

US Army Corps
of Engineers

HUNTSVILLE DIVISION

Defense Environmental Restoration Program
for
Formerly Used Defense Sites

Ordnance and Explosive Waste
Chemical Warfare Materials

**ARCHIVES SEARCH REPORT
FINDINGS**

NORTHWEST MANEUVER AREA

Central - South-Central, Oregon

Crook, Deschutes, Grant, Harney,
Jefferson, Klamath, and Lake Counties

Project Number F10OR020801

AUGUST 1995

Prepared by
US ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
for the former
NORTHWEST MANEUVER AREA
Central - South-Central Oregon

Project Number F10OR020801

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1.0 Introduction

1.1 Authority

In 1986, Congress established the Defense Environmental Restoration Program at 10 U.S.C. 2701 et.seq. This program directed the Secretary of Defense to "carry out a program of environmental restoration at facilities under the jurisdiction of the Secretary."

In March, 1990, the EPA issued a revised National Contingency Plan. Under 40 C.F.R. 300.120, EPA designated DOD to be the removal response authority for incidents involving DoD military weapons and munitions under the jurisdiction, custody and control of DoD.

Since the beginning of this program, the U.S. Army Corps of Engineers has been the agency responsible for environmental restoration at Formerly-Used Defense Sites (FUDS). Since 1990, the U.S. Army Engineering and Support Center, Huntsville, has been the Mandatory Center of Expertise and Design Center for Ordnance and Explosives.

On April 5, 1990, U.S. Army Engineer Division, Huntsville (USAEDH) was designated as the USACE Mandatory Center of Expertise (MCX) and Design Center for Ordnance and Explosive Waste (OEW). As the MCX and Design Center for OEW, USAEDH is responsible for the design and successful implementation of all Department of the Army OEW remediations required by CERCLA. USAEDH will also design and implement OEW remediation programs for other branches of the Department of Defense when requested. In cooperation with the Huntsville Division, the U.S. Army Corps of Engineers St. Louis District has been assigned the task of preparing Archives Search Reports for those Formerly Used Defense Sites (FUDS) suspected of ordnance and explosive waste (OEW) or chemical warfare materials (CWM) contamination.

1.2 Subject

The Northwest Maneuver Area (NWMA), covering approximately eight million acres, is located in central to south-central Oregon. It was utilized by DOD to facilitate a large scale force-on-force exercise prior to deployment of the 4th Army into its World War II theatre of operations.

Encompassed within this site's boundary are six separate formerly used defense sites. They are as follows:

Central Oregon Air to Air Gunnery Range	Site No. F10OR017000*
Camp Abbott	Site No. F10OR004100*
Fort Rock Maneuver Area	Site No. F10OR018000
Redmond Precision Bombing Range	Site No. F10OR021900
Redmond Air to Ground Gunnery Range	Site No. F10OR021700
Redmond Army Airfield	Site No. F10OR002800

* denotes that an INPR has been completed, and that an OEW project was proposed and approved.

1.3 Purpose

This Archives Search Report (ASR) compiles information obtained through historical research at various archives and records holding facilities, interviews with persons associated with the site or its operations, and personal visits to the site. All efforts were directed towards determining possible use or disposal of OEW on the site. Particular emphasis was placed on establishing the type of munitions, quantities and area of disposal. Information obtained during this process was used in developing recommendations for further actions at the site.

1.4 Scope

The entire area of the NWMA was evaluated in assessing the potential for ordnance and explosive waste contamination. The two FUDS properties for which an OEW project has been proposed (listed above at paragraph 1.2) are not included in this assessment.

This report presents the history of the site, description and characterization of the immediate surrounding area, real estate ownership information, findings of a visual field survey, and OEW (CWM) site analysis, including an evaluation of potential ordnance contamination. A separate **Executive Summary** supplements these ASR FINDINGS and furnishes the CONCLUSIONS and RECOMMENDATIONS.

2.0 Previous Site Investigations

2.1 Corps of Engineers Documents

Under the Defense Environmental Restoration Program (DERP), the Portland District prepared a Findings and Determination of Eligibility (FDE) for the Northwest Maneuver Area. The FDE determined that the site is eligible for the Defense Environmental Restoration Program for Formerly Used Defense Sites under 10 U.S.C. 2701 et seq.

The FDE states that the site was used as a maneuver area for the Fourth Corps of the U.S. Army between September and October 1943. No permanent structures were constructed. Based on documented reports of ordnance, the District determined a RAC score of 3 for the subject site and recommended further action by CEHND.

A copy of the Project Inventory Report (INPR) containing the FDE is provided at Appendix D.

2.2 Other Reports

No other investigation reports were found during the preparation of this ASR.

3.0 Site Description

3.1 Land Usage

3.1.1 Location

The Northwest Maneuver Area site encompasses approximately 8 million acres of central and south-central Oregon, including portions of Jefferson, Deschutes, Crook, Grant, Lake, Harney and Klamath Counties.

3.1.2 Past Uses

The Maneuver Area was obtained under a special use permit by the U.S. Government in 1943 to facilitate the training of Fourth Army units and personnel in preparation for overseas deployment. Records indicate that the units trained with blanks and inert munitions. Prior to DOD's use of the site, it was comprised of six (6) defense sites, small farms and ranches, federal resource agencies owned/managed lands.

3.1.3 Current Uses

The site contains several small communities and incorporated areas. The vast majority of the site is Federally owned open range and forest land and is currently used for cattle grazing, agriculture, and timber production purposes.

3.2 Climatic Data

The vast majority of the site, which contains several small communities and incorporated areas, is high desert, open range and forest lands. Normal airmasses move into the area from the Pacific Ocean. This air gives up most of its moisture after crossing the Coastal Range and then the Cascade Mountains. This leaves very dry air which flows into the Central Oregon plateau. It has a dry season and warm temperatures in summer, a cold and slightly wetter winter, and a wide range in temperature.

Average annual precipitation ranges from about 10 inches a year along the western part of the area to approximately 25 inches in the southeastern part of the area. Approximately 33 per cent of this annual total occurs during the period December through February; 26 per cent March through May; 15 per cent in June through August, and 26 per cent September through November. Thunderstorms have occurred in the area every month of the year, but are most likely late in spring and in summer.

Relative humidity ranges from about 25 percent in mid-afternoon to 80 percent during the early hours of the day in the warmest and driest months. In winter it ranges from 75 percent in mid-afternoon to around 80 percent or higher early in the morning.

Average snowfall for the area is about 17 inches. There are only 6 to 8 days per year when an inch or more of snow falls. It seldom remains on the ground for more than a few days. Small hail commonly occurs a few times each winter.

During the 5-month period of November through March, 70 to 80 per cent of the sky is covered with clouds on an average day. In July, however, there is only an average of 15 per cent cloud cover.

An actual tornado has never been officially recorded in the survey area. Dust storms sometimes build up to a height of several hundred feet late in spring and summer.

Climatological data for the site area are summarized in TABLE 3-1. Temperature and precipitation data was extracted from the "Soil Survey of Trout Creek-Shaniko Area, Oregon (parts of Jefferson, Wasco, and Crook Counties)" for plateau areas. Wind data is from the National Weather Service for Burns, OR. which is in Harney County.

**CLIMATOLOGICAL DATA FOR
NORTHWEST MANEUVER AREA
TABLE 3-1**

Month	Temperature		Precipitation Average (Inches)	Wind*	
	Average Minimum (°F)	Average Maximum (°F)		Average Speed Miles/Hour	Average Direction
January	21	40	1.3	6.2	**
February	25	46	1.0	6.3	**
March	27	52	0.9	7.6	**
April	31	61	0.7	8.7	**
May	36	68	1.1	8.6	**
June	42	76	1.0	7.9	**
July	47	87	0.2	7.7	**
August	45	85	0.3	7.1	**
September	40	77	0.5	7.0	**
October	33	65	1.0	6.4	**
November	27	50	1.4	5.4	**
December	25	43	1.4	5.8	**
Average	33	63	10.8	7.0	**

* Based on data from Burns, OR - Harney County

** Prevailing wind direction unavailable

3.3 Geology and Soils

3.3.1 Geology

The Northwest Maneuver Area falls within two separate provinces; the Columbia Intermontane province and the Basin and Range province. The bedrock in the site area consists almost entirely of basalt lava flows. The lava plateaus are interspersed with many rhyolitic deposits and rhyolite volcanic structures. There are also some deposits of light colored volcanic ash.

The low topographical features are sand dunes, alkali lakes, and shorelines of ice-age lakes. The elevated features are prominently volcanic in origin. Another type of elevated feature are the ash-ring volcano. These structures were formed by more violent eruptions that were assisted by steam. The remaining structure was then cut by wave erosion of the ice-age lakes and left standing as islands in the level lava plateaus.

In the southern half, the site covers an area of extensive faulting. The northwest-southeast trending faults have been softened by erosion and are most visible by air. These faults are collectively named the Brothers fault and there are at least 25 of them present within the site area. Everywhere south of the Brothers fault zone the lava plateau is broken into big fault block mountain ranges and valleys; north of it the lava plateau is still relatively intact and unbroken by faulting (Alt and Hyndman 1990).

3.3.2 Soils

Where there are soils present in the site area they are very thin. For the most part, the surface is composed of various outcropping rocks, mostly basalt. In some areas, fault block valley floors filled with muddy sediments that were washed into them from neighboring mountains. These Miocene age fills and sediments are mostly gravelly and silty sand in nature.

3.4 Hydrology

3.4.1 Ground Water

Since the site covers such an expansive area even the climate changes within the site. In the southeast, the site is very dry and the rainfall very scarce. The rainfall does not develop connected stream systems. When it does rain, muddy runoff pours off the mountains and into the lowest part of the valleys where it ponds and dries.

Towards the western edge of the site the region is semi-arid. The region provides just enough rainfall to allow lakes to remain full while not allowing any significant drainageways to form (Alt and Hyndman 1990).

Groundwater studies in this area are non-existent. There is very little information on the groundwater present in this location.

3.4.2 Surface Water

This large area is drained by many streams with the Deschutes and the John Day Rivers being the largest. Both of those rivers drain north to the Columbia River. Many of the sites are dry lake beds for much of the year.

3.5 Ecology

The information on the endangered and threatened species for this site has been provided by the U.S. Fish and Wildlife Service and the Oregon Department of Fish and Wildlife.

The U.S. Fish and Wildlife Service has indicated that the following Federally protected species may be found in the vicinity of the Northwest Maneuver Site: Columbian white-tailed deer (*Odocoileus virginianus leucurus*), endangered; bald eagle (*Haliaeetus leucocephalus*), threatened; brown pelican (*pelecanus occidentalis*), endangered; marbled murrelet (*Brachyramphus marmoratus*), threatened; Snake River chinook salmon (*Oncorhynchus tshawytscha*), threatened; Snake River sockeye salmon (*Oncorhynchus nerka*), endangered; Oregon silverspot butterfly (*Speyeria zerene hippolyta*), threatened; white-footed vole (*Arborimus albipes*), candidate; Pacific western big-eared bat (*Plecotus townsendii townsendii*), candidate; northern red-legged frog (*Rana aurora aurora*), candidate; tall bugbane (*Cimicifuga elata*), candidate; Howell's montia (*Montia howellii*), candidate.

The Oregon Department of Fish and Wildlife provided comments on the following State threatened and endangered species: bull trout (*Salvelinus confluentus*), critical; cascades frog (*Rana cascadae*), critical; spotted frog (*Rana pretiosa*), critical; American peregrine falcon (*Falco peregrinus*), endangered; bald eagle, endangered; northern spotted owl (*Strix occidentalis caurina*), threatened; black-backed woodpecker (*Picoides articus*) critical; burrowing owl (*Speotyto cunicularia*), critical; ferruginous hawk (*Buteo regalis*), critical; ; flammulated owl (*Otus flammeolus*), critical; Lewis' woodpecker (*Asyndesmus lewis*), critical; northern goshawk (*Accipiter gentilis*), critical; pileated woodpecker (*Dryocopus pileatus*), critical; red-necked grebe (*Podiceps grisegena*), critical; three-toed woodpecker (*Picoides tridactylus*), critical; white-headed woodpecker (*Dendrocopos albolarvatus*), critical; American martin (*Martes americana*), critical; Pacific western big-eared bat, critical; wolverine (*Gulo luscus*), threatened.

No additional information on the occurrence of rare or endangered species or natural communities is known at this time. This does not mean that other state or federally-listed species may not be present within the areas of interest. An on site inspection by appropriate state and federal personnel may be necessary to verify the presence, absence, or location of listed species, or natural communities if remedial action is recommended as part of the final ASR.

3.6 Demographics of the Area

This demographic report contains information for seven (7) different counties. General information, i.e., population, pop. density, and area square miles, will be used. One county (Deschutes) will be shown with all its information as a representation of the entire area.

Information for the following counties was obtained from the 1988 County and City Data Book: (N/A means information not available)

City: Prineville	County: Crook
Area: N/A sq.mi.	Area: 2,984 sq.mi.
POP: N/A	POP: 13,200
PD: N/A persons per sq.mi	PD: 4.4 persons per sq.mi.
City: Lakeview	County: Lake
Area: N/A sq.mi.	Area: 8,251 sq.mi.
POP: 2,526	POP: 7,186
PD: N/A persons per sq.mi.	PD: 0.9 persons per sq.mi.
City: John Day	County: Grant
Area: N/A sq.mi.	Area: 4,525 sq.mi.
POP: 1900	POP: 8,000
PD: N/A persons per sq.mi.	PD: 1.8 persons per sq.mi.
City: Klamath Falls	County: Klamath
Area: N/A sq.mi.	Area: 5,954 sq.mi.
POP: N/A	POP: 57,500
PD: N/A persons per sq.mi.	PD: 9.6 persons per sq.mi.
City: Madras	County: Jefferson
Area: N/A sq.mi.	Area: 1,789 sq.mi.
POP: 3,443	POP: 13,676
PD: N/A persons per sq.mi.	PD: 6.9 persons per sq.mi.
City: Burns	County: Harney
Area: N/A sq.mi.	Area: 10,174 sq.mi.
POP: 2913	POP: 6950
PD: N/A persons per sq.mi.	PD: 0.7 persons per sq.mi.

The representative area for Northwest Maneuver Area is located near the City of Bend, Deschutes County, Oregon.

3.6.1 Center of Activity

The representative area, Sunriver, has numerous centers of activity such as Central Oregon Community College, museums, art galleries, Drake Park, Juniper Park, and other various parks located throughout the community.

3.6.2 Population Density

City: Bend	County: Deschutes
Area: 21 sq.mi.	Area: 3,025 sq.mi.
POP: 20,425	POP: 74,958
PD: 972.6 persons per sq.mi.	PD: 24.8 persons per sq.mi.

Population and area are based on the U.S. Department of Commerce, Bureau of the Census, 1990 statistics, and telephone interviews.

3.6.3 Business and Industry Profile

A review of both telephone interviews and County Business Patterns (1990) assisted in developing a business profile of the area. The City of Bend's largest employers are: St. Charles Medical Center, Bend/LaPine School District, Mt. Bachelor Inc., Deschutes National Forest, Deschutes County, Sunriver Resort. The community supports mainly retail and service industries, along with light industry and manufacturing.

3.6.4. Type of Housing

Housing in Bend is composed of both single and multi-family homes. There are approximately 9,004 housing units with a median value of \$68,800.

3.6.5 New Development in the Area

Development in the Bend area includes residential dwellings, increasing tourism, light industry and manufacturing.

3.6.6 Typical Cross-Section of Population

The percent of those under the age of 18 is 24.8%, over 65 years is 13.5%. The median age is 33. Approximately 95.8% of the population is white, 0.2% Black, 2.4% Hispanic, 0.9% American Indian or Eskimo, and 0.7% Asian or Pacific Islander. The work force, based on the number of establishments, of Deschutes County is broken down into the following: manufacturing, 7.2%; agriculture, 1.5%; trade and finance 39.0%; services, 28.9%; unclassified, 23.4%.

3.6.7 Chambers of Commerce

Due to the large area covered by the Northwest Maneuver Area, the individual Chamber of Commerce may be contacted if more detailed information is needed:

Bend (Deschutes Co.) Chamber of Commerce (503) 382-3221
Prineville (Crook Co.) (503) 447-6304
John Day (Grant Co.) (503) 575-0547
Klamath Falls (Klamath Co.) (503) 963-3936
Madras (Jefferson Co.) (503) 475-2350
Lakeview (Lake Co.) (503) 947-6040
Burns (Harney Co.) (503) 573-2636

4.0 Historical Ordnance Usage

4.1 Historical Site Summary

During the months of September, October and November 1943, the IV Corps of the U.S. Army engaged in a series of war maneuvers on 8 million acres of Oregon land. This 10,000 square mile parcel of land is bigger than the State of New Hampshire and spans the following counties: Jefferson, Deschutes, Crook, Grant, Lake, Harney and Klamath. In addition, the following Formerly Used Defense Sites (FUDS) fall within the maneuver area: Camp Abbot (Headquarters of the Maneuver Area), Burns Army Air Field (AAF), Madras AAF, Redmond AAF, Redmond Air-to-Ground Gunnery Range, Redmond Precision Bombing Range, Central Oregon Air-to-Air Gunnery Range and the Fort Rock Maneuver Area.

Between 75,000 and 100,000 troops and 12,000 vehicles participated in the war games. The red and blue armies were comprised of the 91st, 96th and 104th Infantry Divisions along with the 644th and 705th Tank Battalions and the 329th Engineers, as well as other units (Hoegh & Doyle 1946).

According to press accounts of the day, live ammunition was on hand. However, it was not to be fired. The ammunition was to be present in containers so that soldiers already proficient in firing would learn how to better handle live rounds. Reportedly, ammunition requirements ran around 2000 tons, and it was moved from place to place to provide for that phase of realism (Edwards 1943). One man was reported to have said, "Aren't they going to give us any ammo? If I fired one round, I fired a million-all dry" (Bend Bulletin 1943).

The local newspaper, the *Bend Bulletin*, provides a running account of the progress of the maneuvers. The three month exercise was sub-divided into eight separate "problems" for the troops to complete.

Problem #1: The first problem was to seize Horse Ridge, 17 miles east of Bend, Oregon (Bend Bulletin 1943).

Problem #2: The fighting took place on the 6,000 foot slopes of Hampton Buttes, 2 miles north of the Central Oregon Highway. The fighting extended 20 miles south to Yreka Butte.

Problem #3: The two armies moved men into an area approximately 30 miles S.W. of Burns in a rough triangle bounded by Glass Buttes, a highway junction and the hamlet of Wagontire (Bend Bulletin 1943). The local news also stated that "ordnance has hauled 2,500 tons of ammunition daily during actual problems to both red and blue armies. This includes live ammunition of the heaviest types" (Bend Bulletin 1943). Also in this problem, was the defense of the grocery store/post office village of Wagontire. The fiercest fighting was being waged along a 20 mile front near Wagontire.

- Problem #4: Forces attacked astride the new 57 mile military highway west of Wagonire (Larcey Boulevard) connecting Highways 395 and 31.
- Problem #5: The 104th's objective was to seize Horse Ridge and Bear Creek Buttes. Successive objectives of Seven Mile Ridge, Cougar Mountain, North Table mountain, Squaw Butte and Watkins Butte were seized in the 38 mile advance (Hoegh & Doyle 1946). The Fort Rock area was also a battle scene as troops moved northward on either side of China Hat Road (Bend Bulletin 1943).
- Problem #6: The 104th defended Horse Ridge and Bear Creek Butte (Hoegh & Doyle 1946).
- Problem #7: This problem saw forces crossing the Deschutes River to attack Kline Butte and press on to Bend (Hoegh & Doyle 1946).
- Problem #8: The areas included: north of Bend, Sisters, Alfalfa and the Deschutes River.

At the conclusion of the maneuvers, it was reported that 11 men had died, none by ordnance related activities (Bend Bulletin 1943).

There are several documented reports of ordnance being found on the site. Eleven intact M1B1 anti-tank training mines were found on the property of Terry Gratix of Christmas Valley, Oregon (Sneed 1987). The St. Louis District located 4 additional mines on a site visit during the week of 22 May 1995. Also, in 1988 in the sand dunes near Christmas Valley a tear drop shape MK43 practice bomb was recovered (EOD Report 1988).

Although deduding certificates have been obtained for separate FUDS sites within the 8 million acre maneuver boundary, research has not yielded any certificates pertaining to the Northwest Maneuver Area as a whole.

Historical research revealed no documented evidence of any CWM usage.

4.2 Review of Historical Records

**National Archives and Records Administration
Suitland Branch
4205 Suitland Road
Suitland, MD 20409**

All record groups yielded no pertinent information.

**Washington National Record Center
4205 Suitland Road
Suitland, MD 20409**

RG 77 - Records of the Chief of Engineers
Accession A52-259, Box 1, Camp Abbot

RG 338 - Records of U.S. Army Commands
Entry: 4th Army, Box 98

**National Archives
8th and Pennsylvania
Washington, D.C. 20408**

RG 153 - Records of the Office of the Judge Advocate General
Entry: Res. Files 1800-1950, Box 358 & 360

A book entitled: The History of Large Scale Maneuvers by Jean Moenk.

**National Archives at College Park
8201 Adelphi Rd
College Park, MD 20740**

RG 18 - Records of the Army Air Forces
Air Adjutant General Decimal File: June 1944-46, 686 Okl-Rhode Island, Box
2299, Folder, Buildings and Grounds, OR.

RG 92 - Records of the Office of the Quartermaster General
Entry: Geographic File, 1936-45, Box 426, Folder, 323.3 Oregon

RG 269 - Records of the General Services Administration
Box 8 & 9, Camp Abbot

**Center for Military History
1099 14th St. N.W.
Washington, D.C. 20005-3404**

Real estate data.

**Chemical and Biological Defense Agency Command Historical Office
AMSCB-CIH
Aberdeen Proving Ground
Edgewood, MD 21010**

No pertinent information.

**National Archives-Pacific Northwest Region
6125 Sand Point Way N.E.
Seattle, WA 98115**

RG 270 - Records of the War Assets Administration
Real Property Case Files: Box 324, Folder, moving and target range.

**Federal Record Center-Seattle
6125 Sand Point Way N.E.
Seattle, WA 98115**

The finding aid did not indicate any possibilities.

**USACOE-Seattle District
4735 E. Marginal Way
Seattle, WA 98124-2255**

Real estate data, maps and dedudding information.

**National Personnel Record Center-Military Branch
9700 Page Avenue
St. Louis, MO 63132**

RG 18 - Records of the Army Air Forces
Series: 8-17-23-5-5, Box 3\23, folder, 684 bombing and gunnery range.
Series: 8-17-24-1-1, Box 22\23, folder, 601.53 leases and loans/
Series: 8-17-23-9-3, Box 14\23, folder, 684 general.
Series: 8-17-24-F-5 (AF-63), Box 21\23, folder, target and bomb. mgs
Series: 8-17-2-4-E-5, Box 18\23, folder, driveways, highways and roads &
abandonment of buildings.
Boxes 1, 10 & 11 of 23

RG 342 - Records of the United States Air Force Commands
Series: 48-22-2-5, Box 1\1, folder, target ranges

**Air Force Historical Research Agency
600 Chennault Circle
Maxwell Air Force Base, AL 36112-6424**

History of Walla Walla AAF - 289.53-9-289.53-11, July 94-Oct 94, Box 5.

**Portland Historical Society
1230 S.W. Park Avenue
Portland, OR 97205**

Series of newspaper articles from the *Bend Bulletin* and the *Oregonian*.

**Bureau of Land Management
P.O. Box 151
Lakeview, OR 97630**

Cultural Resource Inventory on the Alkali Lake Bombing Range.

**Bureau of Land Management
1300 Northeast 44th Ave
Portland, OR**

No information.

**Bureau of Land Management-Prineville District
185 East 4th St
Prineville, OR**

Cultural resource map of Central Oregon.

**Deschutes National Forest
1645 Hwy 20 East
Bend, OR 97701**

No available information.

**Soil Conservation Service
20332 Empire Ave., Suite F1
Bend, OR 97701**

No information.

**Department of Environmental Quality
2146 N.E. 4th St., Suite 104
Bend, OR 97701**

No information.

**Department of Fish and Wildlife
61374 Parrell Rd
Bend, OR 97702**

No information.

**Schmick Museum
128 South East St
Lakeview, OR 97630**

No information pertinent to the Manuever Area.

**Lake County Museum
126 South East St.
Lakeview, OR 97630**

No information.

**Lakeview Historical Society
P.O. Box 48
Lakeview, OR 97630**

No information.

**Lake County Examiner
305 No. F Street
Lakeview, OR 97630**

Articles on ordnance discovery in Christmas Valley and training at Alkali Lake.

**Lakeview Public Library
Center Street
Lakeview, OR 97630**

No information.

