US Army Corps of Engineers
HUNTSVILLE ENGINEERING AND SUPPORT CENTER

FINAL

Defense Environmental Restoration Program
For
Formerly Used Defense Sites
Ordnance and Explosives

ARCHIVE SEARCH REPORT

FINDINGS

Siskiyou Rocket and Bombing Range

Macdoel, CA
Project Number – J09CA107201

April 2003

Prepared by
US Army Corps of Engineers
ST. LOUIS DISTRICT

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

REPLY TO
ATTENTION OF:

CEHNC-OE-CX (200-1C) 17 April 2003

MEMORANDUM FOR Commander, U.S. Army Engineer District, Saint Louis (CEMVS-PM-M/Mr. Mike Dace), 1222 Spruce Street, Saint Louis, MO 63103-2833

SUBJECT: Results of the Technical Advisory Group (TAG) Review of Archives Search Reports (ASR) and Fact Sheets for Defense Environmental Restoration Program-Formerly Used Defense Sites (DERP-FUDS)

1. The following ASRs and Fact Sheets have been finalized:

PROJECT NUMBER:	SITE NAME:
B07NE005401	Harvard PBR No. 5
J09CA107201	Siskiyou Rocket and Bombing Range
K06AR000400	Camp Chaffee
J08UT110102	Special Weapons Bombing Range No. 1
J09CA705902	Fort Baker
J09CA747801	Klamath Falls Air-to-Air Gunnery Range No. 1 and Associated Targets
J09CA310702	Fort Barry
J09CA733001	Chemehuevi Indian Reservation
J09CA746901	Temecula Bombing Target No. 107
J09CA730601	Condor Field No. 3
J09AZ112601	Tucson Rifle Club
A04MS018502	Mississippi Ordnance Plant
I02PR002701	Puerto Bombing Range (Monito Island)
I04FL112801	Lake Palestine Bomb Target
I02PR098301	Fort Brooke
B08CO001402	Camp Hale
B07NE004801	Grand Island PBR No. 4
I04FL113001	Lake Weir Bomb Target
F10ID014301	Bruneau Precision Bombing Range No. 4
F10WA057901	Ephrata Pattern Bombing Range No 4
F10ID012801	Pocatello Bombing Range No. 3
K06TX001103	Fort Clark
K06TX111201	Navy Auxiliary Field No. 55
K06TX102003	Naval Auxiliary Air Station, Fort Isabel
F10ID012301	Pocatello Bombing Range No. 4
F10AK001702	Fort Learnard
B07NE005301	Harvard PBR No. 3

CEHNC-OE-CX (200-1C) 17 April 2003
SUBJECT: Results of the Technical Advisory Group (TAG) Review of Archives Search Reports (ASR) and Fact Sheets for Defense Environmental Restoration Program-Formerly Used Defense Sites (DERP-FUDS)

Project Number:	Site Name:
I02PR006901	Desecheo Island
I04FL006400	St. George Island Bombing Range

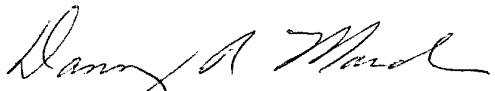
2. Recommended strategy for future actions to be taken by the Project Manager is included in the enclosed fact sheets. Supporting data for TAG decisions are also included with the fact sheets.

3. Fact sheets, supporting data and corrected pages, due to prior reviews, are to be distributed with the subject ASRs.

4. Subject ASRs are recommended to be final when enclosed fact sheets, supporting data and corrected pages are included as a part of the project package.

5. If you have any questions concerning this action, please call me at 256-895-1797, DSN 760-1797, or facsimile 256-895-1798.

