RAC Score 3

OEW RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The RAC score will be used by CEHND to prioritize the remedial action at Formerly Used Defense Sites. The EXO risk assessment should be based upon best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) detachment actions, and field observations, interviews, and measurements. This information is used to assess the risk involved based upon the potential OEW hazards identified at the site. The risk assessment is composed of two factors, **hazard severity and hazard probability**. Personnel involved in visits to potential OEW sites should view the CEHND videotape entitled "A Life Threatening Encounter: OEW."

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

TYPE OF ORDNANCE  
(Circle all values that apply)

A.	Conventional Ordnance and Ammunition	VALUE
	Medium/Large Caliber (20 mm and larger)	10
	<b>Bombs, Explosive</b>	10
	Grenades, Hand and Rifle, Explosive	10
	Landmines, Explosive	10
	Rockets, Guided Missiles, Explosive	10
	Detonators, Blasting Caps, Fuzes, Boosters, Bursters	6
	<b>Bombs, Practice (w/spotting charges)</b>	6
	Grenades, Practice (w/spotting charges)	4
	Landmines, Practice (w/spotting charges)	4
	Small Arms (.22 cal - .50 cal)	1
	Small Arms, Expended	0

Conventional Ordnance and Ammunition (Select the largest single value) 10

What evidence do you have regarding conventional EXO? HE and practice bombs were dropped

B. Pyrotechnics (For munitions not described above.)

	VALUE
Munition (Container) Containing White Phosphorus or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
Munition Containing A Flame or Incendiary Material (i.e., Napalm, Triethylaluminum Metal Incendiaries)	6
Flares, Signals, Simulators	4

Pyrotechnics (Select the largest single value)

What evidence do you have regarding pyrotechnics? Reported at the Air Base, may have been dropped 6

C. Bulk High Explosives (Not an integral part of conventional ordnance; uncontainerized.)

	VALUE
Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)	3

High Explosives (Select the largest single value)

What evidence do you have regarding bulk explosives? None 0

D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized)

	VALUE
Solid or Liquid Propellants	6
Propellants	<u>0</u>

What evidence do you have regarding bulk propellants? None

**E. Chemical Warfare Material and Radiological Weapons**

	VALUE	
Toxic Chemical Agents (Choking, Nerve, Blood, Blister)	25	
War Gas Identification Sets	20	
Radiological	15	
Riot Control Agents (Vomiting, Tear)	5	
Chemical and Radiological (Select the largest single value)		<u>0</u>

What evidence do you have of chemical/radiological OEW? None

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**TOTAL HAZARD SEVERITY VALUE** 16  
 (Sum of Largest Values for A through E--Maximum of 61)  
**Apply this value to Table 1 to determine Hazard Severity Category.**

TABLE 1

HAZARD SEVERITY\*

Description	Category	Hazard Severity Value
CATASTROPHIC	I	21 and greater
CRITICAL	II	10 to 20
MARGINAL	III	5 to 9
NEGLIGIBLE	IV	1 to 4
**NONE		0

**Apply Hazard Severity Category to Table 3.**

\*\*If Hazard Severity Value is 0, you do not need to complete Part II. 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 or explosive materials on a formerly used DOD site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD  
(Circle all values that apply)

A. Locations of OEW Hazards

	VALUE
<b>On the surface</b>	<b>5</b>
Within Tanks, Pipes, Vessels or Other confined locations.	4
Inside walls, ceilings, or other parts of Buildings or Structures.	3
<b>Subsurface</b>	<b>2</b>

Location (Select the single largest value)

5

What evidence do you have regarding location of OEW? HE and practice debris visible and probable to lie subsurface

B. Distance to nearest inhabited locations or structures likely to be at risk from OEW hazard (roads, parks, playgrounds, and buildings).

	VALUE
Less than 1250 feet	5
1250 feet to 0.5 miles	4
0.5 miles to 1.0 mile	3
<b>1.0 mile to 2.0 miles</b>	<b>2</b>
Over 2 miles	1

Distance (Select the single largest value)

2

What are the nearest inhabited structures? Farm house

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

	VALUE
26 and over	5
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0

Number of Buildings (Select the single largest value)

1

Narrative Farm

D. Types of Buildings (within a 2 mile radius)

	VALUE
<b>Educational, Child Care, Residential, Hospitals, Hotels, Commercial, Shopping Centers</b>	5
Industrial, Warehouse, etc.	4
<b>Agricultural, Forestry, etc.</b>	3
Detention, Correctional	2
No Buildings	0

Types of Buildings (Select the largest single value)

5

Describe types of buildings in the area. Farm

E. Accessibility to site refers to access by humans to ordnance and explosive wastes. Use the following guidance:

BARRIER	VALUE
No barrier or 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
Isolated site	1
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the facility; or An artificial or natural barrier (e.g., a fence combined with a cliff), which completely surrounds the facility; and a means to control entry, at all times, through the gates or other entrances to the facility (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the facility).	0

Accessibility (Select the single largest value)

4

Describe the site accessibility. Fence is up but not complete

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 by beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.

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

Site Dynamics (Select largest value)

0

Describe the site dynamics. None expected

**TOTAL HAZARD PROBABILITY VALUE**

**(Sum of Largest Values for A through F--Maximum of 30)**

**Apply this value to Hazard Probability Table 2 to determine Hazard Probability Level.**

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**TABLE 2  
HAZARD PROBABILITY**

Description	Level	Hazard Probability Value
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	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 3. Enter with the results of the hazard probability and hazard severity values.

TABLE 3

Probability Level	FREQUENT A	PROBABLE B	OCCASIONAL C	REMOTE D	IMPROBABLE E
Severity Category:					
CATASTROPHIC I	1	1	2	3	4
CRITICAL II	1	2	3	4	5
MARGINAL III	2	3	4	4	5
NEGLIGIBLE IV	3	4	4	5	5

**RISK ASSESSMENT CODE (RAC)**

RAC 1 Expedite INPR, recommending further action by CEHND - Immediately call CEHND-OE-ES commercial 205-895-1582..

RAC 2 High priority on completion of INPR - Recommend further action by CEHND.

RAC 3 Complete INPR - Recommend further action by CEHND.

RAC 4 Complete INPR - Recommend further action by CEHND.

RAC 5 Usually indicates that no further action (NOFA) is necessary. Submit NOFA and RAC to CEHND.

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 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.

This site has indications that HE and Practice bombs were dropped here. The air base which was associated with this site also stored incendiary bombs but no indication was used on site, but listed it just in case. Debris has been found on site and OE could be subsurface.

INPR COST MODEL.

SITE NAME: Ephrata Bombing Range #4

PROJECT NUMBER: F10WA057900

	<u>Phase</u>	<u>\$ In house - \$ Contract</u>
YEAR 1.	EE/CA	\$75K - \$750K
YEAR 2.	RD	\$100K
YEAR 3.	RA	\$150K - \$4M
YEAR 4.	RA	\$150K - \$4M
YEAR 5.		
	TOTAL C-T-C	<u>\$475K - \$8M</u>