**Burns Historical Society
144 East E Street
Burns, OR 97720**

No information.

**Burns Public Library
East E. Street
Burns, OR 97720**

Newspaper articles pertaining to one of the FUDS within the Northwest Maneuver Area, the Central Oregon Air-to-Air Gunnery Range.

**Harney County Assessor
450 N. Buena Vista
Burns, OR 97720**

No information.

**CASU Library
St. Louis District Corps of Engineers
St. Louis, MO 63103**

Two publications, *Timberwolf Tracks: The History of the 104th Infantry Division, 1942-45*, by Leo Hoegh and Howard Doyle, 1946, Washington Infantry Journal Press, Washington, D.C. and *The Deadeyes - The Story of the 96th Infantry Division*, by Davidson, Willems, and Kahl Washington Infantry Journal Press, Washington D.C. were obtained.

**Central Oregon Community College
Bend, OR 97701**

No information.

**Deschutes Historical Society
Idaho Street
Bend, OR 97701**

General historical information on the area.

**Compliance Inspector
Sunriver Owners Association
P.O. Box 3278
Sunriver, OR 97707**

No information.

**Director of Public Works
Sunrivers Owners Association
P.O. Box 3278
Sunriver, OR 97707**

Current maps of the site.

**Sunriver Nature and Environmental Center
Circle #3
Sunriver, OR 97707**

WWII era ordnance that has been kept in storage along with historic photos and histories.

**Deschutes County Sheriff
1100 N.W. Bond
Bend, OR 97701**

Ordinance information.

**Bureau of Land Management- Prineville District
185 East 4th St.
Prineville, OR**

Cultural resource map of Central Oregon.

**Bowman Museum
3rd and Main
Prineville, OR**

No information.

**Crook County Library
Main St.
Prineville, OR**

No information.

4.3 Summary of Interviews

Interviews were conducted by telephone and in person, both prior to and during the site inspection. The primary purpose of these interviews was to make initial contact with individuals knowledgeable of the site and to coordinate follow-up visits during the site inspection phase of this ASR's preparation. A list of persons interviewed is included at Appendix H. Any pertinent information derived from these discussions is covered within the context of this report.

4.4 Air Photo Interpretation and Map Analysis

This report contains only a small portion of the Northwest Maneuver area. The site consists of approximately eight (8) million acres. Due to this size, several small areas were looked at based on historical reports of activities. Photos and maps will be listed separately for each area, and a general overview of the photo interpretation and map analysis will be done for each area.

Photo interpretation and map analysis for areas #1 and #2 (Camp Abbot and Central Oregon Air-to-Air Gunnery Range) will not be included in this report. They have been separated out and are covered under individual ASR's. The map and photo listings for these sites are for general reference.

Areas #3 and #4 will be referred to in this report in a general summary for map analysis and photo interpretation.

25

Maps, photos, and reports for each area are as follows:

Area #1

Maps: Annes Butte (photorevised 1981)
Benham Falls (photorevised 1981)

Photos:

<u>Photos Date</u>	<u>Approx. Scale</u>	<u>Source</u>	<u>Frame ID#</u>
30 Jul 1951	1"=1,667'	ASCS	35 thru 41 201 thru 207
07 May 1968	1"=1,667'	ASCS	87 thru 93 157 thru 163

Area #2

Maps: Alkali Buttes (provisional ed. 1984)
Alkali Lake (provisional ed. 1984)
Juniper Mtn (provisional ed. 1984)
Venator Canyon (provisional ed. 1984)

Photos:

<u>Photos Date</u>	<u>Approx. Scale</u>	<u>Source</u>	<u>Frame ID#</u>
28 Jun 1954	1"=1,667'	ASCS	4 thru 11 9 thru 17 21 thru 28 159 thru 166 174 thru 181

Area #3

Maps: Fossil Lake (1981)
Sand Rock (1981)

Photos:

<u>Photos Date</u>	<u>Approx. Scale</u>	<u>Source</u>	<u>Frame ID#</u>
23 May 1954	1"=1,667'	ASCS	43 thru 49 140 thru 146 166 thru 169
26 Jul 1954	1"=1,667'	ASCS	104 thru 108
08 Sep 1954	1"=1,667'	ASCS	53 thru 59

Map Analysis - Area #3

This area includes the sand dunes area in Christmas Valley. The two quadrangles (Fossil Lake and Sand Rock) for this area do not reveal much in either topographic or planimetric features. The topographic features reveal mainly sand dunes, small buttes, and depressions. Vegetation is relatively sparse and is mainly on the Sand Rock quad. Drainage is almost non-existent on both quads. Planimetric feature include mainly unimproved roads and a few wells. Lost Forest Research Natural Area and Christmas Lake Valley are shown on these quads.

Photo Interpretation - Area #3

No evidence of explosives is evident in this area. This is due to the fact that the site areas are located within sand dunes and a dry lake. No dense vegetation was seen in the site area. There were, however, a few small tracks within the area.

Area #4

Maps: Alfalfa (1962)
Horse Ridge (photorevised 1981)

Photos:

<u>Photos Date</u>	<u>Approx. Scale</u>	<u>Source</u>	<u>Frame ID#</u>
28 Jul 1951	1"=1,667'	ASCS	152 thru 157 209 thru 214
11 Aug 1960	1"=1,667'	ASCS	33 thru 38 44 thru 49
06 May 1968	1"=1,667'	ASCS	80 thru 85 87 thru 92

Map Analysis Area #4

The two quadrangles (Alfalfa and Horse Ridge) for this area reveal several different planimetric and topographic features. The planimetric features include mainly unimproved roads. There are, however, several light and heavy duty roads evident. A few wells and buildings are also seen.

Photo Interpretation Area #4

No areas of disturbance were detected in the site area. The terrain is rugged and densely covered with vegetation.

5.0 Real Estate

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5.1 Confirmed DOD Ownership

Based on data contained in the FDE, the site was acquired by DOD through a combination of lease and permitted use agreements. The INPR provides that the site was acquired by special use permits from the Department of Agriculture (DOA) and the Department of Interior (DOI), totaling 6,890,880.08 acres. Coupled with the lands of the six military sites within the boundary of the NWMA, total acreage available for the Northwest Maneuver Area exceeded eight million acres. Because of the vast area covered by this site, and the determination that there is a remote probability that OEW hazards exist on the former training area, current ownership information is not provided.

5.2 Potential DOD Ownership

No information indicating DOD ownership of any lands other than those mentioned above was uncovered during the archive search.

5.3 Significant Past Ownership Other than DOD

There is nothing in the records to indicate that there were any historically significant past ownerships, other than DOD, with respect to possible OEW contamination.

5.4 Present Ownership

The Findings and Determination of Eligibility (FDE), cited in Paragraph 2.0, indicates that the majority of the former NWMA is owned by federal natural resource agencies. Of the federal agencies, the Bureau of Land Management (BLM) - Department of Interior (DOI) is the majority owner. There are private in-holdings within the FUDS property, in addition to municipalities and unincorporated communities.

6.0 Site Inspection

The site inspection was performed during the period of 2 October 1994 to 8 October 1994 by the following St. Louis District personnel:

Dennis W. Gilmore	Project Manager
Gregg Kocher	Explosive Ordnance Specialist Site Safety Officer
John Daly	Historian
Jim Luebbert	Historian

Prior to departing for the subject site, Gregg Kocher gave the safety briefing, and safety aspects related to the site were discussed.

On Monday, 3 October 1994, the team began the local records search. Remaining in the Portland area, Dennis Gilmore reviewed the local District's files on Camp Abbot and the Central Oregon Air-to-Air Gunnery Range. This was followed by visits to the regional office of the Bureau of Land Management (BLM) and the Oregon Historical Society. The other members of the survey team, having traveled to Bend, Oregon, the previous evening, met with BLM District personnel in Prineville, Oregon. They later visited the Crook County Library. Returning to Bend, they visited the Deschutes National Forest office, the Public Library, the county's Community Development Department, and the Central Oregon Environmental Center. Other than the occasional map, these inquiries yielded nothing of significance.

On Tuesday, John Daly and Dennis Gilmore drove to Lakeview, Oregon, while Gregg and Jim proceeded to Burns, Oregon. Local research in each of these locales proved less than anticipated. Unsubstantiated reports of ordnance were recounted and general areas outlined for visual examination. Common to all of our inquiries was the contention that both expended and belted small caliber rounds (and other ordnance related components such as magazines and clips) were abundant throughout the entire area.

Of note relative to the Lakeview research was a newspaper article on the discovery of land mines in the Christmas Valley vicinity. This information was previously known and is documented in the INPR.

Prior to our inspection of the site, we interviewed Sgt. Terry Silbaugh of the Deschutes County Emergency Services (Sheriff's Office). He indicated the locations of OEW recoveries as recently as 1988. Items recovered included a 2.36-inch rocket, artillery, and mortar rounds. The areas identified, while within the maneuver area, are also within, or in close proximity, to other FUDS properties. We believe, based on our review of historical records, that the ordnance identified by SGT Silbaugh are the results of activities on other FUDS, namely Camp Abbot and the Redmond Precision Bombing Range and Air-to-Ground Gunnery Range.

Due to the vastness of this site, our focus was on the areas of previous finds as outlined in the INPR. Additionally, we attempted to perform a cursory visual survey of the areas identified through our research as having the highest potential for OEW contamination. We developed from these records a maneuver overlay and spot checked these areas as we moved about throughout the week. It is estimated that we thoroughly examined about one percent of the eight (8) million acre site.

On the last day of the site survey (Friday, 7 October 1994), we attempted to inspect the area of Christmas Valley where the land mines had been recovered in 1987. The landowner was out of town, and we were unable to access adjacent lands which may hold similar finds.

Next we surveyed the Sand Dunes area (east of Fossil Lake) where according to the INPR, a practice air-drop type bomb was found in 1988. Again, we found no visible indication of OEW. It is important to note that the terrain in this area varies greatly as the result of blowing, mounding sand.

On 24 May 1995, while conducting a site survey of a related FUDS property, personnel of the St. Louis District completed the site inspection of the NWMA by inspecting the property of Mr. Terry Gratrix. In 1987, 11 "practice" land mines were found on this site and subsequently disposed of by the 34th EOD out of Sierra Army Depot. No record of this incident is available. All EOD reports prior to 1988 have been destroyed. As noted above, Mr. Gratrix was unavailable during the previous NWMA site visit. He again would not be available, but gave his permission for us to inspect his property. We noted the presence of four (4) additional land mines while performing this site inspection. The mines had apparently been excavated and removed to the location where they were observed.

This concluded our site inspection of the former Northwest Maneuver Area.

7.0 Evaluation of Ordnance Presence

Based on the extensive archive searches performed, interviews with local authorities, owners and/or occupants of major portions of these DERP-FUDS sites, and the results of the site investigation, no indications of OEW contamination of the site was found.

Because of the vast land area covered by the NWMA, it was impractical and unrealistic to conduct a visual survey of anything other than a relative small portion of the site. Therefore, we attempted to reconstruct the layout of the maneuver. From documents obtained during the research, a graphic depiction of the exercise was constructed and is shown at Figure 7.1. The battle sites were then surveyed with negative results. This negative finding is consistent with historical documents which state that no live firing of weapons occurred.

Several reports of OEW recoveries were noted in interviews and local authorities report discoveries of OEW on lands within the boundary of the NWMA. Our findings are that these lands are listed separately in the OEW database and as such should be addressed under their respective project. The sites of reported OEW recoveries include Camp Abbot (F10OR004100), the Central Oregon Air to Ground Gunnery Range (F10OR017000), and the area of the Redmond Air to Ground Gunnery Range (F10OR021700) and Precision Bombing Range (F10OR021900). An INPR has been completed on each of these sites, and an OEW project was recommended for Camp Abbot and Central Oregon Air to Ground Gunnery Range. It is recommended that the two Redmond INPRs be revised to include an OEW project. Sgt. Terry Silbaugh, Coordinator of the Deschutes County Emergency Services Division, reports that on average three recoveries a year are made within the vicinity of these two sites.

Two incidents of significance with respect to OEW were noted. The significance arises from the fact that no information relative to activities which may have resulted in the OEW was found during the conduct of research for this ASR. Therefore, the origins of the ordnance remains an unknown. The location of the recovered items is not on any lands identified as FUDS. One possible explanation is that the ordnance items originated from maneuvers conducted at Fort Rock which is approximately 20 miles northwest of the town of Christmas Valley.

One incident was the recovery of an AN-MK 43 practice bomb in March 1988. This item was located in the Sand Dunes area, approximately 14 miles north of the town (Christmas Valley). A copy of the EOD report is included at Appendix D.

The second incident involved the recovery of 11 anti-tank mines. The mine field was discovered when the wheel of a trailer detonated one of the mines, blowing off the wheel and tire. The responding EOD unit detected and detonated the 11 remaining mines. Verbal and written accounts of this incident report either 11, 12 or 13 land mines. This site is approximately 6 miles northwest of Christmas Valley. Four practice mines were observed during the site visit. These had been excavated by the landowner, over a period of time subsequent to the EOD's disposal actions.

Other recoveries noted in the INPR include an unspecified type bomb in the vicinity of Lake Abert and an "anti-personnel" fragmentation bomb in the vicinity of Silver Lake. No documentation of these incidents was found nor any records of activity occurring at these locations.

8.0 Technical Data of Ordnance and Explosives

8.1 Ordnance Related Mission

The Northwest Maneuver Area was used in 1943 for the training of IV Corps units of the U.S. Army and personnel scheduled for overseas deployment. Within the maneuver area are six separate formerly used defense sites. The ranges on some of these sites were used by units of IV Corps for live fire exercises. These sites are documented under separate reports and will not be covered in this section.

The military units participating in the maneuvers reportedly carried live ammunition into the field to create an atmosphere of realism, however all records indicate it was not fired. Historical documentation reports only practice ammunition was used. Even the bombers participating in the exercise dropped bags of flour to mark the location of hits. While some live ordnance was found in the maneuver area, indications are this material was overflow from the live fire exercises performed on one of the formerly used defense sites referred to above.

There is no historical evidence of any chemical warfare mission or chemical warfare materials being utilized as part of the maneuvers.

8.2 Description of Ordnance

The M1B1 Practice Land Mines, which were discovered in the maneuver area, contained smoke, a fuze, and sand in place of the explosive filler.

The small arms in use at the time may have included .45 caliber blanks for the side arms and .30 caliber blanks for the M-1 rifles and machine guns.

There was also a 4.5-pound AN-Mk 43 Navy Practice Bomb discovered in 1988 at Christmas Valley. While found within the Northwest Maneuver Area, the bomb is unlikely to have been a result of the maneuvers.

See Appendix C for complete nomenclatures.

8.3 References

OP 1664, Vol 2, "U.S. Explosive Ordnance," dated 28 May 1947.
TM 9-1904, "Ammunition Inspection Guide," dated 2 March 1944.
TM 43-001-27, "Army Ammunition Data Sheets," dated 29 April 1994.
TR-1370-A, "Miscellaneous Ammunition," dated 24 March 1930.

7.0 Evaluation of Other Site Information

Research did not reveal any other environmental concerns in the Northwest Maneuver Area.

APPENDIX A
REFERENCES

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FINDINGS
NORTHWEST MANEUVER AREA
Central - South-Central, Oregon

Project No. F10OR020801

APPENDIX A -- REFERENCES

A1 INPR REFERENCES

U.S. Army Corps of Engineers

1993 Inventory Project Report: Northwest Maneuver Area, Portland District Corps of Engineers.

A2 HISTORICAL REFERENCES

The Bend Bulletin

1943 Maneuver Units Await Zero Hour for New Practice Battle, 18 September:1.

1943 Troops Readying for 3rd Problem, 24 September:1.

1943 High Desert Battle Centers around "Town" of Wagontire, 29 September:1.

1943 Highlands South of Stauffer Scene of 4th Oregon Battle, 5 October:1.

1943 Battle of Ridge Nearing Climax, 19 October:1.

1943 75,000 Troopers Finish Maneuver, 1 November:1.

1943 7 November:1.

Edwards, Herman

1943 Army Making Gigantic Preparations for Central Oregon Fall Maneuvers. *The Sunday Oregonian*, (Portland, OR) 1 August:1.

Hoegh, Leo and Howard Doyle

1946 *Timberwolf Tracks: The History of the 104th Infantry Division, 1942-45*. Washington Infantry Journal Press, Washington, D.C.

34th Ordnance Detachment (EOD)

1988 MK-43 Practice Bomb found in Christmas Valley, OR. Sierra Army Depot, Herlong, CA.

Sneed, David

1987 11 Land mines unearthed at Christmas Valley. *The Lake County Examiner*
(Lakeview, OR).

A3 REFERENCES FOR GEOLOGY AND SOILS

Alt, David D. and Hyndman, Donald W.

1990 *Roadside Geology of Oregon*. Mountain Press Publishing Co., Missoula,
Montana.

A4 DEMOGRAPHIC REFERENCES

Bend (Deschutes Co.) Chamber of Commerce (503) 382-3221

Prineville (Crook Co.) (503) 447-6304

John Day (Grant Co.) (503) 575-0547

Klamath Falls (Klamath Co.) (503) 963-3936

Madras (Jefferson Co.) (503) 475-2350

Lakeview (Lake Co.) (503) 947-6040

Burns (Harney Co.) (503) 573-2636

U.S. Department of Commerce. Bureau of the Census. Oregon. 1990.

APPENDIX B
GLOSSARY AND ACRONYMS

ORDNANCE AND EXPLOSIVE WASTE
 CHEMICAL WARFARE MATERIALS
 ARCHIVES SEARCH REPORT
 FINDINGS
 NORTHWEST MANEUVER AREA
 Central - South-Central, Oregon

Project No. F10OR020801

APPENDIX B -- GLOSSARY AND ACRONYMS

AAF	Army Air Field
AA	Anti-Aircraft
AGO	Adjutant General's Office
AP	Armor Piercing
APDS	Armor Piercing Discarding Sabot
APERS	Antipersonnel
APT	Armor Piercing with Tracer
ASR	Archives Search Report
Aux	Auxiliary
BAR	Browning Automatic Rifle
BD	Base Detonating
BD/DR	Building Demolition/Debris Removal
BE	Base Ejection
BGR	Bombing and Gunnery Range
BLM	Bureau of Land Management
BRAC	Base Realignment And Closure
CADD	Computer-Aided Design/Drafting
Cal	Caliber
CBDA	Chemical and Biological Defense Agency
CBDCOM	Chemical and Biological Defense Command
CE	Corps of Engineers
CEHND	Corps of Engineers, Huntsville Division
CELMS	Corps of Engineers, St. Louis
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
COE	Chief of Engineers
COMP	Composition
CTG	Cartridge
CSM	Chemical Surety Material
CSM	Command Sergeant Major
CWM	Chemical Warfare Material
CWS	Chemical Warfare Service
DA	Department of the Army
DARCOM	Development and Readiness Command
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program

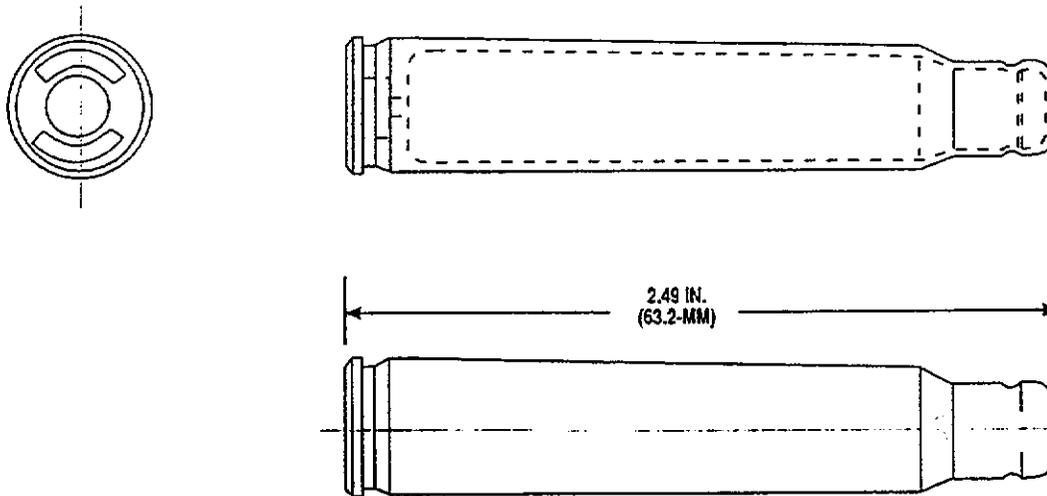
DERP-FUDS	Defense Environmental Restoration Program- Formerly Used Defense Sites
DoD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
EE/CA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EOD	Explosives Ordnance Disposal
EPA	Environmental Protection Agency
ERDA	Environmental Restoration Defense Account
ERTC	Engineer Replacement Training Center
FDE	Findings and Determination of Eligibility
FFMC	Federal Farm Mortgage Corporation
FLCH	Flechette
FS	Feasibility Study
FWS	U. S. Fish and Wildlife Service
FUDS	Formerly Used Defense Sites
GIS	Graphic Information System
GSA	General Services Administration
HE	High Explosive
HEAT	High Explosive Anti-Tank
HEI	High Explosive Incendiary
HEP	Plastic
HE-S	Illuminating
HTRW	Hazardous Toxic and Radioactive Waste
HTW	Hazardous and Toxic Waste
IAS	Initial Assessment Study
INPR	Inventory Project Report
IRP	Installation Restoration Program
MCX	Mandatory Center of Expertise
MG	Machine Gun
MG	Major General
mm	Millimeter
MT	Mechanical Time
MTSQ	Mechanical Time Super Quick
NARA	National Archives and Records Administration
NAS	Naval Air Station
NCDC	National Climatic Data Center
NCP	National Contingency Plan
NFS	National Forest Service
NG	National Guard
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NOFA	No Further Action
NPRC	National Personnel Records Center
NRC	National Records Center
NWMA	Northwest Maneuver Area
OEW	Ordnance and Explosive Waste
OSHA	Occupational Safety and Health Act
PA	Preliminary Assessment
PBR	Precision Bombing Range
PD	Point Detonating
PIBD	Point Initiating, Base Detonating

PL	Public Law
QASAS	Quality Assurance Specialist Ammunition Surveillance
RA	Removal Action
RAC	Risk Assessment Code
RD	Remedial Design
RG	Record Group
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SARA	Superfund Amendments and Reauthorization Act
SCS	Soil Conservation Service
SLD	St. Louis District, Corps of Engineers
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SWMU	Solid Waste Management Units
TECOM	Test Evaluation Command
TEU	Technical Escort Unit
TNT	Trinitrotoluene
TP	Target Practice
USA	United States of America
USACE	U.S. Army Corps of Engineers
USADACS	U.S. Army Defense Ammunition Center and School
USAED	U.S. Army Engineer District
USAEDH	U.S. Army Engineer Division, Huntsville, AL
USATHMA	U.S. Army, Corps of Engineers, Toxic and Hazardous Materials Agency
USC	United States Code
USDA	U.S. Department of Army
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
WAA	War Assets Administration
WD	War Department
WNRC	Washington National Records Center

APPENDIX C

TEXT / MANUALS

CARTRIDGE, CALIBER .30, BLANK, M1909

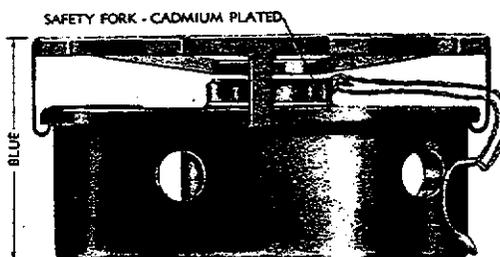
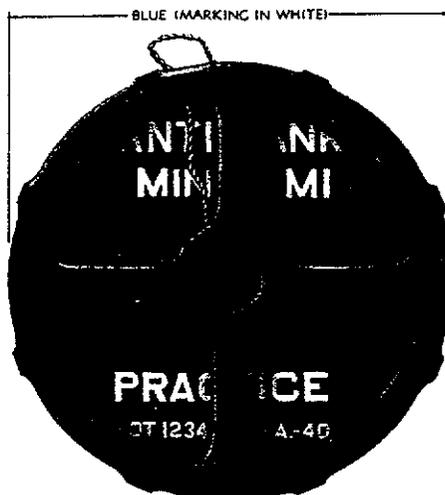


Description: The cartridge is identified by the absence of a bullet and has a crimped cartridge case mouth. It was used in .30 caliber rifles in maneuvers, for signaling purposes, and for firing salutes. The cartridge was also used for training purposes in machine guns equipped with blank firing attachments.