FOR THE DIRECTOR OF ORDNANCE AND EXPLOSIVES DIRECTORATE:



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DANNY R. MARDIS
Archive Search Report Manager
for Ordnance and Explosives Directorate

SC

RESTORATION INFORMATION MANAGEMENT SYSTEM
PROJECT FACT SHEET
FORMERLY USED DEFENSE SITES
25 September 2001
TAG REVIEW DATE: 3 MARCH 2003

1. **SITE NAME:** Siskiyou Rocket and Bombing Range

SITE NUMBER: J09CA107200

LOCATION:

City: Macdoel
County: Siskiyou
State: California

PROJECT NUMBER: J09CA107201

CATEGORY: OE

INPR RAC: 4

ASR RAC: 5

TAG RAC: 4

2. **POC'S:**

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ASR TECHNICAL REVIEWER:
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Phone: 918-420-8763

3. **SITE DESCRIPTION:**

Siskiyou Rocket and Bombing Range consisted of between 7,040 to 7,440 acres near Macdoel, CA located in Siskiyou County. The 13th Naval District built Siskiyou Rocket and Bombing Range as part of the range complex for the Naval Air Station (NAS) Klamath Falls (KF), located approximately 23 miles to the north of this target. By 28 May 1945 the Navy had gained use of the area primarily for a rocket target via leases and a permit. Ordnance and explosive (OE) related features of the range consisted of a single target used for practice rockets, practice bombs and air to ground strafing practice.

The Siskiyou Rocket and Bombing Range consisted of a target area: "constructed on a four-foot raised platform approximately one hundred feet in diameter. This is covered with a white cloth in order to make it visible and conspicuous. Radiating for a distance of approximately a mile from the center of the target in two directions is a straight line marked on the ground to assist the pilots in making a straight run on the target. Adjacent to the target is a device that is used to measure the angle of dive for pilots and is equipped with radio device for transmitting to pilots the actual dive angle while approaching the target. Also located at right angles to the target are two buildings that are used to house personnel to measure the accuracy of the hits on the target. The target area itself is completely surrounded by adequate fire breaks in compliance with fire protection and prevention measures deemed necessary for this type of installation."

4. **SITE HISTORY:**

The Navy built **Siskiyou Rocket and Bombing Range** in the 13th Naval District during World War II. The Siskiyou target was directly associated with Naval Air Station (NAS) Klamath Falls (KF), approximately 23 miles to the north. The 13th Naval District originally intended to establish NAS KF as a Naval Auxiliary Air Station (NAAS) under NAS Seattle. It was designed to provide aerial gunnery ranges east of the Cascade Mountains in the winter, when other stations were inhibited by poor weather conditions. It was later upgraded to an NAS due to the difficulties in overseeing such a remote and isolated station. Construction began in November 1943 and the first squadron

arrived three months later. The Navy commissioned the base on 12 February 1944.

NAS Klamath Falls had at least 11 established range activities. Two more were proposed but use agreements were not completed prior to the end of World War II. The creation of the range complex paralleled the development of the NAS KF. The range complex development began with a large air-to-air gunnery range in Oregon and California approved in the fall of 1943. The Navy followed this with an additional air-to-air range in Oregon and Nevada, seven bombing ranges within and contiguous to the first gunnery range, and another separate bombing range. The established NAS KF target ranges at the beginning of 1945 included the following:

- Klamath Falls Air-to-Air Gunnery Range No. 1
- Klamath Falls Air-to-Air Gunnery Range No. 2 (not shown on plate 1)
- Goose Lake Northern Strafing and Low Level Bombing Target
- Goose Lake Southern Strafing and Low Level Bombing Target
- Clear Lake Reservoir Dive Bombing and Strafing Target
- Drew's Reservoir Dive and Glide Bombing Target
- Dog Lake Dive Bombing Target
- Gerber's Reservoir Dive Bombing Target
- Willow Valley Reservoir Dive Bombing Target
- Klamath Falls Navy Dive and Glide Bombing Target at Yonna Valley Alkali Lake

The Navy added the Siskiyou Rocket and Bombing Range to the complex a year later. The Navy's desire to field aerial rockets led to the creation of the Siskiyou target range in 1945 because the intended "tactical warfare training eliminated the joint use of an area for strafing and dive bombing." By 28 May 1945 the Navy had gained use of the area for the rocket target at Siskiyou via leases and a permit. As of August 1945, the Navy expected to use Sub-Caliber Aerial Rockets (SCARs) and anticipated using "actual combat type rockets" in the future. Approved uses for Siskiyou included air-to-ground firing, high and low level bombing and strafing.

The general excess of military establishments following the end of World War II affected NAS KF. In early October the Interdepartmental Air Traffic Control Board (IATCB) canceled the Danger Areas designated for the NAS KF ranges,

including Siskiyou, and the Navy placed the station in caretaker status by 10 October. The 13th Naval District terminated the leases and permits for the Siskiyou target in January and February 1946.

5. **PROJECT DESCRIPTION:**

Size:	7,440 acres
Former Use:	Bomb/Rocket/Strafing Target
Present Use:	Grazing land
Possible End Use:	Same
OE Presence:	Confirmed
Type:	MK15 100-lb sand filled bombs, MK 23 miniature bombs, .50 Caliber, 2.25 inch SCAR, 20mm target practice, 3.5 inch rockets (practice) and 5 inch HVAR (practice)

6. **CURRENT STATUS:** The Archives Search Report for the Siskiyou Rocket and Bombing Range was completed by the U.S. Army Corps of Engineers, St. Louis District in September 2001.

7. **STRATEGY:** EE/CA

8. **ISSUES AND CONCERNS:**

a. The Huntsville Center Technical Advisory Group met and evaluated this ASR on 3 March 2003 and the consensus was RAC 4, EE/CA

b. Based on the investigation of historical records reviewed, the results of the site survey and interviews, there is no evidence of CWM being stored or used at this FUDS.

c. There are known Federally-and State-listed species occurring in the site area. An on-site inspection by the appropriate federal and state personnel may be necessary to verify the presence, absence or location of listed species, or natural communities.

d. The INPR should be amended to reflect 7,440 acres.

9. **SCHEDULE SUMMARY:**

Phase	Original Start	Scheduled Start	Actual Start	Original Complete	Scheduled Complete	Actual Complete
EE/CA						

SL

18 JUNE 1999
Previous Editions Obsolete

RISK ASSESSMENT PROCEDURES FOR
ORDNANCE AND EXPLOSIVE (OE) SITES

Site Name Siskiyou Rocket and Bombing Range
Site Location Macdoel, CA
DERP Project # J09CA107201
Date Completed April 08, 2003

Rater's Name Robert S. Bohannon
Phone No. (256) 426 3411
Organization CEHND-OE-S
Score **4**

OE RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Team (USAESCH-OE) to prioritize the remedial action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) detachment actions, field observations, interviews, and measurements. This information is used to assess the risk involved based on the potential OE hazards identified at the site. The risk assessment is composed of two factors, **hazard severity** and **hazard probability**. Personnel involved in visits to potential OE sites should view the USAESCH-OE 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, Bursters	6
	Bombs, Practice (w/spotting charges)	**6**
	Grenades, Practice (w/spotting charges)	4
	Landmines, Practice (w/spotting charges)	4
	Small Arms, complete (.22 cal - .50 cal)	**1**
	Small Arms, Expended	0
	Practice ordnance (wo/spotting charges)	0

Conventional Ordnance and Ammunition (Select the largest single value) **6**

What evidence do you have regarding conventional UXO?
The site visit team found evidence of 100lb practice bombs, 2.25-inch SCAR rockets and miniature practice bombs.

B. Pyrotechnics (For munitions not described above.)

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

Pyrotechnics (Select the largest single value) **0**

What evidence do you have regarding pyrotechnics?
None.

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

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

High Explosives (Select the largest single value) **0**

What evidence do you have regarding bulk explosives? **None.**

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

uncontainerized)

	VALUE
Solid or Liquid Propellants	6
Propellants	**0**

What evidence do you have regarding bulk propellants? **None.**

E. Chemical Warfare Material and Radiological Weapons

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

What evidence do you have of chemical/radiological OE? **None.**

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TOTAL HAZARD SEVERITY VALUE **6**
(Sum of Largest Values for A through E--Maximum of 61)
Apply this value to Table 1 to determine Hazard Severity Category.

TABLE 1

HAZARD SEVERITY*

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

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

**If Hazard Severity Value is 0, you do not need to complete Part II of this form. Proceed to Part III and use a RAC Score of 5 to determine your appropriate action.

Part II. Hazard Probability. The probability that a hazard has been or will be created due to the presence and other rated factors of unexploded ordnance or explosive materials on a formerly used Department of Defense (DoD) site.

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

A. Locations of OE 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) **5**

What evidence do you have regarding location of OE? **See Part I**

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

	VALUE
Less than 1250 feet	5
1250 feet to 0.5 miles	4
0.5 miles to 1.0 mile	3
1.0 mile to 2.0 miles	2
Over 2 miles	**1**

Distance (Select the single largest value) **1**

What are the nearest inhabited structures/buildings?