Weight	218 grams
Length	2.49 inches
Primer	Percussion
Propellant:	
Type	SR 4990
Weight	12 grams

References	TR-1370-A, Mar 30
	TM 43-001-27, Apr 94

PRACTICE MINE, M1B1

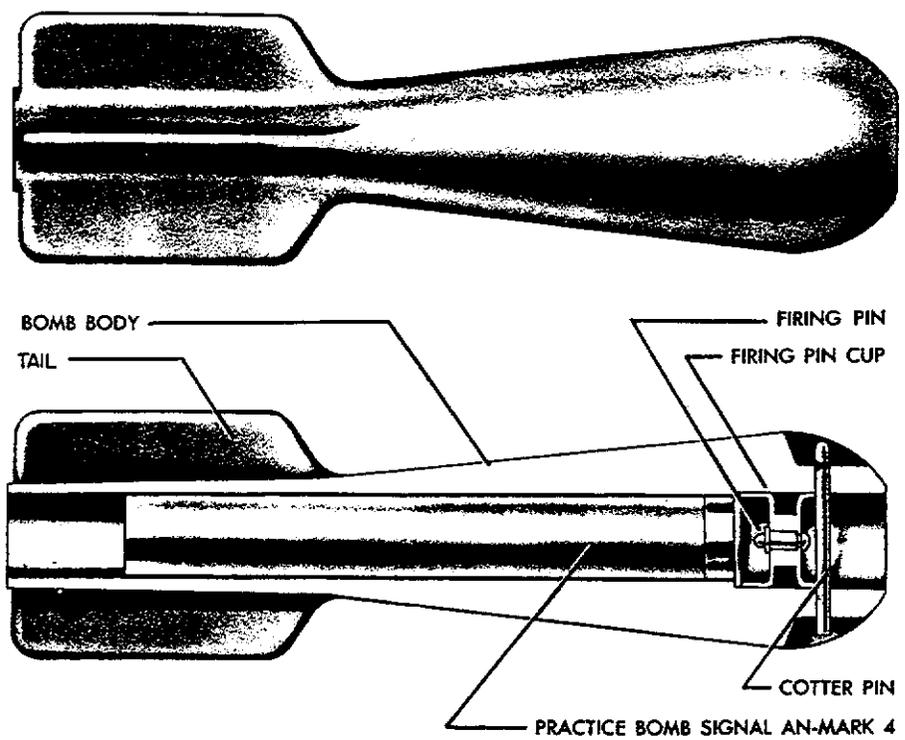


Description: A small practice mine made of sheet metal and resembling the service mine, except the filling hole is in the bottom of the mine body. The body is sand filled to the proper weight before it is issued for practice. Four sections are cut out of the top of the body near the fuze well, to permit the passage of smoke.

The practice mine had a M1 practice fuze which contained a .32 cal blank cartridge in place of the detonator. A smoke-puff charge of black powder and red phosphorus replaces the booster found in the service fuze. A M1 dummy fuze was also issued with this practice mine. It was a plastic simulation of the service fuze and came with a removable safety fork. The dummy fuze was completely inert.

Diameter	8 inches
Height	4 inches
Height of body, inches	2.75 inches
Total weight	10.6 pounds
Material	Sheet metal
Fuzing	M1 Practice, M1 Dummy
Reference:	OP 1664, Feb 54 TM 9-1904, Mar 44

PRACTICE BOMB, NAVY, AN-MK 43



Description: A small cast-iron bomb having a tube along its longitudinal axis which houses a AM-Mk 4 or Mk 5 signal cartridge which is a pyrotechnic charge used for spotting purposes.

Over-all length	8.25 inches
Diameter	2.18 inches
Weight	4.5 pounds
Color	Unpainted

Reference OP 1664, May 47

APPENDIX D
REPORTS / STUDIES

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FINDINGS
NORTHWEST MANEUVER AREA
Central - South-Central, Oregon

Project No. F10OR020801

APPENDIX D -- REPORTS/STUDIES

- D-1 Inventory Project Report for Northwest Maneuver Area, Portland District Corps of Engineers, 1993.
- D-2 Explosive Ordnance Incident Report, 14-15 March 1988, 34th Ordnance Detachment, Sierra Army Depot, Herlong, CA.

D-1

Inventory Project Report for Northwest Maneuver Area
Portland District Corps of Engineers, 1993.



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

Reply to
Attention of:

CENPD-PM-MP (200-1a)

MEMORANDUM FOR CDR, USAED, HUNTSVILLE DIVISION (CEHND-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. F10OR020800, Northwest Maneuver Area, Oregon

1. I am forwarding the subject INPR for your action. The site is determined to be a formerly-used defense site. The proposed project is eligible for DERP-FUDS.
2. I recommend that CEHND:
 - a. Determine the need for further study concerning Ordnance and Explosive Waste (OEW) at the subject site (F10OR020801) and take necessary actions.
 - b. File this INPR.
3. The CENPD-PM-MP POC for this action is Mr. Moon-Yong Han, P.E., (503) 325-7361.

Encl
Memo, CENPP-PE-DC
23 Dec 93


ERNEST J. HARRELL
Major General, USA
Commanding

CF:
CEMP-RF
CENPP-PM
CENPP-PE-DC



DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208-2946

Reply to
Attention of:

23 DEC 1993

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CENPP-PE-DC (200-1a)

MEMORANDUM FOR Commander, North Pacific Division, ATTN: CENPD-PM-MP

SUBJECT: Defense Environmental Restoration Program - Formerly Used Defense Sites (DERP-FUDS) Inventory Project Report (INPR) for Site No. F10OR020800, Northwest Maneuver Area, Oregon

1. The subject INPR covers the DERP-FUDS Preliminary Assessment (PA) of the Northwest Maneuver Area. Site visits were conducted 8-12 Aug 88, 15-17 Aug 88, and 24 May 93. The site survey summary sheet and site maps are enclosed (encl 1).
2. This INPR has been reviewed by Portland District Office of Counsel for legal sufficiency.
3. We have determined that the site was formerly used by the Army. A recommended Findings and Determination of Eligibility is enclosed (encl 2).
4. Hazardous wastes may be present at the site. The category of hazardous waste which is eligible for cleanup under DERP-FUDS is Ordnance and Explosive Waste (OEW). The Project Summary Sheet, Risk Assessment Code and source material are enclosed (encl 3).
5. Recommendation.
 - a. Approve and sign the Findings and Determination of Eligibility.
 - b. Forward a copy of this INPR to CEHND for the PA file and for a determination of the need for further study at the former maneuver area.
6. Portland District point of contact for this project is Michael Gross, (503) 326-6489.

3 Encls
as

Charles A.W. Hines

CHARLES A.W. HINES
Colonel, Corps of Engineers
Commanding

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SITE SURVEY SUMMARY SHEET
FOR
DERP-FUDS SITE NO. F10OR020800
NORTHWEST MANEUVER AREA, OREGON
6 Dec 93

SITE NAME: Northwest Maneuver Area, Oregon

LOCATION: In portions of Jefferson, Deschutes, Cook, Grant, Lake, Harney and Klamath Counties, Oregon.

SITE HISTORY: In September and October 1943, the U.S. Army acquired by special use permits from the Department of Agriculture (DOA) and the Department of the Interior (DOI) 6,890,880.08 acres for maneuvers. Other DOD installations within the Northwest Maneuver Area boundary were also utilized during the maneuvers. The area was used for maneuvers by the IV Corps of the US Army between September and October 1943. Three divisions of over 10,000 men and officers participated in the maneuvers. They were supported by medical units, tanks, anti-aircraft units and air support. No permanent structures were constructed. The special use permits were relinquished in February 1945. The property is currently owned by the DOA, US Forest Service; the DOI, Bureau of Land Management; private; state and counties.

SITE VISIT: Site investigations were conducted via helicopter by John Todd, Jerry Gardenhire and Jerry Horrocks (CENPP-PE-DC) 8-12 August 1988. John Todd and Jerry Horrocks also visited portions of the site 15-17 August 1988. John Todd and Jerry Gardenhire (CENPP-PE-DC) conducted a site visit in the Bend area on 24 May 1993.

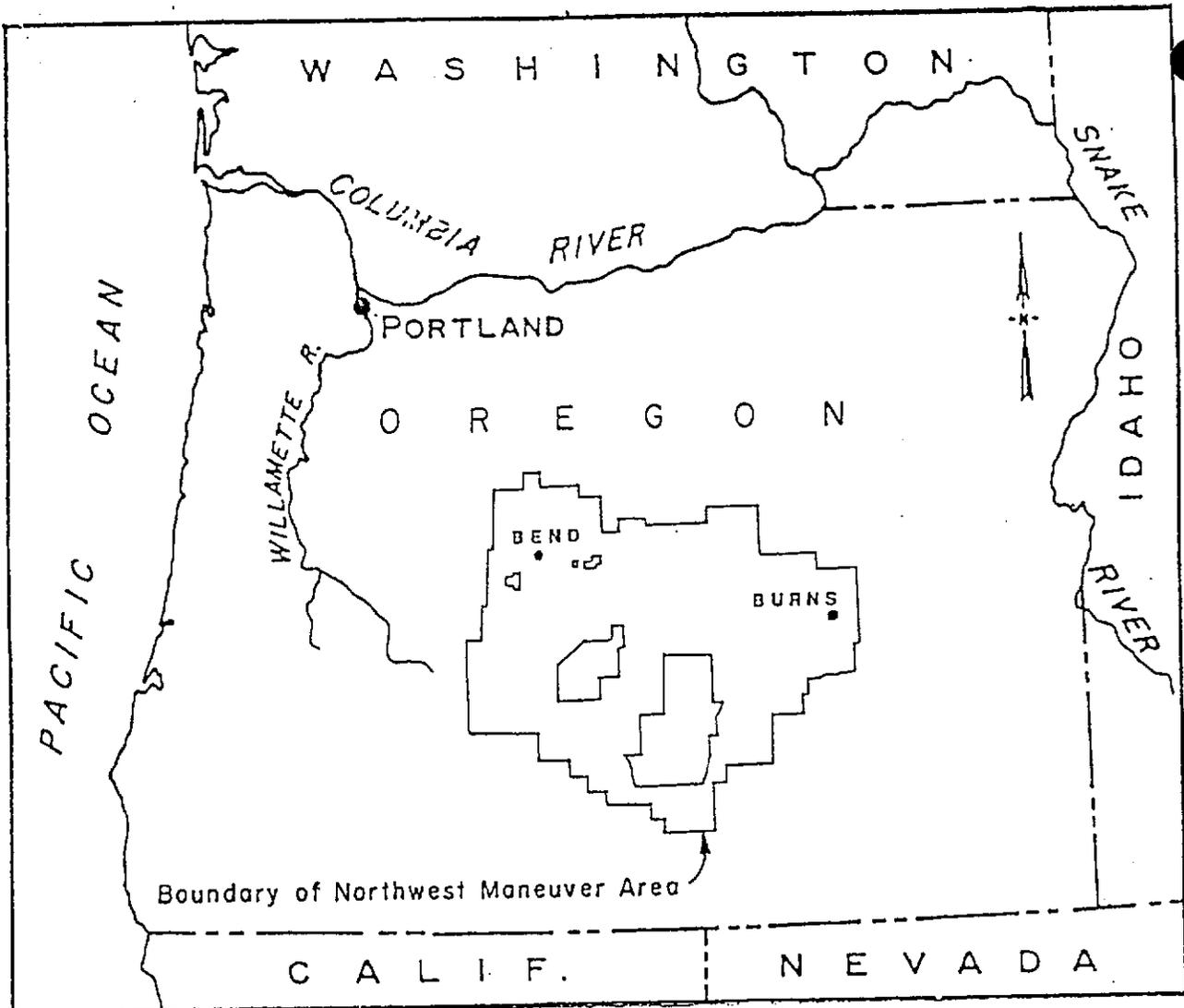
CATEGORY OF HAZARD: OEW.

PROJECT DESCRIPTION: There is one potential project at the site.

a. OEW. There have been several documented reports of ordnance being found on the site. Hazardous wastes may be present.

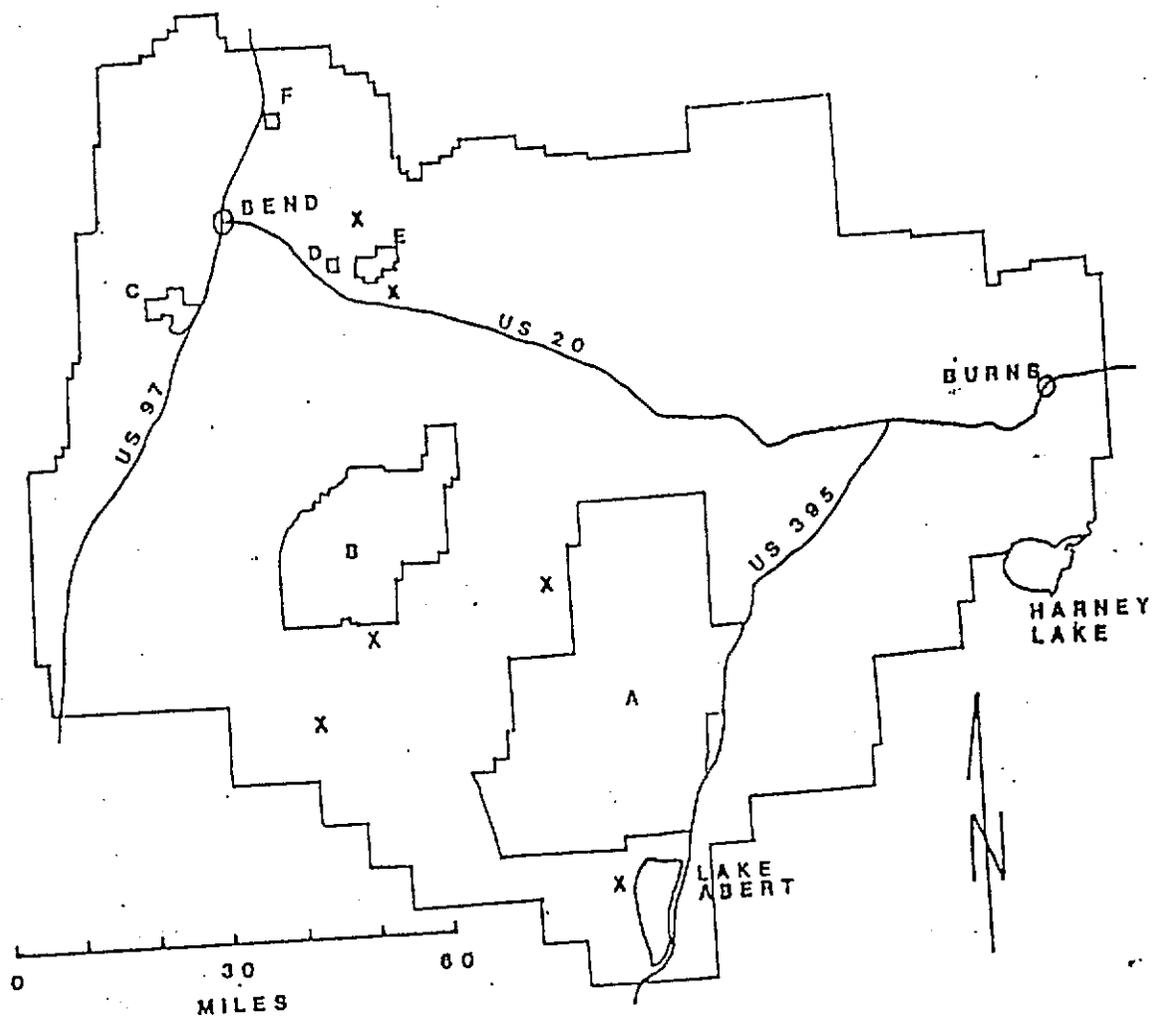
AVAILABLE STUDIES AND REPORTS: Geographic Analysis, CENPP-PE-GM, August 1988.

PA POC: Michael Gross, CENPP-PE-DC, (503) 326-6489.



REGIONAL MAP



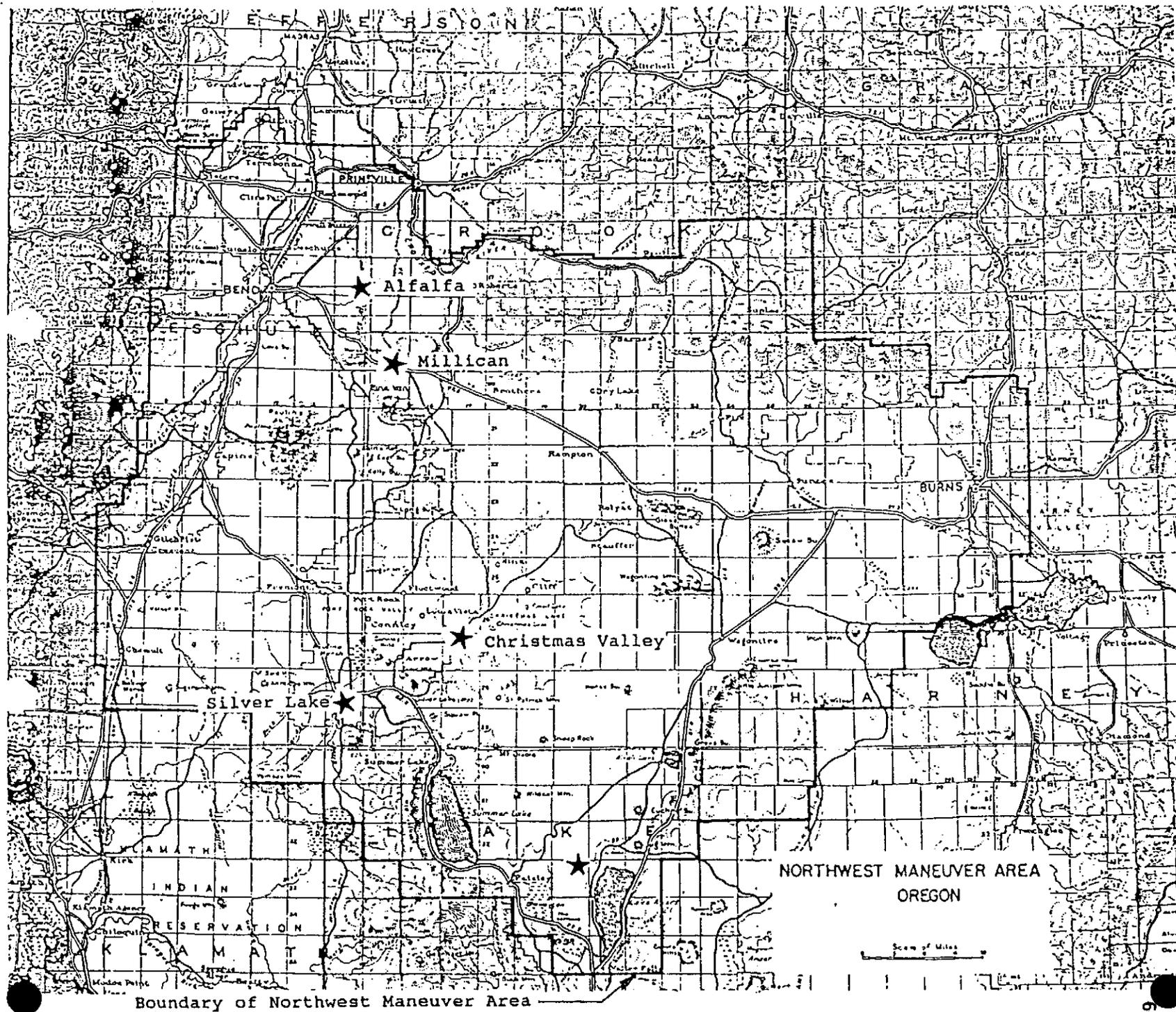


X Location of Reported Ordnance

- | | | |
|---|---|----------------------|
| A | Central Oregon Air to Air Gunnery Range | Site No. F10OR017000 |
| B | Fort Rock Maneuver Area | Site No. F10OR018000 |
| C | Camp Abbott | Site No. F10OR004100 |
| D | Redmond Precision Bombing Range | Site No. F10OR021900 |
| E | Redmond Air to Ground Gunnery Range | Site No. F10OR021700 |
| F | Redmond Army Airfield | Site No. F10OR002800 |

NORTHWEST MANEUVER AREA
 SITE NO. F10OR020800

NORTHWEST MANEUVER AREA
SITE NO. F100R020800



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

NORTHWEST MANEUVER AREA, OREGON

SITE NUMBER F10OR020800

FINDINGS OF FACT

1. Authorization for the War Department (DOD) to acquire land for Northwest Maneuver Area to maneuver over the land (not a lease or transfer) was given in September 1943. There were 2,248,140 acres of land transferred from Department of Agriculture (DOA) to the War Department by use permit in September 1943. There were 4,642,740.08 acres of land transferred from Department of Interior (DOI) by use permit in October 1943. The total acreage acquired was 6,890,880.08 acres.
2. The site was used as an area for maneuvers by the Fourth Corps of the U.S. Army. Three divisions of over 10,000 men, officers and warrant officers were supported by medical units, tanks, tank destroyers, engineers, anti-aircraft units, and air support. The site was determined to be under DOD control during the period of DOD jurisdiction and use.
3. The DOD relinquished 2,248,140 acres of land to DOA and 4,642,740.08 acres of land to DOI in February 1945. The total acreage disposed was 6,890,880.08 acres.

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 U.S.C. 2701, et seq.

4 Mar 94

Date



ERNEST J. HARRELL
Major General, USA
Commanding

PROJECT SUMMARY SHEET
FOR
DERP-FUDS OEW PROJECT F10OR020801
NORTHWEST MANEUVER AREA, OREGON
SITE NO. F10OR020800
6 DEC 93

PROJECT DESCRIPTION: This is a former maneuver area used between September and October 1943. No permanent structures were constructed, however there have been several documented reports of ordnance being found on the site. A description of these reports follows:

1. Bureau of Land Management (BLM), Lakeview District Office. Anti-personnel fragmentation bomb found in 1986 near Silver Lake.
2. BLM, Lakeview District Office. Ordnance (type unknown) found approximately 1973 in the Lake Abert area.
3. BLM, Prineville District Office. Ordnance (type unknown) found in the Millican area (time frame unknown).
4. Deschutes County Emergency Services. Ordnance (type unknown) found in the Millican and Alfalfa areas (time frames unknown).
5. Lake County Sheriff's Department. Practice bomb found in March 1988 in the sand dunes located approximately 14 miles northeast of Christmas Valley.
6. Lake County Sheriff's Department. Landmines (12 total) found in the summer 1987, approximately 6 miles west and 5 miles north of Christmas Valley.

PROJECT ELIGIBILITY: Records indicate that the site was used by the Army.

POLICY CONSIDERATIONS: There is no policy applicable to this project.

PROPOSED ACTIVITIES: The INPR should be referred to HND for a determination of further action.

RAC: Attached, RAC score is II-C, 3.

POC: Michael Gross, CENPP-PE-DC, (503) 326-6489.

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

Site Name	<u>Northwest Maneuver Area</u>	Rater's Name	<u>John Todd</u>
Site Location	<u>Various counties in Oregon</u>	Phone Number	<u>(503) 326-6491</u>
Project #	<u>F10OR020801</u>	Organization	<u>CENPP-PE-DC</u>
Date Completed	<u>December 6, 1993</u>	RAC	<u>II-C, 3</u>

OEW RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882B and AR 385-10. The RAC score will be used by CEHND to prioritize the remedial action at this site. The OEW 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
Bombs, Explosive	10
Grenades, Hand and Rifle, Explosive	10
Landmines, Explosive	10
Rockets, Guided Missiles, Explosive	10
Detonators, Blasting Caps, Fuzes, Boosters, Bursterns	6
Bombs, Practice (w/spotting charges)	6
Grenades, Practice (w/spotting charges)	4
Landmines, Practice (w/spotting charges)	4
Small Arms (.22 cal - .50 cal)	1
Conventional Ordnance and Ammunition (Select the largest single value)	<u>10</u>

What evidence do you have regarding conventional OEW? Documented reports of ordnance including fragmentation bomb, practice bomb and landmines.

B. Pyrotechnics (For munitions not described above.) VALUE

Munitions (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 Value (Select the largest single value)	<u>0</u>

What evidence do you have regarding pyrotechnics? No evidence of pyrotechnics has been found or documented in 50+ years of activity.

C. Bulk High Explosives (Bulk explosives not an integral part of conventional ordnance; uncontainerized.) VALUE

Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerine, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Compositions A, B, C, Teteryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)	3
High Explosives (Select largest single value)	<u>0</u>

What evidence do you have regarding bulk explosives? No evidence of bulk explosives has been found or documented in 50+ years of activity.

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? No evidence of bulk propellants has been found or documented in 50+ years of activity.

E. Radiological/Chemical Agents/Weapons

VALUE

- Toxic Chemical Agents
(Choking, Nerve, Blood, Blister) 25
- War Gas Identification Sets 20
- Radiological 15
- Riot Control and Miscellaneous
(Vomiting, Tear, incendiary and smoke) 5
- Radiological/Chemical Agent/Weapons
(Select the largest single value) 0

What evidence do you have regarding chemical/radiological OEW? No evidence of CMW has been found or documented in 50+ years of activity.

=====
 Total Hazard Severity Value 10
 (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	Value
CATASTROPHIC	I	≥ 21
CRITICAL	II	≥ 10 < 21
MARGINAL	III	≥ 5 < 10
NEGLIGIBLE	IV	≥ 1 < 5
**NONE		0

*Apply Hazard Severity 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. Available information shows "Ordnance Storage Area" at site. Therefore, Part II, Hazard Probability will be completed.

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
On the surface	5
Within Tanks, Pipes, Vessels or Other confined Locations.	4
Inside walls, ceilings, or other parts of Buildings or Structures.	3
Subsurface	2
Location (Select the single largest value)	<u>5</u>
What evidence do you have regarding location of OEW?	<u>The ordnance is assumed to have been found on the surface.</u>

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 mile	4
0.5 mile to 1.0 mile	3
1.0 mile to 2.0 miles	2
Over 2.0 miles	1
Distance (Select the single largest value)	<u>2</u>
What are the nearest inhabited structures?	<u>Reports place the hazards between 1 and 2 miles from inhabited locations or structures likely to be at risk.</u>

C. Numbers and types 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)	<u>1</u>
Narrative:	<u>Number of buildings located within 2 mile radius is small.</u>

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

Educational, Child Care, Residential, Hospitals, Hotels, Commercial, Shopping Centers, etc.	5
Industrial Warehouse, etc.	4
Agricultural, Forestry, etc.	3
Detention, Correctional	2
No Buildings	0
Types of Buildings (Select the largest single value)	<u>5</u>

Describe types of buildings in the area. Residential and commercial.

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
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.	4
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)	<u>5</u>

Describe the site accessibility. The sites are located on BLM or national forest land, open to the public.

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
None Anticipated	0
Site Dynamics (Select the single largest value)	<u>0</u>
Describe the site dynamics. <u>Though the sand dunes may impact the site dynamics, the dunes are located in a remote area and an increase in accessibility is not assumed.</u>	

=====

Total Hazard Probability Value
 (Sum of Largest Values for A through F--Maximum of 30) 18
 Apply this value to Hazard Probability Table 2 to determine Hazard Probability Level.

TABLE 2

HAZARD PROBABILITY

Description	Level	Value
FREQUENT	A	≥ 27
PROBABLE	B	≥ 21 < 27
OCCASIONAL	C	≥ 15 < 21
REMOTE	D	≥ 8 < 15
IMPROBABLE	E	≤ 8

*Apply Hazard Probability 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 Imminent Hazard - Expedite INPR - Immediately call CEHND-ED-SY-- commercial 205-955-4968 or DSN 645-4968.

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 Recommend no further action. Submit NOFA and RAC to CEHND.

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

Risk assessment based on documented evidence of reports obtained through interviews with the Bureau of Land Management, Lakeview and Prineville Districts; Deschutes County Emergency Services; and the Lake County Deputy Sheriff. Further investigation and evaluation of the site is recommended.

NORTHWEST MANEUVER AREA, OREGON

SITE NO. F10OR020800

CONTACT LISTING

1. US Department of Interior, Bureau of Land Management,
Lakeview District Office, Lakeview, Oregon; Telephone
Number: (503) 947-2177

a. Contact Name: Alan Munhall

--Interview Information: Mr. Munhall was contacted in March 1988 concerning the site. He said that a anti-personnel fragmentation bomb had been found in the Silver lake area (see map) about 1986. A report of ordnance (type unknown) had also been noted in the Lake Abert area (see map) about 1973.

2. US Department of Interior, Bureau of Land Management,
Prineville District Office, Prineville, Oregon; Telephone
Number: (503) 447-4115

a. Contact Name: Susan Crowley Thomas

--Interview Information: Ms. Thomas was contacted in March 1988 concerning the site. She said that ordnance (type unknown) had been reported in the Millican area (see map for location). She did not have a date on when it was found.

3. Deschutes County Emergency Services (County Sheriff's
Office), Bend, Oregon; Telephone Number: (503) 388-6502

a. Contact Name: Sgt. Terry Silbaugh

--Interview Information: Mr. Silbaugh was contacted in March 1988 concerning the site. He said that ordnance (types unknown) had been found in the past (time frames unknown) in the Millican area (approximately 4 miles west and 1 mile north of Highway 20) and in the area around Alfalfa (see map).

4. Lake County (County Sheriff's Office), Lakeview, Oregon;
Telephone Number: (503) 943-3144

a. Contact Name: Deputy Charlie Withers

--Interview Information: Mr. Withers was contacted in March 1988 concerning the site. He said that an air drop type practice bomb had been found (March 1988) by Alan Knight and his son as they drove their 4-wheel drive vehicle through the sand dunes near Fossil lake bed. The bomb was disposed of by a disposal group from Herlong California-Sierra Army Depot ([916] 827-4400). Deputy Withers assumed from what he heard that the bomb contained an explosive charge and was not just the marker type. The Disposal Unit reported to him that if there was one it is very probable there are more. The winds had shifted the sand and the bomb was found with the fins sticking out of the sand. This site is located in the Shifting Sand Dunes Area, approximately 14 miles northeast of Christmas Valley (see map). He also reported that 12 anti-tank mines had been located sometime during the summer of 1987. The property was owned by Terry Greataks. The mines were found when a wheel of a trailer drove over one which exploded blowing wheel and tire off. A disposal team from San Francisco uncovered and disposed of the remaining mines. This site is located approximately 6 miles west of Christmas Valley on Christmas Valley road and 5 miles north on County road No. 514G. The site is situated above a cultivated field in a draw of a small rocky ridge (see map).

CENPPEN-GR

4 Aug 1988

MEMORANDUM FOR RECORD

DERP GEOGRAPHIC ANALYSIS

SUBJECT: Research for and analysis of geographic information relating to DERP relevant activities in the Northwest Maneuver Area and the Fort Rock Maneuver Area, September through November, 1943.

1. BACKGROUND

The Cartography and Remote Sensing section was contacted by CENPPEN-DC and asked to do a geographic analysis of two DERP sites that had been used for training during WW II. The methodology was originally proposed to be the same as some previous geographic investigations by CENPPEN-GR, however the size of the areas in question and the lack of information on the location of intense use areas precluded the use of the previously established procedure.

The subsequently approved methodology consisted of several steps:

A. Geographic research would be conducted to determine the locations of the most intensively used areas or those areas most likely to require environmental restoration;

B. Those locations would be annotated on maps of the area (Bend, Burns, and Crescent USGS 1:250,000 topographic quadrangles, App. 1A, 1B, & 1C, respectively, with the locations of relevant features highlighted) and it would be determined if any aerial photographs existed that had been taken during or up to five years after the activity;

C. These aerial photos, if extant, would be analysed to further pinpoint areas of interest.

Due to the size of the project area, it was apparent that information would likely be gathered that related to DERP sites not directly

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addressed in the scope of the present project. Such information was not pursued in detail, but the sources were noted to expedite further investigation.

2. INFORMATION GATHERED

A. Newspaper articles

1) The Sunday Oregonian, 1 August 1943 (App. 2): "Army making gigantic preparations for Central Oregon fall maneuvers." This article gives a good overview of the scope of the exercises, including the number of soldiers involved and the amount of fuel, munitions, equipment and other supplies scheduled for use in the exercises.

2) The Bend Bulletin, 27 Aug 1943 through 1 Nov 1943.

This newspaper kept track of the exercise highlights as much as possible during those secretive times, including locations of the major concentrations of activities. The following chronological account of activities was extracted from the Bulletin:

27 Aug: (The Bulletin calls the subject area the Central Oregon Maneuver area) Millions of gallons of gasoline will be used in the exercises, it will be distributed from a depot in Bend to smaller distribution facilities in the field.

1 Sep: Camp Abbott dedication special issue.

11,14,15 Sep: Units bivouacing and engaging in first battle west of BROTHERS (120-36,43-48) (note: coordinates are given in degrees and minutes of latitude, then longitude).

16 Sep: End of first battle.

18 Sep: First problem to seize HORSE RIDGE (121-03, 43-54).

20 Sep: Battle to take GRASSEY BUTTE (120-28, 43-49), five miles East of HAMPTON (120-15, 43-40).

21 Sep: Battle on southwest slopes of HAMPTON BUTTE (120-15, 43-46), two miles north of the Central Oregon Highway, six miles west of Hampton.

22 Sep: Defensive line from Hampton Butte twenty miles south to YREKA BUTTE (this landmark could not be found).

24 Sep: Third problem; 9,000 vehicles in the exercise; 2,500 tons of ammunition used per day, including "live ammunition of the heaviest types."

25 Sep: Third problem starts, most activity is in the extreme eastern end of the maneuver area; as one group attempts to take BURNS, with defensive lines pivoted along the Central Oregon Highway (Hwy 20). Heavy artillery, infantry and armor were utilized. Most military traffic is along the 120 miles of roadway between Bend and Burns. The engineers built 14 airfields in three weeks for the exercises, surfaced with light landing mats.

27 Sep: Much use of aerial reconnaissance (photography?). One army was near WAGONTIRE (119-52, 43-15), and the other army was located between CROOKED RIVER and Hwy 20 between Bend and Burns.

28 Sep: Major action 30 Miles SW of BURNS in a triangle bounded by GLASS BUTTES (120-04, 43-33), the Hwy 20 & Hwy 395 Junction, and Wagontire. Several units were located 15 miles north of Wagontire (the SQUAW BUTTES (119-52, 43-15) & SHEEP MOUNTAIN (119-53, 43-25) sector) with the other army NORTH OF HWY 20 south of the Crooked River.

29 Sep: A 20 mile front was located near Wagontire, with defensive positions set up on mountain slopes and to the EAST OF HWY 395. Land mines were being used in the defense. Sherman tanks on one side, and tank destroyers with three inch guns on the other side. Squadrons of bombers from all over the Pacific Northwest dropped small bags of flour to mark the location of hits. The brass flew in on a DC-3

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to ALKALI LAKE AIRSTRIP (119-58, 43-05), (the only airstrip in the area large enough for the aircraft).

1 Oct: Preparations for the fourth battle. A bomber had crashed near Burns (This crash is not recorded in the C.A.P. list of downed airplanes).

4 Oct: 75,000 soldiers; the Blues in Wagontire, and the Reds in Christmas Lake valley and points west.

5 Oct: The fourth battle started in the highlands south of STAUFFER (120-07, 43-29). One of the main defensive positions was astride the 37 mile Military Highway constructed between Hwy 395 south of Wagontire and SILVER LAKE (121-03, 43-08). The main axis of attack was through Christmas Valley. Units were noticed in the area ranging from 15 miles north of Stauffer to the south near ALKALAI LAKE (120-02, 42-58).

6 Oct: Defensive positions were astride a ridge near the new military highway. There were holding actions against westward movement of troops (from Wagontire to Silver Lake). They were holding a line through the towns of FORT ROCK (121-03, 43-21), Silver Lake and SUMMER LAKE (120-46, 42-58), including a big force of tanks heading southwest from BUNCH GRASS BUTTE (120-34, 43-23). One group was holding stubbornly in an area northwest of ALKALAI FLATS (120-36, 43-18). One group occupied strong defensive positions on SEVEN MILE RIDGE (120-43, 43,13).

8 Oct: Eleven people killed so far in the exercises.

12 Oct: 5th problem: Troops moving north on either side of the strategic CHINA ROAD (not found on maps, however I believe this is the road going due north from Ft. Rock, going around CHINA HAT (121-02, 43-42), and north to meet Hwy 20 near MILLICAN (120-55, 43-52)). One group

retreats into the woods northwest of FORT ROCK, and there is fighting in the town of Fort Rock itself.

18 Oct: 6th problem: Near Millican, Horse Ridge; and guns (artillery) were emplaced along HWY 20 east of Brothers.

19 Oct: Battle of Horse Ridge and Bear Creek Buttes, there are strong entrenched troops on the buttes.

20 Oct: End of the 6th battle.

21 Oct: Concentrations of troops in the eastern foothills of the Cascades. "SISTERS (121-33, 44-17), TUMALO (121-20, 44-09), CLOVERDALE (121-27, 44-17), and DESCHUTES (121-17, 44-09) are expected to be prominent positions in the next (7th) exercise.

25 Oct: Several types of bridges were constructed across the Deschutes River near Tumalo.

26 Oct: Bridges were emplaced across the Deschutes river from STILHEAD (sic) (STEELHEAD? (121-17, 44-25)) FALLS to Bend.

27 Oct: River flows were lowered to try and recover the bodies of four soldiers drowned near EAGLE ROCK (not found).

28 Oct: Sisters, ALFALFA (121-01, 44-05), and the east and west banks of the Deschutes river to the north were scenes of activity.

30 Oct: ODIN FALLS (121-15, 44-19) to Tumalo, extensive river crossing operations on the Deschutes River.

1 Nov: End of the maneuvers.

B. Multnomah County Historical Society.

- 1) This was the source of the microfilmed Bend Bulletin.
- 2) A manila folder titled "Oregon Forts" which had useful information about designated military posts in the Oregon area, but nothing on the subject areas.

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3) A book entitled "Federal Records of World War II, 1951, National Archives of the United States" gave an indication of possible further sources of information; eg: Volume II, P. 240, military agencies, Army, ground forces, G-3 section; "Records relating to maneuvers 1940 to 1944 (11 feet), containing manuals, reports, critiques, maps, and photographs.

C. Oregon Military Museum. (657-6906)

1) Excerpt from The Deadeyes, The story of the 96th Infantry Division, by O. Davidson, et. al, and from a picture book about 96th ID activities during the war (App. 3). These publications list the makeup of subordinate units (including Artillery, Engineers, Ordinance and Mechanized units). Some mention is also made of places in the subject area: Alfalfa, Wagontire, Millican, and Fort Rock.

2) Excerpts from Timberwolf Tracks, The History of the 104th Infantry Division, by L. Hoegh and H. Doyle (App. 4). This publication mentions such activities and places as: Hampton, "defending" Glass Butte, "attacking" Wagontire, Christmas Tree (sic) Lake, seizing Horse Ridge and Bear Creek Buttes, "successive objectives of" Seven Mile Ridge, COUGAR MOUNTAIN (120-53, 43-25), NORTH TABLE MOUNTAIN (not found), Squaw Butte and WATKINS BUTTE (120-47, 43-38) "in a 38 mile advance", defending Horse Ridge and Bear Creek Buttes.

3) Excerpt from The 91st Infantry Division in World War II, by R. Robins. Locations and activities mentioned include "from the hot, dusty, trackless wastelands of the central Oregon desert to the treacherous lava formations of Deschutes National Park (sic), and "emphasiz(ing) the attack and defense of river lines".

4) Conversation with Mr. Terry Aitken, curator:

a) Phone number of Ken Bell, 104th Division Association, (252-6779). Conversation with Mr. Bell: Remembers some of the aforementioned locales and also mentions the DRY LAKES (not found) area. He was in an Infantry company, and they were only issued blank ammunition.

b) They left field fortifications behind (location unknown).

c) City of Redmond sewer treatment plant construction found foxholes, spent cartridge cases.

d) Deschutes Co. Sheriffs Office has been finding practice land mines.

e) Suggests we check with Co. Sheriffs search and rescue, Co. Surveyors, Co. Geologists.

f) Says he heard a Central Oregon rumor that someone left a battle tank in the mud during the maneuvers.

D. Sunriver (Camp Abbott) (121-27, 43-53)

1) Nature Center: David Danley (593-4394)

a) Source of Newspaper article (1 Aug 1943)

b) Has a display including letters home from people who were at Camp Abbott during that time, some old military gear found on post, and a sign in sheet for visitors who were stationed there. One contact from this book was Dr. R. M. Reichle, who was there from July to Nov 1943, and worked in a medical unit in support of the operation in such places as Sisters, Bend, Lakeview; in support of an anti-aircraft company at Alkalai Lake; Wagontire, and Klamath Falls.

c) Conversation with Mr. Danley (re: Camp Abbott): Live ammunition was used. Firing ranges for small arms and mortar rockets were active on post (spent mortar and rocket rounds are still occasionally found near a cliff N.W. of the airstrip (across Cardinal

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landing bridge), also scaffolding and directional charges). Near this cliff area are ravines that were used as training areas to build bridges and then blow them up; evidence still exists of the bridges. Just west of BENHAM FALLS (121-25, 43-56) (several miles north of Sunriver) are some relict foxholes with garbage in them. He has more old letters home from troops stationed there, but they were heavily censored.

2) Mr. Dan Young (593-4627): He has maps of the old post areas, orthophotographs of the post prior to construction, and many other drawings of the post and post facilities. He mailed one of the post maps (Army Corps of Engineers drawing number BER-16-3) which I have copied (App. 5). This map shows impact areas, demolitions training areas, firing ranges, chemical warfare training areas, fuels storage areas etc. He indicates there are a lot of other drawings available that could be of use to us in further Camp Abbott investigations.

The Army and Navy put out contracts after the war for demolition of buildings and the removal of material. Sunriver really dug up the main part of the post proper and did not find anything, however it seems that the area across the river may still have some areas of possible environmental concern.

3) Ms. Sue Barker of the Sunriver public affairs office (593-4182) has a file on Camp Abbott, including snapshots taken of maneuvers in the area, and a box full of old Camp Abbott Newspapers. She says she may put a story in the Sunriver newspaper on what we are doing and ask if anyone has any information about the maneuvers (many participants in the maneuvers became enamored with the area and returned after retirement).

E. Deschutes County Historical Society (Ms. Betty Renk, 389-1813,
1 to 4:30 pm Wed - Sat):

1) The Historical Society has a file of military activities and Newspapers (the Bend Bulletin) back to 1912.

2) Ms. Renk says her husband has found several inert practice bombs while SCUBA diving in the Deschutes River at Bend.

3) She offered to place a note (App. 6) in the Historical Society newsletter requesting information, as the society has over 400 members. Three telephonic responses were received by the Historical Society. One could not be re-contacted, one had been the supply officer of Camp Abbott and knew little about the maneuvers, and one had additional information as follows:

4) Clay Sheppard (382-3168) was a high school kid in 1943, and lived on a farm north of Tumalo. He says he saw "hundreds of tank destroyers in a big convoy going up J.W. Brown Rd, three miles North of Tumalo, going to CLINE FALLS over Twin Bridges (not found). The first tank broke the bridge and blocked up that whole convoy. The last battle of the war (training exercises) happened in my back yard. Once they flattened a fence, but came back and fixed it up again. Friendly, good PR people."

F. The U.S. Army Center for Military History (202-272-0315) Steve Lofgren: I called and requested information about the exercises on 31 March 1988, and was told I would be contacted when information was available. On 9 May 1988 I inquired as to status of my request and was told there was some information available, he will call back on 13 May. On 16 May 1988 I called, and was told that the proper place to contact for the information was the National Archives.

G. National Archives, Military Field Branch (301-763-1710). A Request letter (App. 7) was written and sent out 7 Jun 1988. On 7 July

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1988 I called the Military Field Branch, and was told that the researcher (Ms. Terry Hanna) had completed the research, her report was under review and we should receive it shortly. This report (App. 8) reports negative findings, and was received by this office 1 Aug 1988.

H. Office of the Chief of Engineers; Office of History, Dr. Martin Gordon (202-355-2552). First contact 4 Apr 1988. His office was in the process of being moved. Has no employees, contracts for historical research. He can help the Archives do their research in exchange for reasonable remuneration from us, and will do on site research in the Archives Cartographic and Architectural Branch. On 30 Jun 1988 I FAXed him a copy of the National Archives request letter and a location map to assist in his Archives and aerial photography research. I have also FAXed him the Archives results he says he will fill in the gaps or whatever is required.

I. Bureau of Land Management, Portland, Oregon; Gary Hiler (maps), and Carl Pearson (aerial Photography); (231-2091). The BLM was contacted to procure base maps and because the BLM manages a lot of land in the subject area. These management activities often require aerial photographs. A cursory look indicates that there is aerial imagery over the subject area (early 1950s), however it may not be early enough to show any evidence of the maneuvers. Should the Archives research indicate any specific areas of interest, and no aerial photography taken during the maneuvers is available, the BLM imagery may be useful.

J. Portland District photo files contain some imagery of the northern part of the maneuver area, possibly taken during the maneuvers.

No evidence of the maneuvers was apparent during a cursory look at the imagery.

3. LOCATION PROBABILITIES

These comments are intended to assist in locating probable areas of use. The information has come from formal military training and experience gained by the author, and related to the geographic characteristics of the area of interest.

The geographic locations noted are mostly where large numbers of troops were located or where mock battles took place. Most of the places are major local geographic landmarks, chosen for inclusion in print media as the general public would have some idea where they were. As they were widely separated, it is possible that much of the activity took place between these landmarks. On the other hand, the buttes and ridges would have been considered key terrain for their military advantages of height, visibility, radio communications, and fields of fire; and the towns would have been of strategic importance for their airfields, facilities, water supplies, and proximity to supply routes.

Key terrain will be marked by foxholes (arranged on the military crest of a hilltop or ridge line), and command bunkers (behind the foxholes). These fortifications will have been made of locally available materials and will have weathered over time. Rock fortifications will stand up better over time, however they would have been constructed to blend in with the surrounding terrain and would still be hard to spot from the air. Emplacements dug in softer soil (sand, scree, etc.) will have eroded and partially filled in, but this may make them easier to spot from altitude due to their distinctive

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defensive layout patterns. In addition they may exhibit more vigorous vegetation growth due to finer soil and trapped water.

Evidence of smaller sized infantry units may be found anywhere, and will usually only affect the environment by foxhole construction, and by leaving behind waste such as latrines, garbage dumps and sumps. Concentrations of infantry troops (over 200 men) would be located in semi protected areas (depressions, trees, etc.) that have vehicular access. Artillery could be emplaced anywhere with vehicular access due to their range. Spent shells would most likely have been collected for re-use. Armor is usually restricted to flat, open areas (swales, ridges, valleys etc.). Rocks more than two feet high, steep sided banks over 3 feet deep or high, and trees closer together than 10 feet apart will slow or stop tanks. Engineers emplace minefields and dig tank ditches in constrictions of likely avenues of approach for tanks. Such obstacles will have been also covered by tank destroyers or infantry with bazookas.

Supply areas for the forward elements are located depending on the size of the supply operation. The IV Corps supply operations were located in Bend or similar sized towns. Division supply would be near major highways, possibly near small towns or road intersections. Brigade supply would be close to secondary dirt roads. In any case the availability of water would be an important siting factor.

As the military is quite safety conscious during training, it is not likely that areas of intense use by personnel will have dangerous items such as bombs and mines. It is possible that such places may have been mined after the troops moved on.

NORTHWEST MANEUVER AREA
Project No. F100R020800



Twelve land mines were located near here in the summer of 1987. The site is on the east side of County Road 514G about six miles west and five miles north of Christmas Valley.

NORTHWEST MANEUVER AREA
Project No. F100R020800



In this area, during the week of 14-18 March 1988, a practice bomb was located by people in a four-wheel-drive vehicle. Site is approximately 14 miles north and east of Christmas Valley.

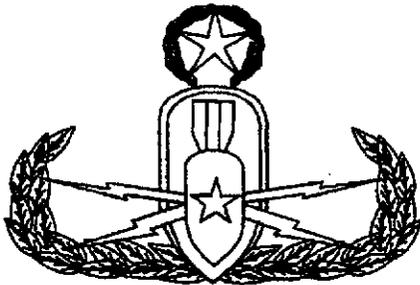
D-2

Explosive Ordnance Incident Report
14-15 March 1988, 34th Ordnance Detachment
Sierra Army Depot, Herlong, CA.

GREETINGS FROM THE

34TH ORD DET (EOD)

Sierra Army Depot
HERLONG, CA. 96113



COM (916) 827-4400/4409

DSN: 855-4400/4409

FAX: 855-4418

TO: JIM LUBBERT

FROM : SFC HARTMAN

REMARKS: _____

NO. PGS W/HEADER 2

EXPLOSIVE ORDNANCE INCIDENT REPORT

For use of this form, see FM 9-15 and 9-16; the proponent agency is U.S. Continental Army Command.

1. UNIT NUMBER

34-033-88

2. CONTROL NUMBER

3. UNUSUAL

4. ROUTINE

SECTION A: INITIAL INFORMATION

5. DATE/TIME REPORTED

141215Z MAR 88

9. INCIDENT LOCATION

CHRISTMAS VALLEY
OREGON

11. ITEM(S) REPORTED

1 T9
TEAR DROP SHAPE

RUSTED
(PRAC BOMB)

6. REPORTED BY

DEP WITHERS

7. PHONE NUMBER
503-947-3308

10. WHO TO CONTACT

SAME # 6

8. ADDRESS

LAKE COUNTY S.O.