C. Number of buildings within a 2 mile radius measured from the OE 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) **0**

Narrative **None.**

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

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

Types of Buildings (Select the largest single value)

Describe types of buildings in the area.
None.

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	0

roadway access to the facility)

Accessibility (Select the single largest value) **3**

Describe the site accessibility. **Rangeland with fencing to control livestock.**

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 accessability.

	VALUE
Expected	5
None Anticipated	**0**

Site Dynamics (Select largest value) **0**

Describe the site dynamics.

Little or no construction is expected in this area.

TOTAL HAZARD PROBABILITY VALUE
(Sum of Largest Values for A through F--Maximum of 30)

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

TABLE 2

HAZARD PROBABILITY

Description	Level	Hazard Probability Value
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	**D**	**8 to 14**
IMPROBABLE	E	less than 8

*** Apply Hazard Probability Level to Table 3.**

Part III. Risk Assessment. The risk assessment value for this site is determined using the following Table 3. Enter with the results of the hazard probability and hazard severity values.

TABLE 3

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

RISK ASSESSMENT CODE (RAC)

RAC 1 Expedite INPR, recommending further action by USAESCH - Immediately call USAESCH-OE-S (commercial 256-895-1582/1598)

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

RAC 3 Complete INPR - Recommend further action by USAESCH.

RAC 4 Complete INPR - Recommend further action by USAESCH.

RAC 5 Usually indicates that No DOD Action Indicated (NDAI) is necessary. Submit NDAI and RAC to USAESCH.

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Part IV. Narrative. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that you made. **Practice bombs (100lb and AN-MK 23 bombs and other evidence of OE were found during the site visit.**

ARCHIVE SEARCH REPORT
TABLE OF CONTENTS

REPORT PLATES

1 INTRODUCTION

1.1 AUTHORITY

In 1986, Congress established the Defense Environmental Restoration Program (DERP) at 10 United State Code (USC) 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 Environmental Protection Agency (EPA) issued a revised National Contingency Plan (NCP). Under 40 Code of Federal Regulations (CFR) 300.120, EPA designated the Department of Defense (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 acts as the agency responsible for environmental restoration at Formerly Used Defense Sites (FUDS). Beginning in 1990, the U.S. Army Engineering and Support Center, Huntsville (USAESCH) serves as the Center of Expertise (CX) and Design Center for Ordnance and Explosives. In cooperation with the USAESCH, the U.S. Army Corps of Engineers, St. Louis District, prepares Archives Search Reports (ASR) in support of environmental restoration at active DOD installations, Formerly Used Defense Sites (FUDS) and installation transitions under Base Realignment and Closure (BRAC) recommendations.

1.2 SUBJECT

Siskiyou Rocket and Bombing Range consisted of between 7,040 to 7,440 acres near Macdoel, CA located in Siskiyou County. The 13th Naval District built Siskiyou Rocket and Bombing Range as part of the range complex for the Naval Air Station (NAS) Klamath Falls (KF), located approximately 23 miles to the north of this target. By 28 May 1945 the Navy had gained use of the area primarily for a rocket target via leases and a permit. Ordnance and explosive (OE) and chemical warfare material (CWM) related features of the range consisted of a single target used for practice rockets, practice bombs and air to ground strafing practice. Following the end of World War II, the Navy placed the NAS KF in caretaker status by 10 October and removed the Danger Area designation around all the ranges. The 13th Naval District terminated the leases and permits for the Siskiyou target in January and February 1946. Plate 1 in the report plates section shows the general location of the NAS KF and its Vicinity Ranges and Facilities. Plate 2 shows the general location of the site.

1.3 PURPOSE

The ASR compiles information obtained through historical research at various archives and records holding facilities, interviews with persons associated with Siskiyou Rocket

and Bombing Range and an inspection of the site. The search directs efforts towards determining possible use or disposal of OE and CWM on the former military establishment. The research places particular emphasis on establishing the types, quantities and areas of use and disposal. This process obtains information for use in developing recommendations for further action at the former Siskiyou Rocket and Bombing Range.