SECTION B: ACTION BY EOD

12. PERSONNEL DISPATCHED

SSG LINKER
PFC BODECK

13. DATE/TIME

A. DEPT
141240Z MAR
B. ARR
141800Z MAR
C. COMPL
151330Z MAR

14. TRAVEL DATA

A. AIR-FLYING TIME

B. VEH-MILEAGE

634

15. MAN-HOURS

A. TRAVEL

B. INCIDENT

40

10

16. CONFIRMED IDENTIFICATION

1EA AN-MK43 PRACTICE BOMB
LOT: UNKNOWN

REF: OP166 P. 438

17. DISPOSITION

DISPOSE BY DETONATION
ITW 60 H 1-1-31

18. INCIDENT NARRATIVE (INCLUDE ALL SIGNIFICANT DETAILS AND PROBLEMS)

19.

AUTHENTICATION

A. TYPED NAME, GRADE OF UNIT COMMANDER

B. TELEPHONE NO.

C. DATE

DA FORM 3265-R, 1 Aug 70

EDITION OF 1 AUG 68 IS OBSOLETE.

APPENDIX E
LETTERS / MEMORANDA / MISCELLANEOUS ITEMS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FINDINGS
NORTHWEST MANEUVER AREA
Central - South-Central, Oregon

Project No. F10OR020801

APPENDIX E

LETTERS/MEMORANDA/MISCELLANEOUS ITEMS

- E-1 *Timberwolf Tracks: The History of the 104th Infantry Division, 1942-45* by Leo Hoegh
Howard Doyle, 1946 - Selected Excerpt.
- E-2 *The Deadeyes - The Story of the 96th Infantry Division* by Orlando Davidson, Carl
Willems, and Joseph Kahl - Selected Excerpt.

Timberwolf Tracks

*The History of
The 104th Infantry Division
1942 - 1945*



By
LEO A. HOEGH
and
HOWARD J. DOYLE

A87646
WASHINGTON
INFANTRY JOURNAL PRESS

officers' mess. Another time Mae and I watched the entire division march in review on the field at Camp Adair on one of the coldest, windiest, wettest days Oregon can produce. In our line of vision, each passing column slipped in the mud in just the same spot and in just the same way each time. I remember how much harder it was for the short-legged men to keep up.

On another occasion, we saw the "graduation exercises" of the division. This time it was a beautiful, bright, spring day when the slopes of an Oregon hillside became a mock battlefield. There was the long ditch that would stop the tanks; over there were the pillboxes of the enemy they were to attack, and up on another hillside an abandoned group of farm buildings had become a little German village—Insdorf (or some such name) was on the marker.

The boys bobbed up out of their foxholes unexpectedly here and there as they ran forward toward the pseudo-enemy lines. A constant roar of gunfire, with injections of staccato reports of machine guns filled the air: flares went up telling the men of the stages of battle; flame throwers were seen off yonder. One of the men had a dog that was faithfully following him into the battle. The battle was won, of course, at the right time, and down in one corner of the field all the hay was raked off the big gun which until that time no one of us had seen.

Yes, Insdorf (or whatever it was) was taken without a casualty. Eschweiler was taken by the 104th Division at a heavier cost, and now they have marched into Cologne.

One day Mae had a party at my house for the young officers of Sam's company. They were there with their wives and sweethearts, and it was a gala evening. One young lieutenant was to be married to the girl who was with him that night. She is now living in the Willamette Valley with her son, but the young lieutenant will never see his baby, for he was recently killed in Europe.

Wherever go the boys of the 104th and whatever they do will always concern us in Corvallis who witnessed the birth of the outfit. They'll always be our bunch of boys.

MRS. C. D. WINSTON,
2720 Orchard Street,
Corvallis, Ore.

~~MANEUVERS~~

With its basic and unit training completed, the Timberwolf Division moved out of Camp Adair on 6 and 7 August to ~~the Oregon desert in the vicinity of Sisters Bend, Oregon.~~ The officers and men had completed small unit training and were now to engage in Division, Corps, and Army maneuvers. On 7 August the Division closed in its assembly area. The strength report showed a total of 934 officers, thirty-eight warrant officers and 10,713 enlisted men. ~~Actual maneuvers started on 10 August with the "D" series—the Division problems in which combat teams of the Division maneuvered against one another.~~ There were six problems in the series, which came to a close on 26 August. On 1 September, the Division entrucked and moved to its new assembly area, ~~near Hampton, east of Bend, Oregon.~~ After camping two weeks on the sage-covered desert, the 104th Division began its maneuvers on 13 September. ~~The 71st~~ Infantry Division, ~~the 96th~~ Infantry Division, the

~~205th~~ Tank Destroyer Battalion, the ~~644th~~ Tank Destroyer Battalion, and many other tank, engineer and antiaircraft units participated in the maneuvers being conducted by IV Corps, then commanded by Major General Alexander M. Patch, Jr.

At dusk on 13 September, the Timberwolves covered their desert-tanned bodies with fatigues, their pup tents with sage, and began scooping foxholes to satisfy the umpires who were descending upon them. At 1600 on 14 September, the restraining line was lifted and Problem M-1, the defense of Hampton, got under way. The Timberwolves were the Reds, the 91st and 96th the Blues. Wailing sirens from circling artillery and planes ended the problem in the afternoon of 15 September.

M-1 was scarcely under way when rumor had it that the War Department was ordering the suspension of maneuvers because of wear and tear on tires, but the problems came and went, with new speculation at the end of each one. Towards the end of maneuvers, the rubber-tire rumor gave way to others: "The 104th Division is going to Camp White"; "the 104th is going to Camp San Luis Obispo"; "the Division is going to Fort Dix"; and so on.

On 18 September, defensive problem M-2 began with the 104th defending Glass Butte. A familiar sight was a column of dust, marching across country propelled by GI's with makeshift respirators tied around their heads. So dense at times was the powdered dust that it was difficult to breathe.

For the first time the Division changed its colors from Red to Blue and in conjunction with the 91st Infantry Division launched its attack on Wagontire. M-3 ended on 29 September.

Next was M-4, Christmas Tree Lake, in which the Division, again as part of the Blue force, advanced forty miles in three days and nights. What a relief it was when the sirens ended the problem at 1600 on 6 October.

Again on Problem M-5 the 104th Division was on the offensive with the mission of seizing Horse Ridge and Bear Creek Buttes. Successive objectives of Seven Mile Ridge, Cougar Mountain, North Table Mountain, Squaw Butte and Watkins Butte were seized in the thirty-eight-mile advance.

Probably the most delightful and comforting experience during the entire maneuvers was the sagebrush campfires, plentiful and easy to kindle. Not only did it dispel the bite of the desert night, but it furnished light for the poker groups huddled over a GI blanket. To those who sat silently staring into its burning embers, it was a magic crystal of times and events to come, or it was the reminiscent background to other times and places. "Fires out" came last on our list of tactical



On Camp Carson Lake. 329th Engineers blow up large underwater obstacle as part of invasion maneuvers

preparations for the next problem, and even after it had been covered we continued to linger, reluctant to bid farewell to an old friend.

M-6: The 104th organized and occupied positions to defend ~~Horse Ridge~~ and ~~Bear Creek Butte~~. M-7: Timberwolves forced a crossing over the Deschutte River and attacked ~~Kline Butte~~. The days had grown chilly and the nights cold on the great Oregon desert when the final problem ended 1700 on 30 October. Our memories of the Oregon maneuvers were many. Tasty venison supplementing GI chow. The painful positions and long hours on Camp Adair's marksmanship courses had paid off well for each chow line. The howling coyotes, the traveling PX's, the sawmill swimming hole, bathing in the Deschutte, off-limits Sisters, Alkali Lake, and many other items made up our memoirs.

MAJOR GENERAL TERRY ALLEN ASSUMES COMMAND

On 15 October 1943 Major General Terry de la M. Allen, already a seasoned veteran of World War II, after service in the African and the European Theaters as commander of the Fighting 1st Division, assumed command of the Timberwolves. Major General Gilbert R. Cook was dropped from the roster of the 104th on 19 October when he took command of the XII Corps. The sound basic training received under the able leadership of Major General Cook was reflected later on the battlefield.

Upon taking command General Allen paid the following tribute to the men of the 104th Division: "This is as completely fine a potential combat unit as I have ever seen. I have not seen better spirit or a more thorough response to training."

For a successful combat division, General Allen pointed out that discipline, technique, physical toughness and a belief in your units are essential.

On 7 November the Division moved by train from Bend, Oregon, to Camp Hyder in the California-Arizona maneuver area. Camp was set up near Hyder, Arizona, located in the desert on the Southern Pacific Railroad between Yuma and Phoenix. On 29 November the Division moved to Camp Horn, six miles to the west of Hyder, and there the 104th began its thirteen-week desert training program. General Allen opened the period by outlining to all commissioned and noncommissioned officers the accomplishments and work he expected. Night operations, weapon proficiency, reconnaissance, rapid maneuver, combat exercises and battle drill were especially emphasized. "GET SMART AND GET TOUGH" was the motto of our training and the Timber-

THE DEADEYES

The Story of
The 96th Infantry Division



By

ORLANDO R. DAVIDSON
J. CARL WILLEMS • JOSEPH A. KAHL

WASHINGTON
INFANTRY JOURNAL PRESS

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RECEIVED DEC 20 1943

division's fate. By truck and troop train, the Deadeyes left Fort Lewis for the Oregon Maneuver Area, a 10,000-square-mile expanse of sagebrush, dust and juniper trees on the high plateau of Central Oregon.

The first order of business was the D series, a schedule of six problems in which the three combat teams were pitted against one another in small-scale maneuvers. They were nothing if not realistic. There was no enemy on the Oregon desert but the Army made a manful and notably successful effort to incorporate all the lesser horrors of war. So far as the front-line troops were concerned, it would be blasphemy to compare maneuvers to combat, but for those who fought the war a little to the rear, where danger while omnipresent was limited, combat was often less onerous than those roasting summer days on the Oregon desert.

But it was all for a sound purpose. It is an axiom of vocational education that you learn best by doing, and it was a vocation—a deadly serious one—that Bradley's men were learning. They learned to sleep where and when they could, to improvise in a hundred ways, to discipline thirst. And they learned the rules and tricks of self-preservation.

The thirty days of the D series were only a prelude to big-league maneuvers, but in between the two the Deadeyes got a month's respite—back at Camp Adair. It was highlighted by a festive occasion—the Division's first birthday party. General Bradley called it graduation day. The most impressive features of the celebration were two awe-inspiring firing demonstrations—one by a battalion of infantry and the other by the massed howitzers of the entire Division Artillery. Otherwise it was strictly a party day with a guest list which included the Governor of Oregon, numerous local dignitaries and a bevy of Hollywood figures.

Early in September the 96th returned to Central Oregon for the IV Corps maneuvers. By this time, the Corps was under the command of the late General Alexander M. Patch, who had already distinguished himself on Guadalcanal and was later to command the Seventh Army in France. For two months, 75,000 men backed and filled across the desert in a dress rehearsal for combat. Three divisions—the 96th, 104th and 91st—were involved, along with tanks, tank destroyers, air power and thousands of service troops. With General Patch acting as director, the three division commanders alternated in commanding the opposing Blue and Red armies. When General Bradley was so engaged,

Generals Kane and Easley alternated in command of the 96th.

Time lost its meaning in those days and sleep became an elusive commodity seized as often by day as by night. Long convoys and trudging columns of men moved stealthily across the desert night after night with only the light of the moon, when there was any, for illumination. Two or three moves in a 24-hour period were commonplace and it became second nature for officers and men to dig in first, work or sleep afterwards. By November, the daylight heat which had seared the Deadeyes during the D series was forgotten in the bitter cold of the nights.

The one oasis of civilization in the area was the lumber town of Bend, but the men of the 96th rarely if ever saw it. The objectives for which they theoretically spilled their blood were barren hills and such odd places as the tiny communities of Alfalfa and Wagontire. Thus was established a precedent which fate decreed the Deadeyes would follow for the duration—other divisions might see Paris, Berlin and Tokyo; the 96th would see Dagami and Yonabaru.

V

On November 1, the 96th returned to the world of warm barracks and hot chow, things which they now classed as luxuries. Their new home was Camp White in the Rogue River Valley of Southern Oregon. This was to prove their longest stop since Camp Adair—it was five and a half months before they moved again. It also was to prove a notably pleasant period for again, with the exception of a few landlords, the residents of neighboring communities showered the Deadeyes with western hospitality. Medford, Grants Pass and Ashland will always be well remembered names to the veterans of the 96th.

The training program introduced at White was such as to make maneuvers at times a nostalgic memory. By this time the Deadeyes were assumed to be seasoned and hardened soldiers, and the post-graduate, pre-gangplank course through which they now struggled was a series of adventures under live ammunition, speed marches and the like. Twice during that period the 96th came under new jurisdictions. Immediately following maneuvers it was a unit of the Fourth Army, commanded by General William H. Simpson, later to lead the Ninth Army in France. Subsequently it came under Maj. Gen. John Milli-

APPENDIX F
REAL ESTATE DOCUMENTS
NOT USED

APPENDIX G
NEWSPAPERS / JOURNALS

The Sunday Oregonian

VOL. LXXI

PORTLAND, OREGON, AUGUST 1, 1943

NO. 9

Army Making Gigantic Preparations For Central Oregon Fall Maneuvers

'Combined-Combat'
Operations May
Involve 100,000

BY HERMAN EDWARDS
Staff Writer, The Oregonian

From the 10,000-square-mile area of central Oregon, where the army now is running the preliminaries of gigantic maneuvers to be held this September and October, recently came a "claim for damages" from a rancher who wrote:

"A bunch of tanks came tearing across the country and ran right through my fence. I went out and fixed the fence so the stock wouldn't get out.

"Now, you don't owe me a penny. All I ask is that you send the tanks back past my place and let me know so we can get out and see them."

Maneuvers Eat Gas

He will get his chance to see the tanks again, in all probability, not by design of army order, but because there will be enough tanks and tank destroyers, trucks, jeeps and vehicles of every description to provide a daily parade of sights for every man, woman and child of the seven counties over which they will range.

Between 12,000 and 13,000 vehicles is the approximate estimate for a maneuver of this size, involving troops that may range between 75,000 and 100,000 in numbers. The gasoline that will be consumed will total somewhere in the neighborhood of 7,000,000 gallons.

The troops engaged in the maneuvers will be under the command of Major General Alexander M. Patch, commanding general of the 4th corps, who, upon his arrival at Fort Lewis from Guadalcanal, plunged immediately into plans for the big show, described as equaling in importance and size those held in recent years in the southern states.



In the semi-arid maneuver area, water is a problem. Army makes certain of pure drinking water by such means as Ly-star bags, above, containing purifiers. (Vincent—Camp Abbot.)

the maneuvers are organized as self-supporting units and, generally, they will take care of their own problems. It is the "spare parts" units of the corps troops, such as a tank destroyer unit and the service elements, such as medical, quartermasters and ordnance, who will give G-4 its real workout.

Army Bakes All Bread

A sample item in the workout

was to prevent soldiers from raiding civilian food stocks which, as everyone knows, are meager enough these days.

Portland Sands Ice

Staff officers say that the general is making every effort to insure that the soldiers will eat the food provided for them by the army, that they will not throw any away.

Battle of 'Reds'
And 'Blues' to Hit
Peak in September

distribution among smaller units.

Menus Already Prepared

The field ration menus have been prepared far in advance. Today, the corps quartermaster knows exactly what the men of A company of the umpteenth regiment will eat on September 13, for every outfit will have the same menu and every man will have the same food his officers have.

Within the maneuver area to supplement the field rations, in case the supply lines break down, are half a million canned (emergency) rations.

Food is but one of the problems. The ordnance department has weight to contend with and it has started off with a stock of 250 tons of motor vehicle and tank parts. There will be other stocks over the area to supply 75 makes and models of vehicles ranging from motorcycles and jeeps to 10-ton trucks and heavy tanks and the huge tank destroyers.

Real Ammunition on Hand

In previous maneuvers on the Pacific coast civilians, and army men too, smiled, but somewhat sadly, at the sight of soldiers playing at war with wooden cannon, blocks of wood to simulate ammunition. This time the troops will have the real thing, and live ammunition, too.

No ammunition will be fired, but it will be present in containers so that the soldiers, who already know how to shoot it, will learn how to handle it.

Ammunition requirements probably will run around 2000 tons and it will be moved often from place to place to provide that phase of realism.

of tactical forces, other units already going through certain phases of maneuvers which, at this stage, involve divisions and smaller units. These units will be moving into and out of the area until September 6 when the full-scale "combined combat maneuvers" get into full swing. The big show will continue until October 31.

Problems of transportation of troops and of maintaining a smoothly operating supply line to provide food, clothing, equipment and supplies would have likely proved unsurmountable to America's peacetime army. Now, although tremendous in their scope, staggering to the civilian mind, they are all in the day's work.

Supply Functions Smoothly

The supply functions of six sections of the 4th corps special staff are co-ordinated by G-4 (supply and evacuation), which is one of the four sections of the corps general staff. These six sections, which deal in supplies, are the quartermaster corps, the engineers, the medical department, the ordnance department, the signal corps and the chemical warfare service, which latter will have but a minor role in the maneuvers. The divisions taking part in

troop concentration of this size, rather than on actual orders issued for flour, gasoline and other items.

The quartermasters figure this amount of flour will make bread for 7,000,000 men and it will be baked at the army bakeries of quartermaster units.

From the maneuver area to the big army laundries at Fort Lewis, Camp Adair and Camp White will go approximately 900,000 pieces of laundry each week.

Civilian Supplies Guarded

The daily average consumption of food in the army is six pounds per soldier, twice the average consumption by civilians. Foodstuffs for a maneuver of this size would run to the tremendous total of 14,000,000 pounds.

It is an old custom among soldiers who can get a pass to go to town to walk away from their own mess and head for the nearest restaurant. About one day of this practice would clean the restaurant stocks of Bend, Prineville, Redmond, Burns, Lakeview, Klamath Falls and other cities in and near the maneuver area as clean as Mother Hubbard's cupboard.

One of the very first rules laid down by General Patch

"An army of this size will require about one-third as much ice as supplies Portland per day, and it is very likely that Portland will supply virtually all of it.

Portland will supply great quantities of foods, too, and agents of the quartermaster marketing center at Seattle have been busy in Portland for some time making purchases.

Headquarters at Abbot

The directors' headquarters for the maneuvers will be at Camp Abbot, the recently activated engineer replacement training center, 18 miles south of Bend. Here, General Patch will have headquarters of the 4th corps when the big scale concentration comes. At proper points rail heads will be established to receive shipments of food and supplies.

Into the maneuver area every day now rolls a freight train, averaging 30 cars of food and materiel. At the depot where the train originates 200 men work to assemble and load the stuff.

To the rail heads where the boxcars are unloaded come details from the units in the field to truck supplies to their individual bivouac areas, where the material is broken down for

directors to keep up with the movement of the Red and Blue forces 132 miles of trunk lines, running three to five circuits, will be necessary just to skeletonize the maneuver area.

Communications Blanket Area

One line will run from Sisters to Bend to Burns, another from Bend to Lapine to Silver Lake to Grassy Butte, a third from Sunteck to Wagonfire so that the control group at Camp Abbot may maintain communication with Blue and Red force headquarters in the field.

In addition, the troops will utilize about 7000 miles of field wires to connect headquarters of the various subordinate units. Added to this maze of communications will be teletype service and more than 2000 radios, "all operating at once," one signal corps officer said.

The medical department will have its problems, both real and training. Approximately 250 medical corps officers, 50 dental corps officers, eight veterinary officers (for inspection of food) and 6000 enlisted men will be required in such a troop concentration to carry on the work of the medical department.

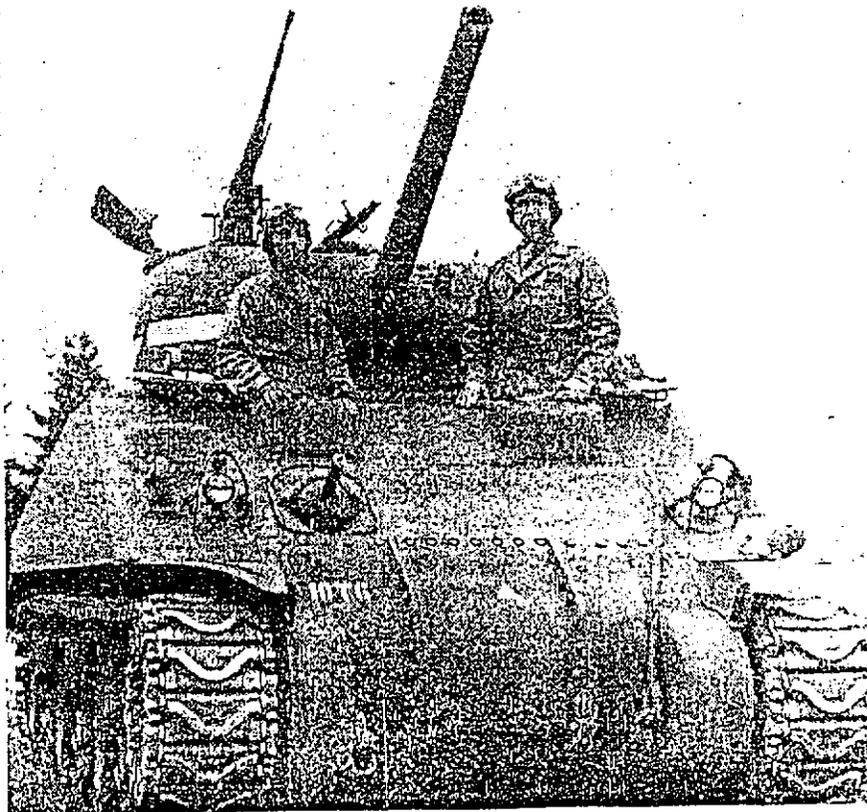
Casualties Get Service

They will need approximately 250 ambulances, four-wheel drive, equipped with heaters and fans, each capable of carrying four litter patients or six patients sitting.

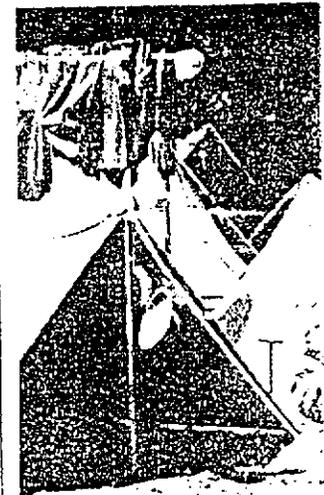
The medics will have sufficient hospitals, all under canvas, to provide definitive treatment for all casualties.

Two enlisted men from the medical department, carrying first aid equipment, are attached to each infantry company. A soldier injured in the front lines would go through the following process, just as he would if he were an actual battle casualty:

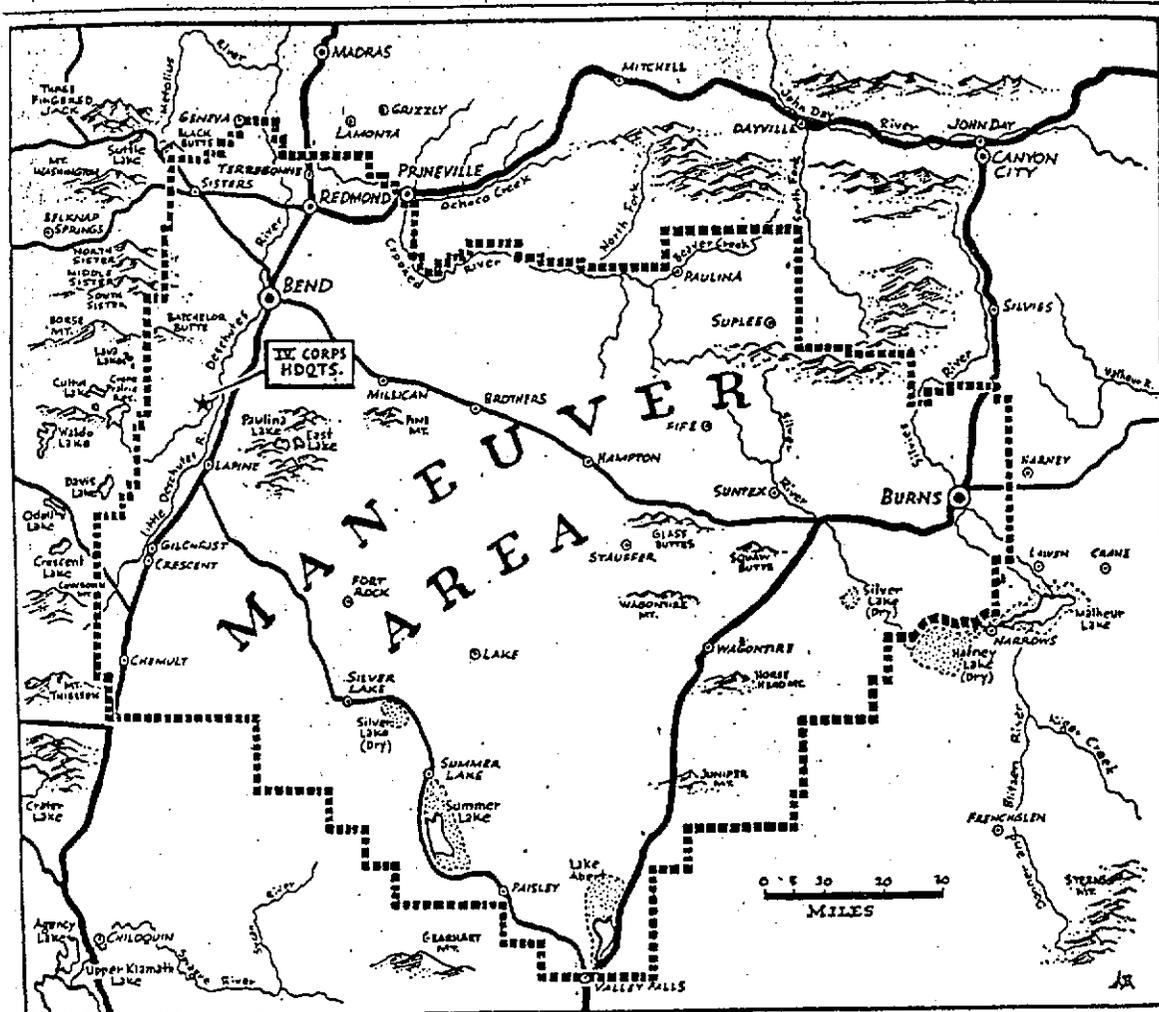
He is treated first by the first



Big tanks like these will take part in the central Oregon maneuvers this fall. In Sherman tank, above, are Colonel Ronald D. Johnson of Portland, post executive at Fort Lewis, left, and Colonel S. L. Burracker, commanding 10th tank group. (Photo by Sentinel, Fort Lewis.)



Troops moving into the central Oregon maneuvers are keeping in tents. Here is a camp not a great distance from the



This map, first to be published in detail, shows the vast expanse of central Oregon in which U. S. army troops, under IV corps leadership, will hold field maneuvers this September

and October. The area, larger than New Hampshire, includes all of Deschutes and major parts of six other counties. Directors' headquarters will be at Camp Abbot, near Bend.

aid enlisted men of his unit; litter carriers come up for him, take him back to a battalion or a regimental aid station; from there he is taken by litter to a collecting aid station; from there he goes by ambulance to clearing station; his next move is by ambulance to an evacuation hospital; he moves once more, by ambulance, to a numbered general hospital. (Permanent general hospitals in the United States are named for deceased officers of the medical department. General hospitals in the field and those abroad go by numbers.)

First-Aid Pouches Carried

Each soldier on maneuvers carries a first-aid pouch, hermetically sealed, containing a

become inoculated with malaria from overseas have been considered by the medical department.

Planes Crowd Airfields

A medical field laboratory will be operated to test water and to make clinical laboratory tests, and to run down epidemics if any threaten. Airplanes probably will be employed to evacuate actual casualties because of the great distances in the maneuver area.

Combat, observation, liaison and other airplanes will require heavy use of all airfields, for air-ground support will be one of the maneuver problems. Troops will have anti-aircraft artillery to fight off simulated

signed over as a patriotic gesture, in return for which the army will endeavor to leave it as good or better than it was before. No trees are to be cut. The engineers will rebuild damaged fences. Bridges to be used by heavy vehicles are being replaced with new, strong spans.

Those units of land not leased to the army are not to be disturbed, and will be posted as "off limits." Troops are instructed to keep out of irrigation canals. If any damage occurs the soldiers are under orders to stop and make repairs on the spot.

Bath Units Popular

"Keep off the highways and roads at night" is an army injunction that civilians will do well to observe. The interest

baths to be provided by the mobile shower units operated by quartermaster sterilization companies.

This magic outfit drives up to a creek or lake, throws in an intake hose, pumps water and heats it and provides showers for 2500 men a day. Six such companies will tour the maneuver area. Officers say they are the most popular of all the service units among the men.

antivenom. The latter requires refrigeration and will be kept at hospital stations.

A supply of serum for treatment of Rocky mountain fever will be on hand, although the fever tick will present no menace because his season of activity passes when summer heat comes.

All these and other problems, including the remote possibility that mosquitoes might somehow

has handled all leases, mostly without cost to the government, on a basis from July 1 to six months after the end of the national emergency. The area, however, is approximately 75 per cent public domain, about 25 per cent privately owned.

Repairs to Be Made

The board will process all claims for damages. Most of the privately owned land has been

be careful, and especially at night.

At night troop columns will be moving under blackout conditions. An argument between a model T Ford of some rancher and a General Sherman tank would be a problem that would add nothing to the army's training.

At the end of a hot, dusty day in the field troops will gain a lot of comfort from the hot

tions of the country, will continue through the rest of the summer at least, the office of war information predicted on the basis of reports from various government bureaus.

While beer is being produced at the highest rate in the history of the country (67,701,033 barrels in 1942, 34,740,818 in the first six months of 1943), the civilian supply is exceeded by demand, the OWI found, a situation which creates a shortage in the old-fashioned manner.

Malt Use Limited

Production will remain at the present level at best, the war food administration told the OWI, because brewers are limited in the amount of malt they may use, and many have al-



ready for maneuvers, trainees of the engineer replacement training center at Camp Abbot, in maneuver area, fix their sights on fast-moving overhead targets on the post's anti-aircraft range. Troops in maneuvers may total from 75,000 to 100,000. (Camp Abbot photo.)

ready stretched that amount through use of more corn and rice. The brewing industry has been allotted 65,000,000 of the nation's 95,000,000 bushels of malt annually produced. Under a new order by the WFA, brewers may use only 85 per cent of their malt quota for the manufacture of beer of more than 3.2 per cent alcohol.

Turning to another shortage, that of laundry service, the OWI found that more than 100 laundries in various parts of the country have been forced to close in the last three months, bringing to 600 the total of laundries which have been closed this year.

Laundries Hard-Pressed

The remainder of the nation's laundries are faced with taking care of laundry demands which have increased in some localities to as high as 200 per cent. Striking an average of two weeks as laundry service time in some of these localities, it is figured that a shirt-a-day man must have at least 28 shirts in his wardrobe.



ea quickly set up house-ent in bivouac on a river. Thousands of troops are

now in the field, some preparing for tactical groups to arrive later, others already going through phases of maneuvers involving small units. Full-scale maneuvers start September 6, continue until October 31. (Vincent—Camp Abbot.)

APPENDIX H
INTERVIEWS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
for the former
NORTHWEST MANEUVER AREA
Central - South-Central Oregon

Project Number F10OR020801

APPENDIX E -- INTERVIEWS

<u>Individual Contacted</u>	<u>Position/Organization</u>
Ken Bell	Retired Army Veteran (503)252-6779 Portland, OR
Jane Cupernall	Burns Chamber of Commerce 18 West D Street Burns, OR 97720 (503) 573-2636
Earl Corum	Landowner Silver Lake area (503) 576-2365
Katheren Ferl	Lake County Museum Schmick Museum (503) 947-2220 126 South East Street Lakeview, OR 97630
Terry Gratrix	Landowner Christmas Valley, OR (503) 576-2310
Christian Hald	Chairman of Northwest Maneuver Area Organizational Committee (503)482-5699
Walt Leehman	Rancher, Alkali Lake area (503)947-3502 Lakeview, OR

Fritz Morrison

Landowner
(503)576-2330
Christmas Valley, OR

John Pettus

Landowner
(503)576-2284
Christmas Valley, OR

Sgt. Terry Silbaugh

Coordinator, Emergency Services Division
Deschutes County Sheriff
1100 N.W. Bond Street
Bend, Oregon
(503)388-6502

Larry Thomas

Bureau of Land Management
(503)447-8734
Prineville, OR

Narratives of Selected Interviews

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Ken Bell
Retired Army Veteran
(503)252-6779

Mr. Bell served as a soldier in the Northwest Maneuver Area in 1943. He remembers firing blanks only. The soldiers were never issued live ammunition. Some soldiers were sent to Camp Adair to fire the rifles on the range. Gas chambers were also present at Camp Adair but not in the maneuver area (they were at Camp Abbot). The aircraft that flew in support of the maneuvers were known to drop bags filled with flour.

Earl Corum
Landowner - Silver Lake Area
(503) 576-2365

Mr. Corum lives up in the Silver Lake area. He has not encountered any ordnance. He has frequently used his metal detector in the Buffalo Well area, and he has never come across anything.

Terry Gratrix
Property Owner-Christmas Valley
(503)576-2310

A land mine damaged Mr. Gratrix's truck in 1987. He said a six man EOD team from what he believed was Fort Ord, California came to sweep his property (40 acres). They found 13 land mines (practice). Mr. Gratrix said there were probably more on adjoining properties that were not swept. His land may have been used in conjunction with the Northwest Maneuver Area, or possibly, the Fort Rock Maneuver Area. The St. Louis District located four additional mines on a subsequent visit to his property.

Walt Leehman Jr.
Rancher
(503) 947-3502

Mr. Leehman has lived in the Alkali Lake area all of his life. He remembers finding .50 caliber shells in the lake. Alkali Lake was used for the Central Oregon Air-to-Air Gunnery Range and for the Northwest Maneuvers. He also recalls seeing the wooden structures that were probably being used for targets.

Fritz Morrison
Property Owner-Christmas Valley
(503)576-2330

Mr. Morrison has never found OEW on his land. His property is located right behind Terry Gratrix's land. Up off the upper rim near his home, he has found water cans and other little items. He recommends searching 15-20 miles away from his home towards the Backscatter Radar Station. He believes that small and large shells can be located in this area. The maneuvers went through Christmas Valley towards this radar facility. Lost jeeps are said to be buried in the sand dunes. Another area right there is called the "lost forest."

John Pettus
Landowner
(503) 576-2284

Mr. Pettus lives in the Christmas Valley area. He recalls observation posts and fox holes. He does not believe any ordnance is out there.

Sgt. Terry Silbaugh
Deschutes County Sheriffs
1100 N.W. Bond
Bend, OR 97707
(503)388-6502

Sgt. Silbaugh stated that ordnance has been recovered near the areas of Milliken and Alfalfa. These lands are within the former maneuver area but are also near the Redmond Precision Bombing Range. Sgt. Silbaugh does not even fill out reports anymore of ordnance locations because there are so many. He can show locations where ordnance has been found and suspected areas.

**SUMMARY OF TELEPHONE RECORDS
FOR
NORTHWEST MANEUVER AREA
POSSIBLE FRAGMENTATION BOMB**

M. Kevin McCaffrey
QASAS - St. Louis District Corps of Engineers
(314) 331-8836

The goal was to find documentation for the "anti-personnel fragmentation bomb" which was reported in the 1993 INPR written by the Portland District, Corps of Engineers. The bomb was reportedly found in the Silver Lake area about 1986.

I called Alan Munhall, Lakeview District, BLM, who was the sole reference in the 1993 INPR. He did not remember the interview, nor could he remember where he might have gotten the bomb report. There was a realty specialist in his office, Dan Stewardson, who remembered a bomb report. He thought it had been found on the Z-X Ranch and disposed of by the EOD unit at Sierra Army Depot, CA.

I contacted the Portland District, Corps of Engineers, and had them go back and check the supporting documentation for the 1993 INPR. Michael Gross, who was listed on the INPR as the official POC, could find nothing other than Mr. Munhall's interview to substantiate the bomb report.

I called past and present Z-X Ranch managers and a former foreman. All three men said they could not remember a bomb, or anything else, being found during the 1986 time frame. They all said it was a big ranch, but they thought a bomb was something they would have remembered. Mr. DeBraga, the present manager, said even if he couldn't remember the incident, it would have shown up in his log book.

The EOD unit at Sierra Army Depot, as well as their parent unit at Ft. Lewis, WA, said they did not keep documents dating that far back.

Ken Tillman, the hazardous materials specialist for the Lakeview office of the BLM, found a handwritten scrap of paper in their files indicating the EOD unit from Sierra Army Depot answered a call on May 18, 1986 to the Fossil Lake Sand Dunes. The Fossil Lake Sand Dunes are over 30 miles northeast of the Silver Lake area. There was nothing written about the reason for the call. Mr. Tillman said the paper was kept because the BLM wanted the EOD telephone number in order to schedule future training classes.

The local sheriff, who had been a deputy during 1986, vaguely remembered a bomb found in the shifting sand dunes area in the 1986-87 time frame. He also remembered some practice antitank mines being found. In both cases, the EOD unit from Sierra Army Depot was called. The sheriff agreed that what he remembered may have been the navy practice bomb which had been found in the shifting sand dunes area in 1988.

CONCLUSION: There are only two pieces of documentation supporting the possibility a "anti-personnel fragmentation bomb" was found in the Silver Lake area about 1986. The first was a March 1988 interview given by the BLM representative in which he repeated a rumor of a bomb being found in 1986. The second is a handwritten scrap of paper found in the BLM files indicating an EOD unit from Sierra Army Depot was in the area in May 1986. The BLM representative now does not remember the interview nor the bomb rumor. The scrap of paper found in the BLM files does not explain why the EOD unit was in the area. There is no other documentation to substantiate this report and what we have is questionable. Unless additional information comes to light, I would recommend we dismiss the report..

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE 17 Oct 94

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

SUBJECT OF CONVERSATION: Northwest Maneuver Area, Oregon		
INCOMING CALL		
PERSON CALLING Terry Gratrix	ADDRESS Christmas Valley, OR	PHONE NUMBER AND EXTENSION (no phone)
PERSON CALLED Gregg Kocher	OFFICE CELMS-PM-M	PHONE NUMBER AND EXTENSION (314) 331-8790
OUTGOING CALL		
PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION
PERSON CALLED	OFFICE	PHONE NUMBER AND EXTENSION

SUMMARY OF CONVERSATION: Mr. Gratrix owns property in the Christmas Valley area where a landmine reportedly damaged the tire of his tractor five or six years ago. He said a six-man EOD team from Fort Ord, CA was dispatched to sweep his property (40 acres). They found 13 landmines (practice). Mr. Gratrix said there were probably more on adjoining properties, but they were not swept. He gave me the name of another property owner: Fritz Morrison, who can be reached at (503) 576-2330 [early morning and evenings only].

He also said that an area six miles due south of the sand dunes at Fossil Lake was a target range where numerous bullets and cartridge cases can be found.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 10 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

<p>SUBJECT OF CONVERSATION</p> <p>Northwest Maneuver Area, Oregon</p>
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<p>INCOMING CALL</p>

<p>PERSON CALLING</p>	<p>ADDRESS</p>	<p>PHONE NUMBER AND EXTENSION</p>
<p>PERSON CALLED</p>	<p>OFFICE</p>	<p>PHONE NUMBER AND EXTENSION</p>

<p>OUTGOING CALL</p>

<p>PERSON CALLING Kevin McCaffrey Quality Assurance Specialist</p>	<p>ADDRESS Corps of Engineers CELMS-PM-M (OEW) St. Louis, MO 63103</p>	<p>PHONE NUMBER AND EXTENSION (314) 331-8836</p>
<p>PERSON CALLED Dave Womack Former Foreman</p>	<p>OFFICE Z-X Ranch Lakeview, Oregon</p>	<p>PHONE NUMBER AND EXTENSION (503) 576-2186</p>

SUMMARY OF CONVERSATION:

Mr. Womack was foreman of the Z-X Ranch during the 1981-88 time frame. I called to ask him if he had any knowledge of a "anti-personnel fragmentation bomb" being found anywhere on the ranch around 1986. He said he was not aware of any explosives being found during this period and felt he would have known if there had been something found.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 10 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

<p>SUBJECT OF CONVERSATION</p> <p>Northwest Maneuver Area, Oregon</p>		
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<p>INCOMING CALL</p>		
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<p>PERSON CALLING Dick Mahon Former Manager</p>	<p>ADDRESS Z-X Ranch Lakeview, Oregon</p>	<p>PHONE NUMBER AND EXTENSION (503) 576-2272</p>
<p>PERSON CALLED Kevin McCaffrey Quality Assurance Specialist</p>	<p>OFFICE Corps of Engineers CELMS-PM-M (OEW) St. Louis, MO 63103</p>	<p>PHONE NUMBER AND EXTENSION (314) 331-8836</p>

<p>OUTGOING CALL</p>		
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<p>PERSON CALLING</p>	<p>ADDRESS</p>	<p>PHONE NUMBER AND EXTENSION</p>
<p>PERSON CALLED</p>	<p>OFFICE</p>	<p>PHONE NUMBER AND EXTENSION</p>

SUMMARY OF CONVERSATION:

Mr. Mahon was manager of the Z-X Ranch during the period 1980-86. I called him on the recommendation of Mr. DeBraga, the current manager, who took over in Aug 86 (See Telephone Record, Bob DeBraga, dtd 9 Aug 95).

Mr. Mahon has no recollection of a "anti-personnel fragmentation bomb" being found on the ranch during his tenure. He said the ranch covers 1 million, 300 acres (including Fossil Lake Sand Dunes), and he might have missed something, but he doubted he would have missed something like this. He promised to ask around and suggested I call his old foreman, Dave Womack, Tele #503-576-2186.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 10 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

<p>SUBJECT OF CONVERSATION</p> <p>Northwest Maneuver Area, Oregon</p>
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<p>INCOMING CALL</p>

<p>PERSON CALLING Charlie Withers Sheriff</p>	<p>ADDRESS Lake County Lakeview, Oregon</p>	<p>PHONE NUMBER AND EXTENSION (503) 947-6027</p>
<p>PERSON CALLED Kevin McCaffrey Quality Assurance Specialist</p>	<p>OFFICE Corps of Engineers CELMS-PM-M (OEW) St. Louis, MO 63103</p>	<p>PHONE NUMBER AND EXTENSION (314) 331-8836</p>

<p>OUTGOING CALL</p>

<p>PERSON CALLING</p>	<p>ADDRESS</p>	<p>PHONE NUMBER AND EXTENSION</p>
<p>PERSON CALLED</p>	<p>OFFICE</p>	<p>PHONE NUMBER AND EXTENSION</p>

SUMMARY OF CONVERSATION:

Sheriff Withers was referenced by the Portland District, Corps of Engineers, in their 1993 INPR. He was involved with ordnance found in the Christmas valley area. I had earlier called his office and received a negative reply from his secretary. After talking to Ken Tillman (See Telephone Record, Ken Tillman, dtd 10 Aug 95), I decided to talk directly to the sheriff. Mr. Tillman's information suggested the possibility the "anti-personnel fragmentation bomb" we were trying to track down, was actually the Navy Mk 43 Practice Bomb which had been found in the "shifting sand dunes area" in March 1988.

Sheriff Withers remembered a bomb being found during the 1986-87 time frame in the shifting sand dunes area. He also remembers 12 antitank mines being found. He does not remember any other ordnance found during this time frame, including any in the Silver Lake area. He promised to go back and check his notes. There was no official report filed. The EOD unit assigned to Sierra Army Depot, Herlong, California, was called for both incidents.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 10 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

<p>SUBJECT OF CONVERSATION</p> <p>Northwest Maneuver Area, Oregon</p>		
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<p>INCOMING CALL</p>		
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<p>PERSON CALLING Michael Gross</p>	<p>ADDRESS Portland District Corps of Engineers</p>	<p>PHONE NUMBER AND EXTENSION (503) 326-6489</p>
<p>PERSON CALLED Kevin McCaffrey Quality Assurance Specialist</p>	<p>OFFICE Corps of Engineers, St. Louis CELMS-PM-M (OEW)</p>	<p>PHONE NUMBER AND EXTENSION (314) 331-8836</p>

<p>OUTGOING CALL</p>		
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<p>PERSON CALLING</p>	<p>ADDRESS</p>	<p>PHONE NUMBER AND EXTENSION</p>
<p>PERSON CALLED</p>	<p>OFFICE</p>	<p>PHONE NUMBER AND EXTENSION</p>

SUMMARY OF CONVERSATION:

Mr. Gross was calling back with information I had requested a few days ago (See Telephone Record, Michael Gross, dtd 8 Aug 95).

Mr. Gross' office had completed an INPR in 1993 which claimed a "anti-personnel fragmentation bomb" had been found in the Silver Lake area about 1986. The only source referenced in the 1993 INPR was an interview with Alan Munhall in March 1988. When contacted this week, Mr. Munhall could not remember the interview nor the bomb report (See Telephone Record, Alan Munhall, dtd 8 Aug 95)..

I asked Mr. Gross to check their references for any substantiating claim which might have been left out of the IMPR, such as an EOD incident report. Mr. Gross reviewed the files today and was unable to find any additional information. Apparently the only documentation they have for the fragmentation bomb report, is the interview with Mr. Munhall.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 10 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

<p>SUBJECT OF CONVERSATION</p> <p>Northwest Maneuver Area, Oregon</p>		
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<p>INCOMING CALL</p>		
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<p>PERSON CALLING</p>	<p>ADDRESS</p>	<p>PHONE NUMBER AND EXTENSION</p>
<p>PERSON CALLED</p>	<p>OFFICE</p>	<p>PHONE NUMBER AND EXTENSION</p>

<p>OUTGOING CALL</p>		
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<p>PERSON CALLING Kevin McCaffrey Quality Assurance Specialist</p>	<p>ADDRESS Corps of Engineers CELMS-PM-M (OEW) St. Louis, MO 63103</p>	<p>PHONE NUMBER AND EXTENSION (314) 331-8836</p>
<p>PERSON CALLED Joyce Pecnick</p>	<p>OFFICE Silver Lake Ranger District Oregon</p>	<p>PHONE NUMBER AND EXTENSION (503) 576-2107/2108</p>

SUMMARY OF CONVERSATION:

This was a follow-up call to an earlier inquiry I had made concerning the finding of a "anti-personnel fragmentation bomb" in the Silver Lake area about 1986 (See Telephone Record, Joyce Pecnick, dtd 9 Aug 95).

Ms. Pecnick said she talked to the rangers who had been working during the 1985-86 time period. None of them remembered this incident and there was nothing in their files. Someone in their office suggested it might have been Silver Lake, Washington instead of Silver Lake, Oregon. She promised to keep digging.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 9 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

<p>SUBJECT OF CONVERSATION</p> <p>Northwest Maneuver Area, Oregon</p>		
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<p>INCOMING CALL</p>		
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<p>PERSON CALLING</p>	<p>ADDRESS</p>	<p>PHONE NUMBER AND EXTENSION</p>
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<p>PERSON CALLED</p>	<p>OFFICE</p>	<p>PHONE NUMBER AND EXTENSION</p>
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<p>OUTGOING CALL</p>		
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<p>PERSON CALLING Kevin McCaffrey Quality Assurance Specialist</p>	<p>ADDRESS Corps of Engineers CELMS-PM-M (OEW) St. Louis, MO 63103</p>	<p>PHONE NUMBER AND EXTENSION (314) 331-8836</p>
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<p>PERSON CALLED SGM Roger Harrison</p>	<p>OFFICE 548th EODCT Fl. Lewis, WA</p>	<p>PHONE NUMBER AND EXTENSION (206) 967-1971/1972</p>
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SUMMARY OF CONVERSATION:

The 548th EODCT is the parent unit of the 34th EOD in Herlong, CA. (See Telephone Record, SGT Matthew Boehme, dtd 8 Aug 95). I had earlier called the 34th EOD trying to trace a report of a "anti-personnel fragmentation bomb" which had been found in the Silver Lake, Oregon area sometime in 1986. The 34th EOD had reportedly responded to the call. However, they no longer have a record of the incident. I called their parent unit hoping they might still have some record.

SGM Harrison informed me their subunits keep incident reports for only two years. The reports are then forwarded to the 548th EODCT, which keeps them for an additional five years. The reports are then "trash canned." Copies are not forwarded to a records center. He did say there was a change to the regulation in 1993, which requires them to screen the incident reports for any possible incidents which might be of interest to the EPA. Documents which are deemed, in some way, to have an environmental impact, are to be forwarded to the U.S. Army Records Repository. This change to the regulation was too late to help our search for this particular item.