1.4 SCOPE

This investigation focuses on potential OE and/or CWM contamination remaining on the former Siskiyou Rocket and Bombing Range. The DERP-FUDS project number is J09CA107201. This report presents the following:

- A brief history of Siskiyou Rocket and Bombing Range
- Description and characteristics of the immediate surrounding area
- A review of related site investigations
- An aerial photography and map analysis of the site
- Real estate information, past and present
- Findings of the site inspection
- Description of the OE and/or CWM identified with the site

These factors represent the basis for the evaluation of potential OE and CWM contamination and associated risks at Siskiyou Rocket and Bombing Range.

2 PREVIOUS SITE INVESTIGATIONS

2.1 CORPS OF ENGINEERS DOCUMENTS

The Sacramento District of the Corps of Engineers prepared the following investigations in support of the DERP for FUDS:

> *Inventory Project Report Siskiyou Bombing Range, Siskiyou County, CA, FUDS Site No. J09CA1072*, September 1999.[1]

The Inventory Project Report (INPR) assigned a Risk Assessment Code (RAC) of 4 for the OE/CWM portion of this site. See Appendix D-1 for this report. The INPR identified only OE/CWM as a potential hazard at the former Siskiyou Rocket and Bombing Range.

2.2 OTHER REPORTS

The archive search did not locate any additional environmental investigations or reports concerning Siskiyou Rocket and Bombing Range.

3 SITE DESCRIPTION

3.1 LAND USE

3.1.1 Location

Siskiyou Rocket and Bombing Range consisted of between 7,040 to 7,440 acres in Siskiyou County in California (see Plate 2). The target center lies approximately five miles north of Macdoel, CA.

3.1.2 Prior Site Use

Prior to the Navy's operation of Siskiyou Rocket and Bombing Range, predominate use of the land was for marginal agricultural or was undeveloped.

3.1.3 Present Site Use

The land for the former Siskiyou Rocket and Bombing Range remains undeveloped grasslands managed by the Klamath National Forest, Goosenest Ranger District.

3.2 CLIMATIC DATA

Climatological data for this site came from two different stations. Temperature, precipitation and maximum wind gust data was provided by the National Weather Service (NWS) station located in Medford, Oregon, approximately 45 miles northwest of the site and the Mount Hebron Ranger Station approximately 5 miles southeast of the site.

Table 3.2 1 - Climatological Data For Medford, OR

Month	Temperature		Precipitation	Wind	
	Average Minimum (^{o}F)	Average Maximum (^{o}F)	Average (Inches)	Average Speed Miles/Hour	Average Direction
January	30	46	2.9	4	N
February	32	53	2.1	5	N
March	35	58	1.8	6	NW
April	38	65	1.1	7	NW
May	43	73	1.2	7	NW
June	50	81	0.7	7	NW
July	54	90	0.3	8	WNW
August	54	89	0.4	7	WNW
September	48	83	0.7	7	WNW
October	40	69	1.6	5	S

Table 3.2 1 - Climatological Data For Medford, OR					
Month	**Temperature**		**Precipitation**	**Wind**	
	Average Minimum (^{o}F)	**Average Maximum (^{o}F)**	**Average (Inches)**	**Average Speed Miles/Hour**	**Average Direction**
November	35	53	2.8	5	N
December	31	45	3.3	5	N
Average	41	67	19	6	NW

Table 3.2.2 - Climatological Data For Mount Hebron Ranger Station, CA					
Month	**Temperature**		**Precipitation**	**Wind**	
	Average Minimum (^{o}F)	**Average Maximum (^{o}F)**	**Average (Inches)**	**Average Speed Miles/Hour**	**Average Direction**
January	15.5	39.1	1.34	-	-
February	19.0	45.4	1.18	-	-
March	23.2	50.4	1.01	-	-
April	26.0	58.8	0.74	-	-
May	32.3	65.6	1.01	-	-
June	38.4	73.6	0.93	-	-
July	42.6	83.0	0.36	-	-
August	40.7	82.0	0.48	-	-
September	34.6	76.0	0.60	-	-
October	27.1	64.1	0.87	-	-
November	21.3	50.4	1.54	-	-
December	16.0	40.2	1.71	-	-
Average	28.1	60.7	11.76	-	-

Medford has a moderate climate of marked seasonal characteristics. The late fall, winter, and early spring months are damp, cloudy, and cool under the influence of marine air. Late spring, summer, and early fall are warm, dry, and sunny, due to the prevailing dry winds.