SGM Harrison has an ARTEP to deal with right now, but promised to contact some former unit members from the mid 1980s to see if anyone remembers the incident. He will call us if he finds out anything.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 9 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

SUBJECT OF CONVERSATION Northwest Maneuver Area, Oregon

INCOMING CALL

PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION
PERSON CALLED	OFFICE	PHONE NUMBER AND EXTENSION

OUTGOING CALL

PERSON CALLING Kevin McCaffrey Quality Assurance Specialist	ADDRESS Corps of Engineers CELMS-PM-M (OEW) St. Louis, MO 63103	PHONE NUMBER AND EXTENSION (314) 331-8836
PERSON CALLED Bob DeBraga Manager	OFFICE Z-X Ranch Lakeview, Oregon	PHONE NUMBER AND EXTENSION (503) 943-3105

SUMMARY OF CONVERSATION:

Mr. DeBraga has been manager of the Z-X Ranch since August 1986. I called him on a lead from Dan Stewardson, BLM, who believed a "anti-personnel fragmentation bomb" had been found on the Z-X Ranch sometime in 1986.

Mr. DeBraga did not remember such an item being found. If it had been, he felt he would have remembered it. He did promise to check with some of the "old-timers" on the ranch to see if they remembered anything. He also suggested I talk to the former manager, Dick Mahon, tele #503-576-2272.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 9 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

<p>SUBJECT OF CONVERSATION</p> <p>Northwest Maneuver Area, Oregon</p>		
<p>INCOMING CALL</p>		
<p>PERSON CALLING</p>	<p>ADDRESS</p>	<p>PHONE NUMBER AND EXTENSION</p>
<p>PERSON CALLED</p>	<p>OFFICE</p>	<p>PHONE NUMBER AND EXTENSION</p>
<p>OUTGOING CALL</p>		
<p>PERSON CALLING Kevin McCaffrey Quality Assurance Specialist</p>	<p>ADDRESS Corps of Engineers CELMS-PM-M (OEW) St. Louis, MO 63103</p>	<p>PHONE NUMBER AND EXTENSION (314) 331-8836</p>
<p>PERSON CALLED Joyce Pecnick</p>	<p>OFFICE Silver Lake Ranger District Oregon</p>	<p>PHONE NUMBER AND EXTENSION (503) 576-2107/2108</p>

SUMMARY OF CONVERSATION:

I called the ranger district to see if they had a record of a "anti-personnel fragmentation bomb" being found in the Silver Lake area about 1986. Ms. Pecnick could find no such record but promised to check around and call me back if she found any new information.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 15 Aug 95

For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

SUBJECT OF CONVERSATION Northwest Maneuver Area, Oregon		
INCOMING CALL		
PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION
PERSON CALLED	OFFICE	PHONE NUMBER AND EXTENSION
OUTGOING CALL		
PERSON CALLING Kevin McCaffrey Quality Assurance Specialist	ADDRESS Corps of Engineers CELMS-PM-M (OEW) St. Louis, MO 63103	PHONE NUMBER AND EXTENSION (314) 331-8836
PERSON CALLED Bob DeBraga Manager	OFFICE Z-X ranch Lakeview, Oregon	PHONE NUMBER AND EXTENSION (503) 943-3105

SUMMARY OF CONVERSATION:

Mr. DeBraga had promised in a earlier telephone contact, to talk to some of the "old-timers" on the ranch to see if anyone remembered anything about a bomb being found on the ranch during the 1986 time frame (See Telephone Record, Bob DeBraga, dtd 9 Aug 95).

He said he had asked around and no one remembered anything. He had also gone back and checked his log book and found no mention of an explosive being found.

NOTE: The 1993 INPR done by the Portland office referred to the "Shifting Sand Dunes Area" as the location of the Navy practice bomb which was discovered in 1988. According to Mr. DeBraga, the actual name for this area is the Fossil Lake Sand Dunes.

APPENDIX I
PRESENT SITE PHOTOGRAPHS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FINDINGS
NORTHWEST MANEUVER AREA
Central - South-Central, Oregon

Project No. F10OR020801

APPENDIX I -- PRESENT SITE PHOTOGRAPHS

PAGE	DESCRIPTION
<u>Page I-1</u>	
Photo #1	M4 anti-tank mines.
Photo #2	M4 anti-tank mines.
<u>Page I-2</u>	
Photo #3	Sand dune area - general location of Navy practice bomb.
Photo #4	Sand dune area.
<u>Page I-3</u>	
Photo #5	Sand dune area.



#1 M4 anti-tank mines.



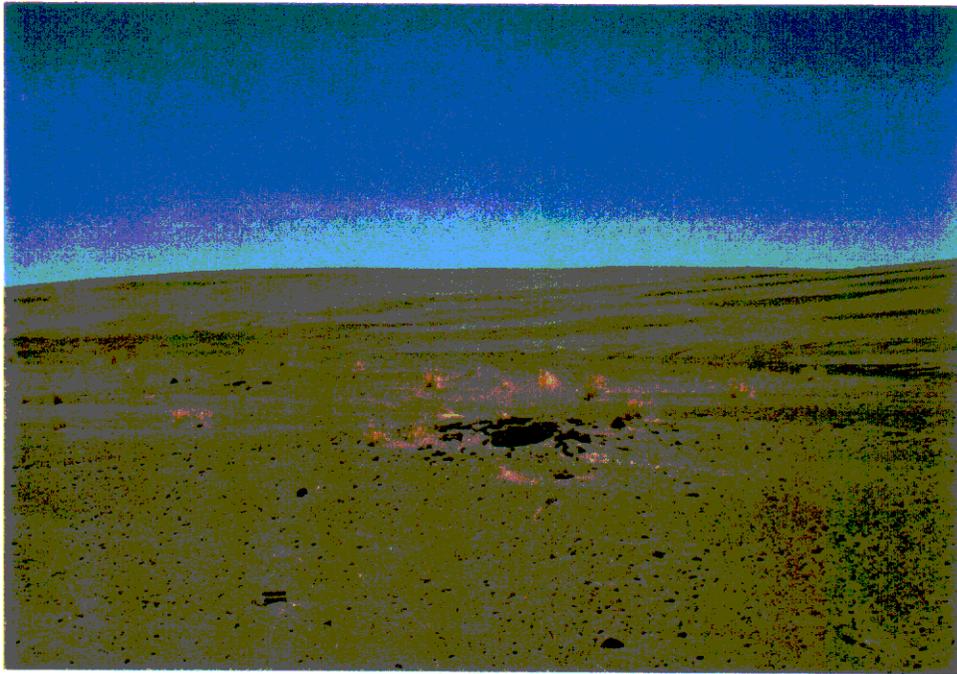
#2 M4 anti-tank mines.



#3 Sand dune area - general location of Navy practice bomb.



#4 Sand dune area.



#5 Sand dune area.

APPENDIX J
HISTORICAL PHOTOGRAPHS
NOT USED

APPENDIX K
HISTORICAL MAPS / DRAWINGS
NOT USED

APPENDIX L

SITE SAFETY AND HEALTH PLAN / SITE INSPECTION REPORT

**ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FINDINGS
NORTHWEST MANEUVER AREA
Central - South-Central, Oregon**

Project No. F10OR020801

APPENDIX L

SITE SAFETY AND HEALTH PLAN/SITE INSPECTION REPORT

Site Specific Safety and Health Plan for Northwest Maneuver Area

The Site Inspection Report is located in Section 6.0, ASR Findings and Section 2.4, ASR Conclusions and Recommendations.

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SITE SPECIFIC SAFETY AND HEALTH PLAN (SSHP)
OEW/CWM Archives Search Site Inspection Visit
Northwest Maneuver Area
Jefferson, Deschutes, Crook, Grant, Lake, Harney & Klamath
Counties, OR
Site #F10OR0208

1. REFERENCES:

a. Safety Manual, CELMS-PM-M, 16 Sep 93 w/ Ch1.

b. SOP for Reporting Ordnance and Unexploded Ordnance (UXO), CELMS-PM-M, 15 Nov 93.

2. GENERAL: This plan prescribes the safety and health requirements for team activities and operations conducted to determine the presence of ordnance and explosive waste and /or chemical warfare materials at the specified site.

a. The Safety Officer has final authority on all matters relating to safety. The safety rules will be followed at all times. Any member of the team may stop operations if they observe a situation or activity which poses a potential hazard to any individual or to the operation. All actions must comply with the common sense rule!

b. All team members will be aware of the local emergency numbers and the location of the nearest telephone.

3. MISSION: Reconnoiter, document, and photograph areas on parts of the seven million-acre Northwest Maneuver Area suspected to be contaminated with UXO and/or toxic chemical munitions. Focus will be on Camp Abott, Fort Rock, the two air-to-ground gunnery ranges, Redmond Precision Bombing Range, and the Sand Hills near Christmas Valley.

4. SAFETY PRECAUTIONS: All team members will stay within sight of each other while on site. A first aid kit will be on hand. The following three basic safety rules apply at all times:

a. Rule 1 - Do not touch or pick up anything at the site.

b. Rule 2 - Do not step anywhere you cannot see where you place your foot.

c. Rule 3 - There will be no eating or smoking at the site. Hands will be washed after the survey and prior to eating. Drinking fluids should be done during periodic breaks.

5. SITE COMMUNICATIONS: Team members will always remain within sight of each other. The primary means of communicating with other teams will be by cellular telephone (see phone listings).

6. NATURAL HAZARDS: Snakes, biting insects (ticks, chiggers), uneven terrain, and brush present possible hazards while afield. Higher elevations could bring unpredictable weather and place extra stress on the body. Remote locations make any injury potentially life-threatening.

7. ORDNANCE HAZARDS: Although service ammunition was reportedly not fired, ordnance has been found in many locales for many years. Mortar and rocket ammunition has reportedly been found around various camps. The potential exists to find any type used by a WWII infantry division. The following information on ordnance found is extracted from various sources:

- a. Fragmentation bomb found near Silver Lake.
- b. Practice bomb found in the sand dunes 14 miles Northeast of Christmas Valley.
- c. 12 high explosive anti-tank landmines found east of County Road 514G, 6 miles west and 5 miles north of Christmas Valley.
- d. Practice bombs found in the Deschutes River at Bend.
- e. 2.36" rockets and mortar rounds found near a cliff northwest of the airstrip and across Cardinal landing bridge at Camp Abbott.
- f. P-38 aircraft firing at kites.
- g. Demolition and chemical warfare training areas (locations unknown).
- h. Unknown types of ordnance reported in the Millican and Alfalfa areas.

8. **VEHICLE SAFETY:** Operating four-wheel drive vehicles off-road presents a serious accident potential. Exercise extreme prudence when negotiating difficult terrain.

9. **EMERGENCY PROCEDURES:** First aid will be rendered for any injuries. In the event of a detonation, everyone should freeze until the situation can be assessed by the team leader. Unnecessary injuries can be avoided by not panicking and planning a logical course of action, which may include retracing your steps out of an impact area. Emergency medical services will be contacted by the most expeditious means available.

10. **SAFETY STATEMENT:** Safety is everyone's business. No unnecessary risks will be taken to obtain photos or other data. Team members are responsible for notifying the project Manager or safety Officer of any physical conditions that may impede or prevent their accomplishment of the mission. An example is allergic reactions to bee stings.

Important Phone Numbers

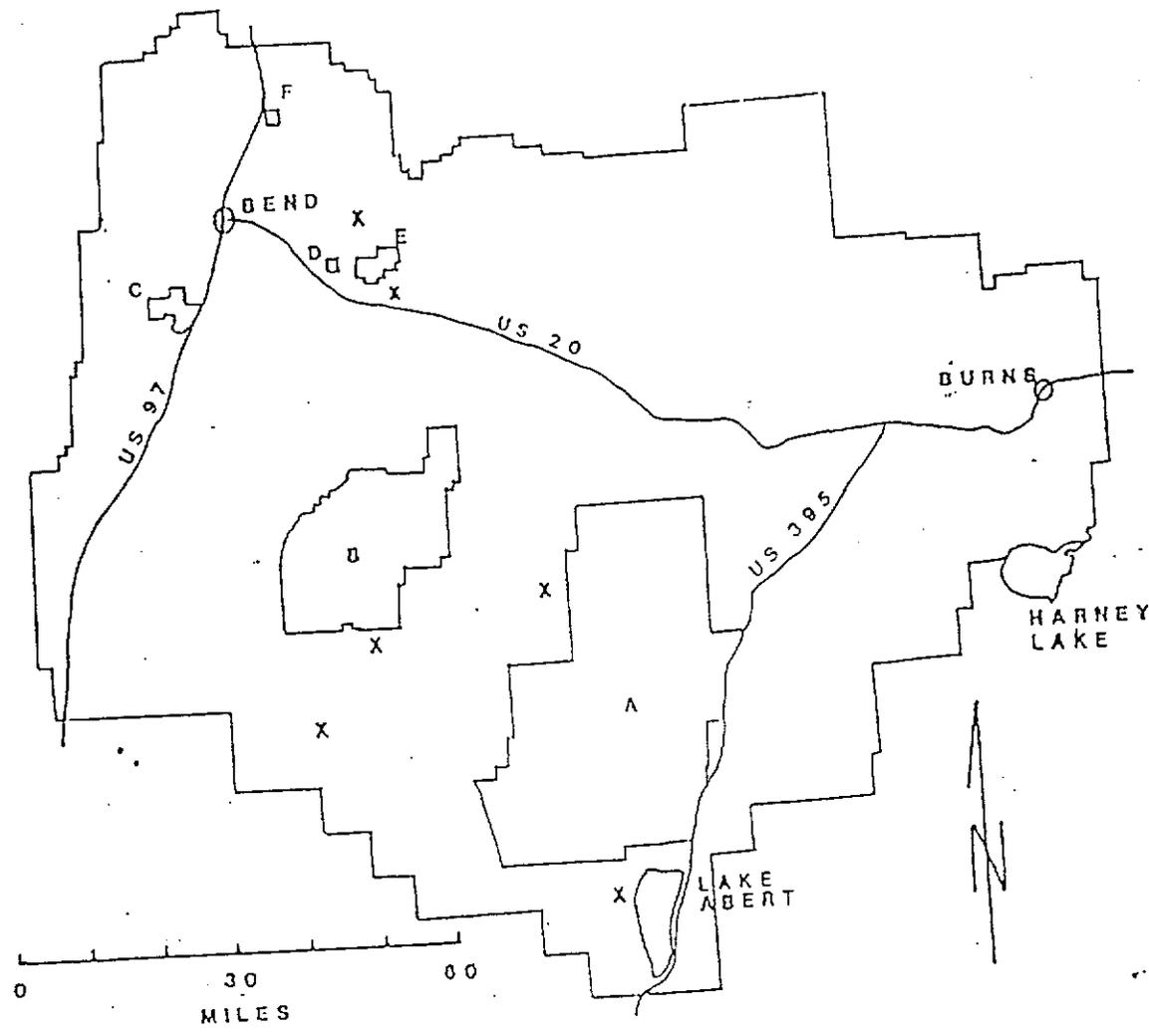
Emergency medical service:

- Bend: (503) 388-5533
- Burns: (503) 573-6028
- Lakeview: (503) 947-2345
- Prineville: (503) 447-4168 [911]
- State Police: 1-800 452-6824
- Huntsville Safety: (205) 955-4968

SSHP reviewed by: GEORGE FLOAN
George Sloan

Encls

- 1. Safety Briefing Attendance
- 2. Safety gear



X Location of Reported Ordnance

- | | | |
|---|---|----------------------|
| A | Central Oregon Air to Air Gunnery Range | Site No. F10OR017000 |
| B | Fort Rock Maneuver Area | Site No. F10OR018000 |
| C | Camp Abbott | Site No. F10OR004100 |
| D | Redmond Precision Bombing Range | Site No. F10OR021900 |
| E | Redmond Air to Ground Gunnery Range | Site No. F10OR021700 |
| F | Redmond Army Airfield | Site No. F10OR002800 |

SITE SURVEY SAFETY BRIEFING

134

PPE

- _____ Work Clothing
- _____ Gloves
- _____ Hardhat
- _____ Hearing protection
- _____ Safety shoes
- _____ Safety glasses

Site Hazards

- _____ OEW
- _____ CSM
- _____ HTW
- _____ Slips, falls, trips
- _____ Wildlife
- _____ Vegetation

Weather Precautions

- _____ Cold/Heat
- _____ Severe Weather

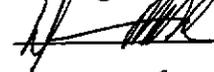
Safety Briefing Attendance

All team members and any accompanying personnel
will be briefed and sign this form:

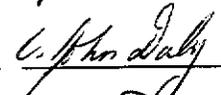
Print name and organization

DENNIS W. GILMORE CELMS-PM-M

Signature



C. John DALY CELMS-PD-AC



James Luebkert CELMS-PD-AC



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SITE SPECIFIC SAFETY AND HEALTH PLAN (SSHP)
OEW/CWM Archives Search Site Inspection Visit
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Jefferson, Deschutes, Crook, Grant, Lake, Harney & Klamath
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- Prineville: (503) 447-4168 [911]
- State Police: 1-800 452-6824
- Huntsville Safety: (205) 955-4968

SSHP reviewed by: Geoffrey Scott
[Signature]

Encls

- 1. Safety Briefing Attendance
- 2. Safety gear

SITE SURVEY SAFETY BRIEFING

PPE	Site Hazards
<input checked="" type="checkbox"/> Work Clothing	<input type="checkbox"/> OEW
<input type="checkbox"/> <u>OTI</u> Gloves	<input type="checkbox"/> CSM
<input type="checkbox"/> Hardhat	<input type="checkbox"/> HTW
<input type="checkbox"/> Hearing protection	<input checked="" type="checkbox"/> Slips, falls, trips
<input checked="" type="checkbox"/> Safety shoes	<input checked="" type="checkbox"/> Wildlife
<input type="checkbox"/> Safety glasses	<input checked="" type="checkbox"/> Vegetation

Weather Precautions

- Cold/Heat
- Severe Weather

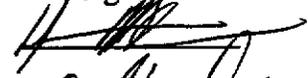
Safety Briefing Attendance

All team members and any accompanying personnel will be briefed and sign this form:

Print name and organization

Signature

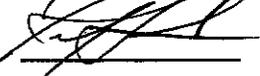
DENNIS W. GILMORE CELMS-PM-M



C. John Daly CELMS PD-AR



Randy Fraser CELMS-PM-M



MICHAEL V. MCCARTER "



MANDATORY MINIMUM SAFETY GEAR

140

First aid kit (individual)	<u>✓</u>
Survival kit	<u>✓</u>
Fire starter	<u>✓</u>
Space blanket	<u>✓</u>
Whistle	<u>✓</u>
Mirror	<u>✓</u>
Cellular phone	<u>✓</u>
Flash light	<u>✓</u>
Survey tape	<u>✓</u>
Canteen	<u>opt</u>

APPENDIX M
REPORT DISTRIBUTION LIST

ORDNANCE AND EXPLOSIVE WASTE
 CHEMICAL WARFARE MATERIALS
 ARCHIVES SEARCH REPORT
 FINDINGS
 NORTHWEST MANEUVER AREA
 Central - South-Central, Oregon

Project No. F10OR020801

APPENDIX M -- REPORT DISTRIBUTION LIST

<u>Addressee</u>	<u>No. Copies</u>
Commander, U.S. Army Engineer Division Huntsville, ATTN: CEHND-ED-SY-A P.O. Box 1600 Huntsville, Alabama 35807-4301	2
Commander, U.S. Army Chemical Materiel Destruction Agency ATTN: SFIL-NSM Bldg E4585 Aberdeen Proving Ground, Maryland 21010-5401	1
Commander, U.S. Army Chemical & Biological Defense Command ATTN: AMSCB-CIH, Bldg E5183 Aberdeen Proving Ground, Maryland 21010-5323	1
U.S. Army Technical Center for Explosives Safety ATTN: SMCAC-ESM Savannah, IL 61074-9639	1
Commander, U.S. Army Engineer District, Portland ATTN: CENPP-PE-DC P.O. Box 2946 Portland, OR 97204-3945	1
CELMS-ED-G	1
CELMS-ED-H	1
CELMS-PD-A	1
CELMS-PM-M	1

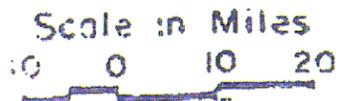
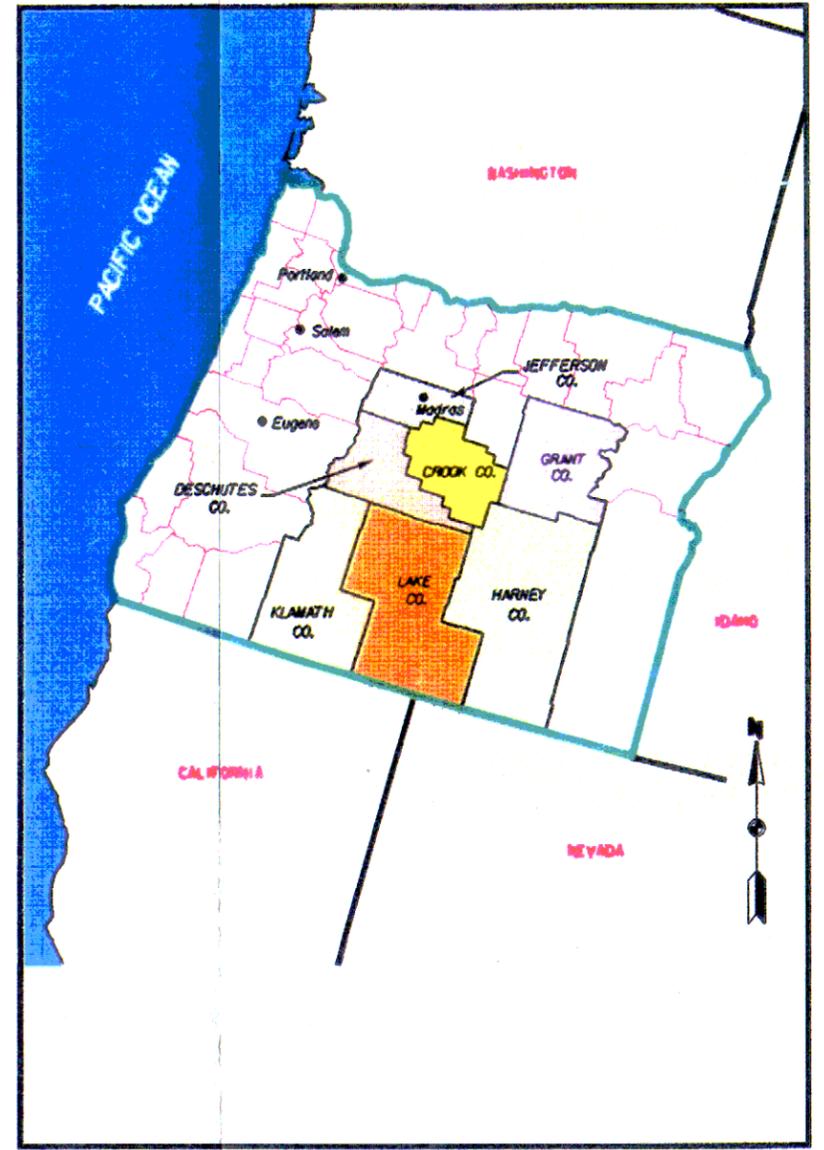
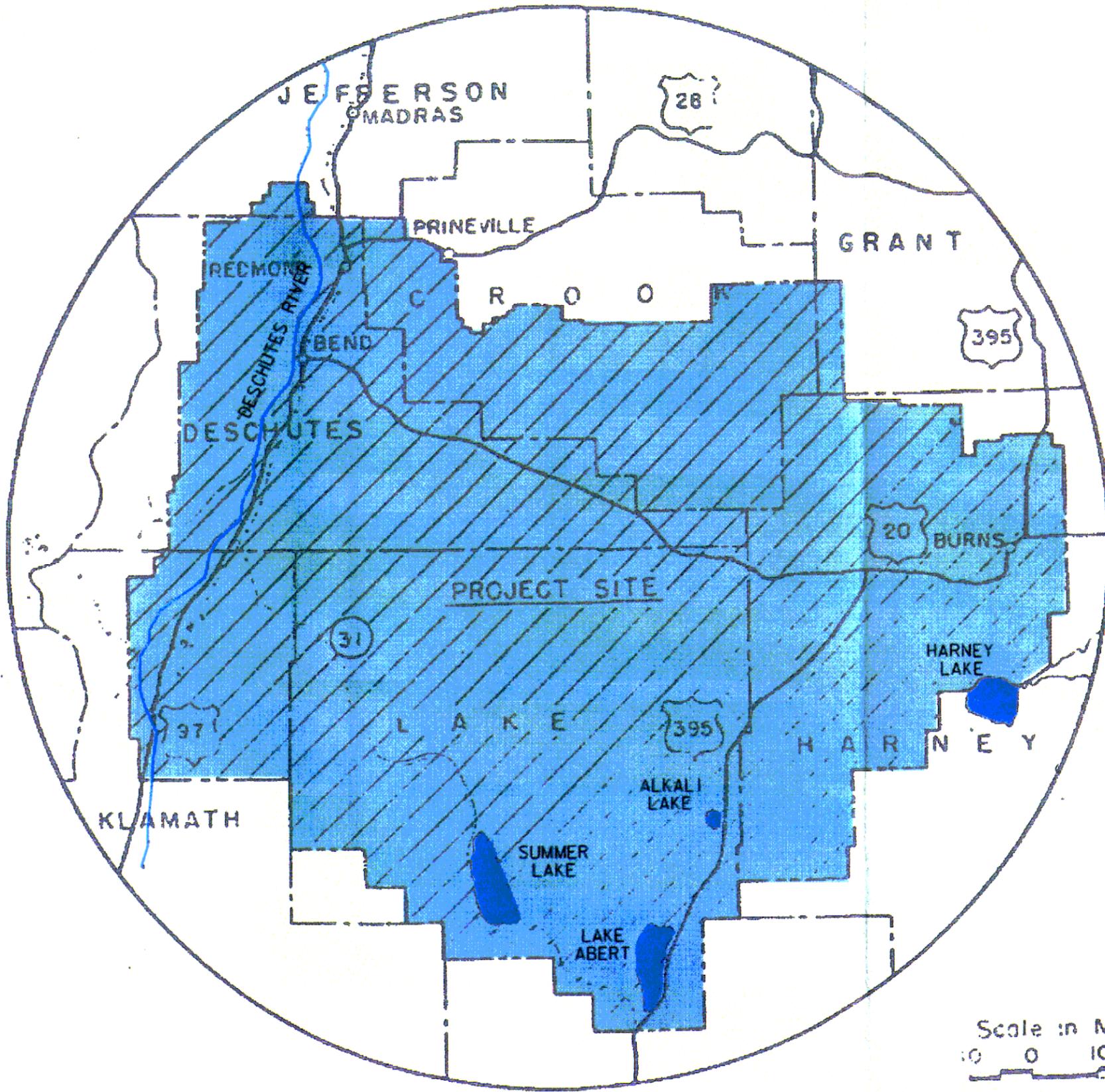
REPORT PLATES