The rain shadow afforded by the Siskiyou and Coast Range results in a relatively light annual rainfall, most of which falls during the winter season, November through February. Summertime rainfall is brought by thunderstorm activity. Snowfall is quite heavy in the surrounding mountains during the winter. Valley snowfall is light, seldom lasting more than 24 hours.

Few extremes of temperature occur. High temperatures in the summer months average slightly below 90 degrees. High temperatures are always accompanied by low humidity, and hot days give way to cool nights as cool air drains down the mountain slopes into the

valley. The length of the growing season is 170 days, from late April to mid-October. The last date of 32° F in the spring normally occurs in mid-June and the first date of 32° F in the fall occurs in mid-September.

Valley winds are usually very light, prevailing from the north or northwest much of the year. Winds exceeding 10 mph during the winter months nearly always come from the southerly quadrant. The highest velocities are reached when a well developed storm off the northern California coast causes a foehn or chinook wind off of the Siskiyou Mountains to the south. When this happens winds speeds up to 50 mph are common, and gusts to 70 mph have been recorded occasionally. Summer thunderstorms produce gusty winds to 40 or 50 mph, which may come from any direction.

Fog often fills the lower portion of the valley during the winter and early spring months, when rapid clearing of the sky after a storm allows nocturnal cooling of the entrapped, moist air to the saturation point. Duration of the fog is seldom more than three days. Geographical and meteorological conditions contribute to a smoke problem during the fall, winter and early spring months. Smoke, from local sources, occasionally reduces visibility to 1 to 3 miles under stable conditions.[2]

3.3 GEOLOGY AND SOILS

3.3.1 Geology and Physiology

The former Siskiyou target lies just northwest of Sheep Mountain, within the Sierra-Cascade physiographic province, Southern Cascade section. Sheep Mountain reaches an elevation just over 6,200 feet. The Southern Cascades Range consists of a line of volcanoes with valleys, sags, and basins between them. All of the volcanoes present are considered very young. Many of the rocks on their surfaces are only a few hundred years old.

The Siskiyou site is relatively flat at an elevation of 4,235 feet in the middle of Butte valley. Butte Valley is one of the dropped fault blocks of the Modoc Plateau. In this valley, older volcanic rocks, mostly basalt, that were erupted before development of the Cascade volcanoes, form the bedrock.

Butte Valley once contained a lake and is now underlain by lake sediments, mostly clays. The lake existed during the last ice age, when the climate was much wetter. All that remains, now that the climate has been much drier for several thousand years, is a marshy area called Meiss Lake that has no outlet and fluctuates in size from year to year. The northeast portion of Meiss Lake is included within the southwest portion of the FUDS.[3]

3.3.2 Soil

The types of soils within the site area are deep and well drained, which formed in volcanic ash. Soils formed in volcanic ash overlying extrusive igneous rock, and soils formed from

coarse to moderately coarse textured glacial outwash derived from extrusive igneous rock and ash. The surface layer and subsoil are silty clay. The substrata are typically gravelly, sandy, silty clay. Soils formed from outwash typically have a greater amount of gravel throughout their surface and substratum. Reaction is strongly acid to medium acid and slow to moderately permeability. The hazard of water runoff is very low.[4]

3.4 HYDROLOGY

3.4.1 Surface Water

The site area is within the arid region of the United States, which makes it vulnerable chiefly to droughts of several years in duration. Warm dry soils with a mean annual soil temperature of higher than approximately 47 degrees F predominate the area where the site is located. The United States Geological Survey (USGS) estimates the average runoff for this area at about 10 inches. The average depth of frost penetration is about 5 inches with an extreme penetration of about 8 inches.

The prevalent concentration of dissolved minerals in the surface water is less than 100 parts per million (ppm). The prevalent chemicals in the river water are calcium magnesium bicarbonate; total dissolved solids are less than 720 ppm. This data is provided by the USGS and is based on chemical analysis of water in streams during low flow, when the water is derived chiefly from ground water.

The Siskiyou Rocket and Bombing Range site is located within the Butte watershed, which consists of about 903 square miles. There is insufficient data to determine an Index Watershed Indicator (IWI) score for the Butte watershed. An IWI score describes the overall health of the aquatic resources for the watershed.

The site is in the Butte Valley just east of Meiss Lake. The site area is flat with an elevation range between a high of about 4250 feet National Geodetic Vertical Datum (NGVD) to a low of about 4230 feet NGVD. The surface water of the site area flows west into Butte Valley and Meiss Lake.

The Butte watershed is a closed watershed in that the valley and various lakes, including Meiss Lake, catch and collect all the surface water of the area that is not evaporated or seeped underground in route. Many of the lakes are dry and only hold water when runoff from rainfall occurs. Aqueducts and wells are used extensively throughout the area for irrigation.

There are no streams within the site area. The USGS has some stream flow data on a couple creeks close to the site area. A peak flow on Horsethief Creek near Macdoel, California (USGS 11489350) of 78 cubic feet per second (cfs) was measured on January 31, 1963. The gage height for this flow was 5.29 feet. The period of record for this stream gage was 1963-1973, with a drainage area of 9.98 square miles. A peak flow of

238 cfs was measured on Butte Creek near Macdoel, California (USGS 11490500) on June 7, 1952. The period of record for this stream gage was 1952-1960, with a drainage area of 178 square miles. No gage height is available.

Flooding will occur at the site area from heavy localized rainfall. High water from Meiss Creek due to runoff from heavy rains within the basin will also cause flooding within the site area.[5]

3.4.2 Ground Water

Throughout much of the region, the high permeability of the surface rocks, typical of basaltic terranes, results in a nearly complete lack of surface drainage. The underlying rocks are commonly much less permeable, and the rocks of the Cascade Range constitute a barrier to the westward movement of the ground water. This results in a water table that ranges in altitude from about 4,000 to 4,100 feet throughout much of the Modoc Plateau region.[6]

3.5 ECOLOGY

The U.S. Fish and Wildlife Service (USFWS) have indicated that the following Federally listed threatened or endangered species may inhabit on or near Siskiyou Rocket and Bombing Range.

Table 3.5 - Federally Listed Threatened Or Endangered Species

Species Common Name	**Scientific Name**	**Status**
bald eagle	*Haliaeetus leucocephalus*	(T)
marbled murrelet	*Brachyramphus marmoratus*	(T) (CH)
northern spotted owl	*Strix occidentalis caurina*	(T) (CH)
Lost River sucker	*Deltistes luxatus*	(E) (PCH)
Southern Oregon/Northern California Coho salmon ESU	*Oncorhynchus kisutch*	(T) (CH)
shortnose sucker	*Chasmistes brevirostris*	(E) (PCH)
Winter-run chinook salmon	*Oncorhynchus tshawytsha*	(E) (CH)
Central Valley steelhead	*Oncorhynchus mykiss*	(T) (CH)
Central Valley spring-run chinook salmon	*Oncorhynchus tshawytsha*	(T) (CH)
CA coastal chinook salmon	*Oncorhynchus tshawytsha*	(T) (CH)
Sacramento splittail	*Pogonichthys macrolepidotus*	(T)
Delta smelt	*Hypomesus transpacificus*	(T) (CH)
California red-legged frog	*Rana aurora draytonii*	(T)
Shasta crayfish	*Pacifastacus fortis*	(E)

Table 3.5 - Federally Listed Threatened Or Endangered Species		
Species Common Name	**Scientific Name**	**Status**
slender Orcutt grass	*Orcuttia tenuis*	(T)
Yreka phlox	*Phlox hirsuta*	(E)
Applegate's milkvetch	*Astragalus applegatei*	(E)
Central Valley fall-run chinook salmon	*Oncorhynchus tshawytsha*	(C)
Oregon spotted frog	*Rana pretiosa*	(C)
Mardon skipper (butterfly)	*Polites mardon*	(C)

Key to Federal Threatened, Endangered, Proposed, and Candidate Species: (E) - Endangered, (T) – Threatened, (P) – Proposed, (C) - Candidate, (CH) - Critical Habitat, (PCH) - Proposed Critical Habitat, (PT) – Proposed Threatened, (PE) - Proposed Endangered.