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FINDINGS
NORTHWEST MANEUVER AREA
Central - South-Central, Oregon

Project No. F10OR020801

REPORT PLATES

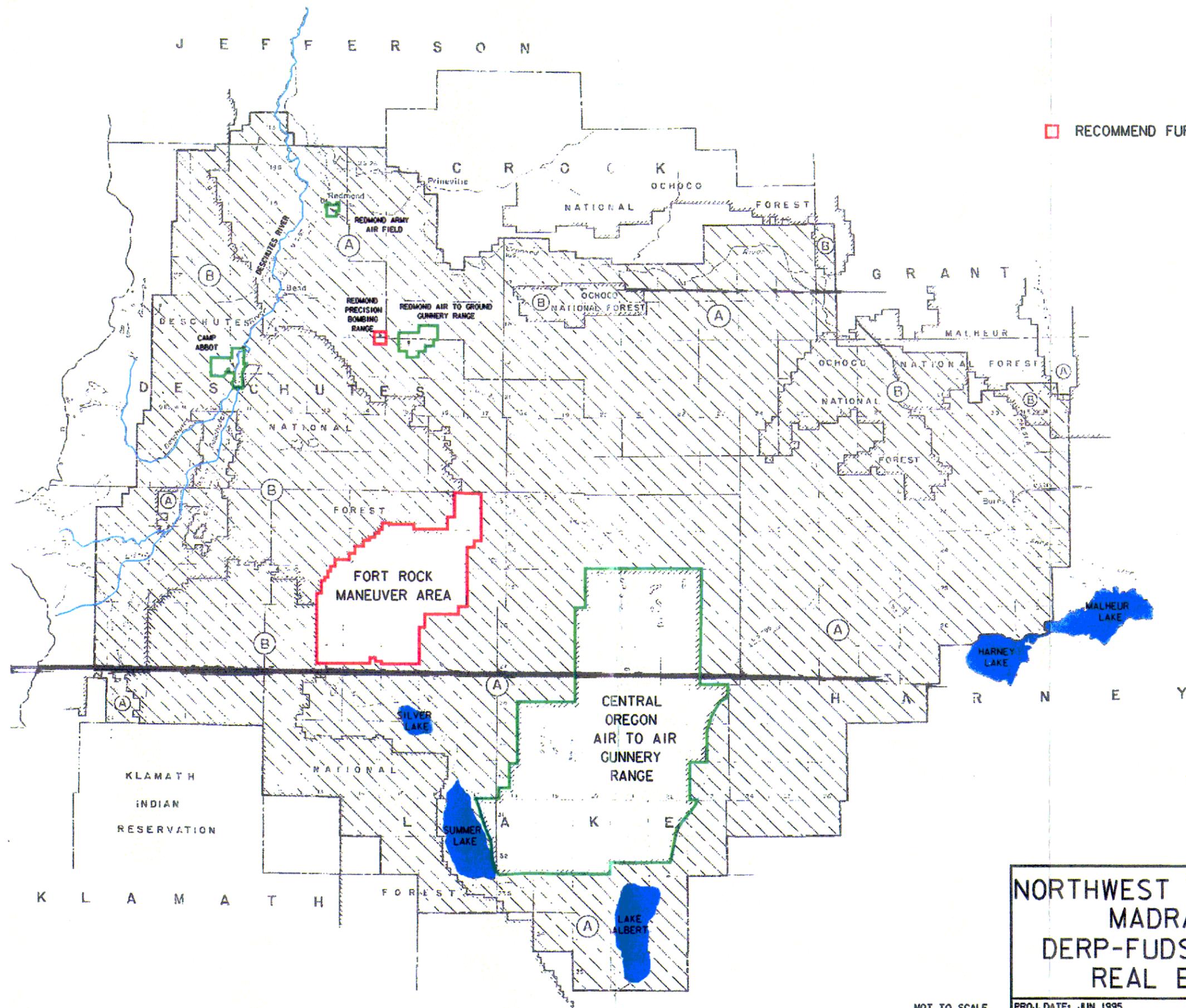
RP-1	Vicinity Map
RP-2	Real Estate Map
RP-3	Findings
RP-4	Maneuver Map
RP-5	Maneuver Map
RP-6	Maneuver Map



RP-1

**NORTHWEST MANEUVER AREA
MADRAS, OREGON
DERP-FUDS# F100R020801
VICINITY MAP**

PROJ. DATE: AUG 1994	DATE OF MAP: 1948
14-JUN-1995 15:13	/N/OEW95C/G22/MAP/0R0208.DGN, NWMANVIC.CIT, H20.CIT



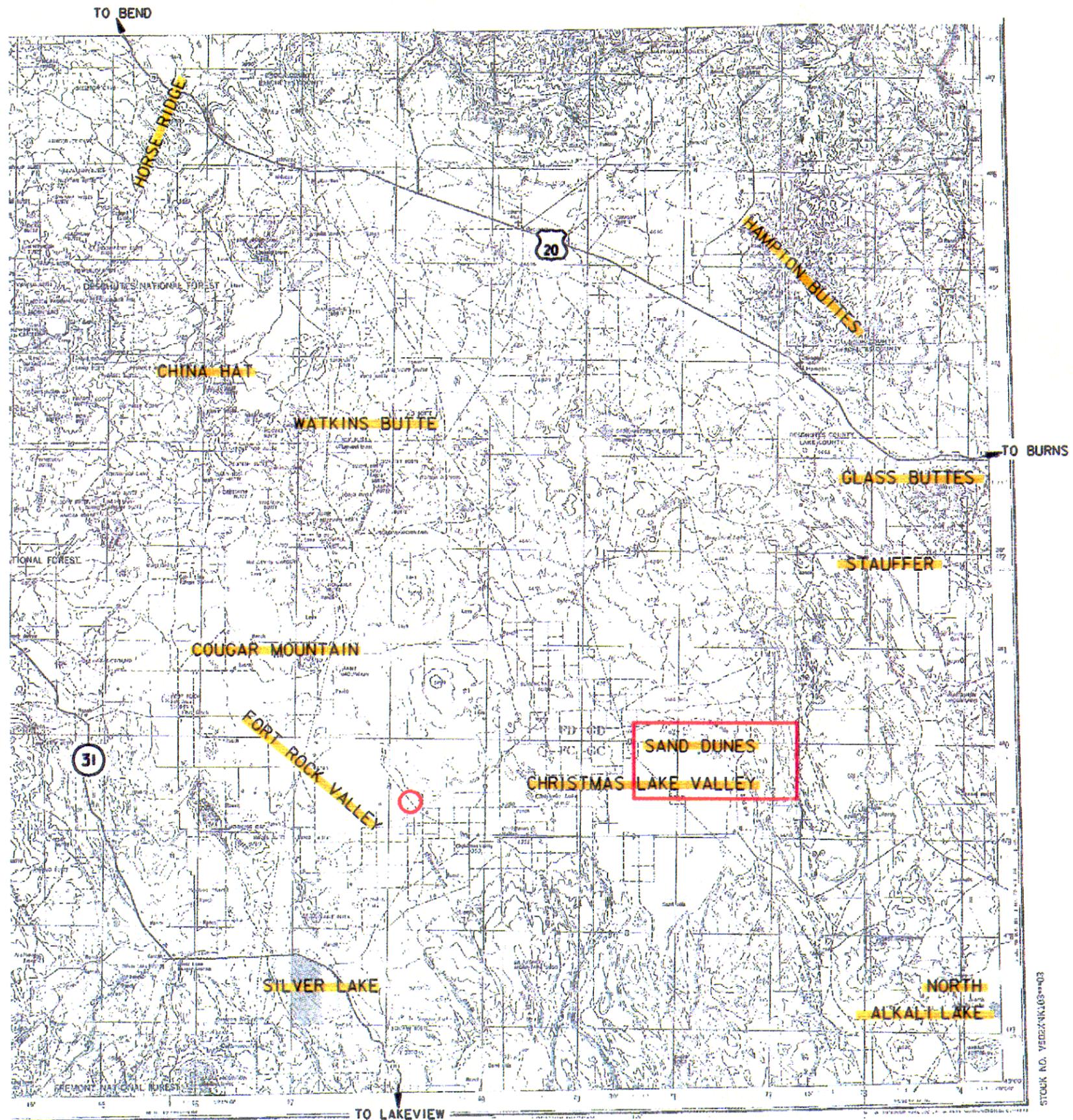
RECOMMEND FURTHER EVALUATION

RP-2

NORTHWEST MANEUVER AREA
 MADRAS, OREGON
 DERP-FUDS# F100R020801
 REAL ESTATE MAP

NOT TO SCALE

PROJ. DATE: JUN 1995	DATE OF MAP: 1948
23-JUN-1995 13:19	/N/OEW95C/G22/MAP/REALEST.DGN & REALEST.H202.CIT



- LOCATION OF ANTITANK MINE
- SAND DUNE AREA



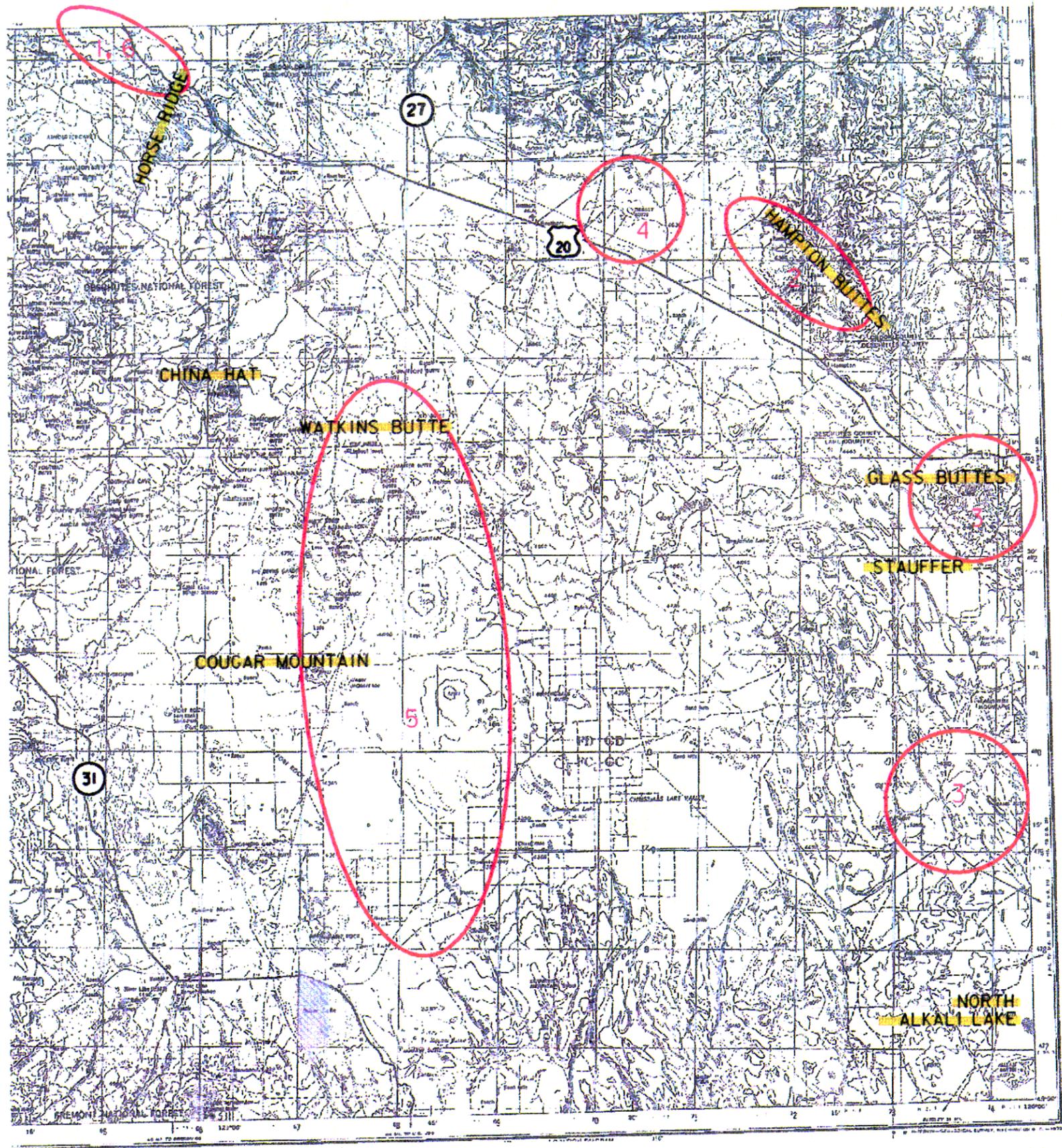
RP-3

NORTHWEST MANEUVER AREA
OREGON
DERP-FUDS # F10OR020801
FINDINGS

NOT TO SCALE

PROJ. DATE: JUNE 1995 21-JUL-1995 12:51	DATE OF QUAD: 1970 (REV.) /h/cew95a/g22/quad/cresent2.dgn
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STOCK NO. V5024NK403-03



The three month exercise was sub-divided into eight separate "problems" for the troops to complete.

Problem #1: The first problem was to seize Horse Ridge, 17 miles east of Bend, Oregon.

Problem #2: The fighting took place on the 6,000 foot slopes of Hampton Buttes, 2 miles north of the Central Oregon Highway. The fighting extended 20 miles south to Yreka Butte.

Problem #3: The two armies moved men into an area approximately 30 miles S.W. of Burns in a rough triangle bounded by Glass Buttes, a highway junction and the hamlet of Wagontire. Also in this problem, was the defense of the grocery store/post office village of Wagontire. The fiercest fighting was being waged along a 20 mile front near Wagontire.

Problem #4: Forces attacked astride the new 57 mile military highway west of Wagontire (Larcey Boulevard) connecting Hwys 395 and 31.

Problem #5: The 104th's objective was to seize Horse Ridge and Bear Creek Buttes. Successive objectives of Seven Mile Ridge, Cougar Mountain, North Table mountain, Squaw Butte and Watkins Butte were seized in the 38 mile advance. The Fort Rock area was also a battle scene as troops moved northward on either side of China Hat Road.

Problem #6: The 104th defended Horse Ridge and Bear Creek Butte.



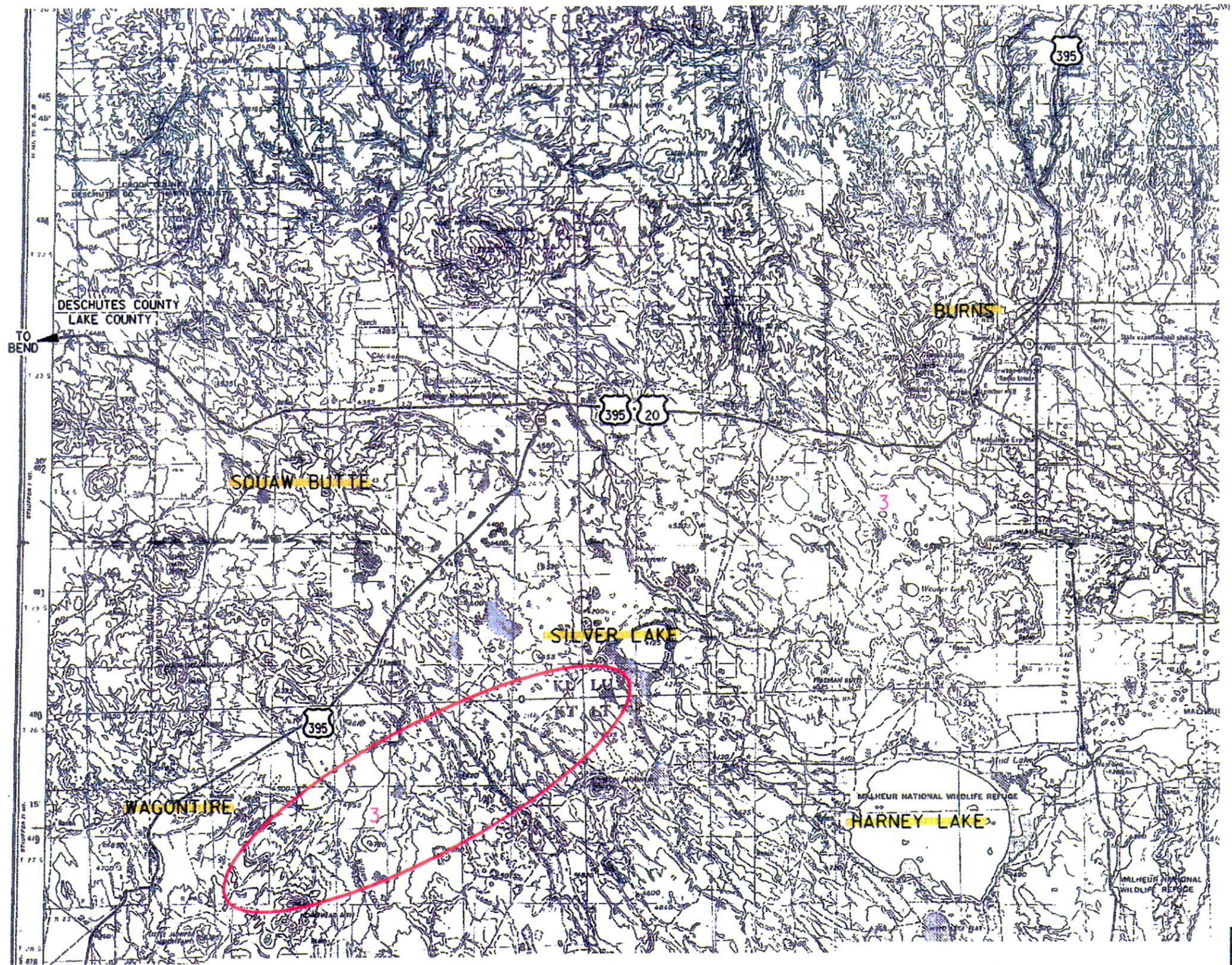
RP-4

NORTHWEST MANEUVER AREA
 OREGON
 DERP-FUDS# F100R020801
 MANEUVER MAP

NOT TO SCALE

PROJ. DATE: JUNE 1995 DATE OF QUAD: 1970 (REV.)
 15-AUG-1995 08:34 /n/oe95c/g22/quod/cresent.dgn

STOCK NO. V602XNK103-03



The three month exercise was sub-divided into eight separate "problems" for the troops to complete.

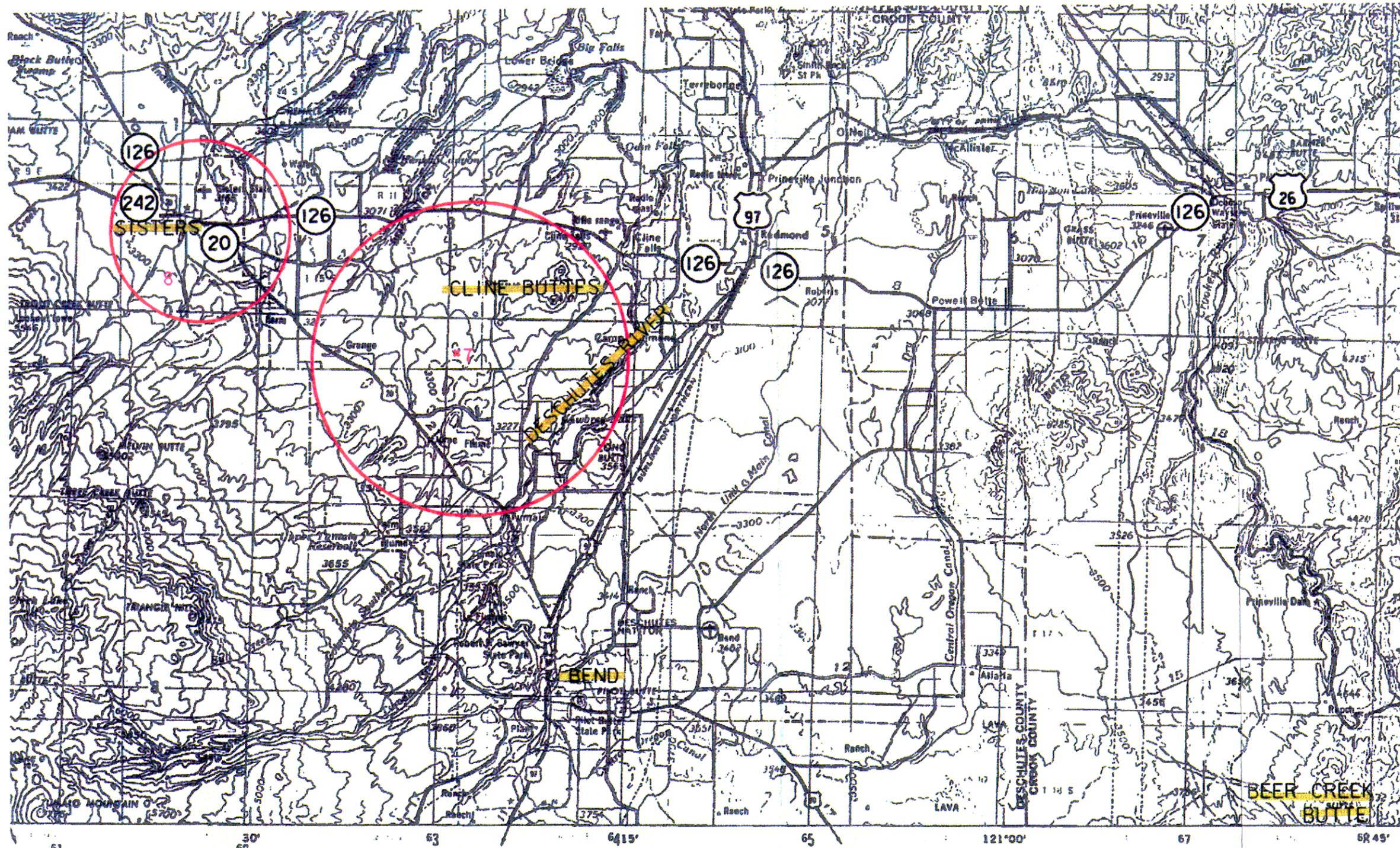
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RP-5

NORTHWEST MANEUVER AREA
 OREGON
 DERP-FUDS# F100R020801
 MANEUVER MAP

NOT TO SCALE

PROJ. DATE: JUNE 1995	DATE OF QUAD: 1970 (REV.)
15-AUG-1995 10:33	/n/oe95c/g22/quod/burn.dgn



RP-6

The three month exercise was sub-divided into eight separate "problems" for the troops to complete.

Problem #7: This problem saw forces crossing the Deschutes River to attack Kline Butte and on to Bend.

Problem #8: The areas included: north of Bend, Sisters, Alfalfa and the Deschutes River.

NORTHWEST MANEUVER AREA
OREGON
DERP-FUDS# F100R020801
MANEUVER MAP

NOT TO SCALE

PROJ. DATE: JUNE 1995

DATE OF QUAD: 1970 (REV.)

15-AUG-1995 10:08

/n/oeW95c/g22/quad/bend.dgn