In addition to the Federally listed, proposed, and candidate species, the area may be considered to be a rare or unusual ecosystem in that it hosts a large population of bald eagles (*Haliaeetus leucocephalus*), golden eagles (*Aquila chrysaetos*), Swainson's hawks (*Buteo swainsoni*), and other raptors. This area is in the Butte Valley National Grassland, which is administered by the Klamath National Forest and contains a salt shrub community, which is rare for this area.

The USFWS recommends that botanical surveys of the area be completed if remedial action is taken at Siskiyou, since very little is known about the distribution of three listed species. These species include Yreka phlox (*Phlox hirsuta*), slender Orcutt grass (*Orcuttia tenuis*), and Applegate's milkvetch (*Astragalus applegatei*). None of which are currently known in the Butte Valley. Areas that these species are currently found are as follows:

- Yreka phlox is currently only known in a few locations near Yreka, California. Areas it is found in consist of serpentine soils in association with Jeffrey pine (*Pinus jeffreyi*), incense cedar (*Calocedrus decurrens*), and junipers (*Juniperus sp.*).
- Slender Orcutt grass is associated with vernal pools.
- Applegate's milkvetch is currently only found in Klamath County, Oregon. It is associated with strongly alkaline soils (pH of 7.9 - 9.6). The closest known population to the Range is located near Warden, Oregon just north of Butte Valley.

The State of California was not contacted for information on this site. If a project does occur at this site, the state should be consulted for the presence of any state listed species in the area.

Federally endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the USFWS. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency must enter into a section 7 conference with the USFWS. Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, the USFWS recommends that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.[7]

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

3.6.1 Centers of Activity[8]

The Siskiyou Rocket and Bombing Range site is located near the city of Yreka in Siskiyou County, California.

3.6.2 Business and Industry Profile

The number of business establishments in Siskiyou County, California can be broken down by type as follows: manufacturing 6.3%; trade 30.8%; services and financial 39.9%; and other 21.5%. Of the people in the county employed by businesses, approximately 1.5% are unclassified. Foregoing percentages are at mid-March 1997.

3.6.3 Population density

City/County	**Area (Sq. Mi.)**	**Population**	**Population Density (Per Sq. Mi.)**
Yreka	9.0	6,948	768.3
Siskiyou	6,287.3	43,531	6.9

3.6.4 Types of Housing

Housing in Yreka is composed of both single family and multi-family dwellings. The median value of 1,561 specified owner-occupied housing units is $66,600.

3.6.5 New Development in the Area

New development in the area is both commercial and residential.

3.6.6 Typical Cross Sections of the Population

Yreka	Percentages
White	93.7
Black	0.5
American Indian, Eskimo or Aleut	4.7
Asian or Pacific Islander	0.6
Other	5.0
Hispanic origin	3.4
Population under the age of 18	26.3
Population over the age of 65	18.9

Median age is 36.5

4 SITE HISTORY

4.1 HISTORICAL SITE SUMMARY

4.1.1 General Site History

The Navy built **Siskiyou Rocket and Bombing Range**[i] in the 13th Naval District during World War II. The Siskiyou target was directly associated with Naval Air Station (NAS) Klamath Falls (KF), approximately 23 miles to the north.[9] The 13th Naval District originally intended to establish NAS KF as a Naval Auxiliary Air Station (NAAS) under NAS Seattle. It was designed to provide aerial gunnery ranges east of the Cascade Mountains in the winter, when other stations were inhibited by poor weather conditions. It was later upgraded to an NAS due to the difficulties in overseeing such a remote and isolated station. Construction began in November 1943 and the first squadron arrived three months later. The Navy commissioned the base on 12 February 1944.[10]

NAS Klamath Falls had at least 11 established range activities. Two more were proposed but use agreements were not completed prior to the end of World War II. The creation of the range complex paralleled the development of the NAS KF. The range complex development began with a large air-to-air gunnery range in Oregon and California approved in the fall of 1943. The Navy followed this with an additional air-to-air range in Oregon and Nevada, seven bombing ranges within and contiguous to the first gunnery range, and another separate bombing range. The established NAS KF target ranges at the beginning of 1945 included the following (see Plate 1):

- Klamath Falls Air-to-Air Gunnery Range No. 1[ii]
- Klamath Falls Air-to-Air Gunnery Range No. 2 (not shown on plate 1)
- Goose Lake Northern Strafing and Low Level Bombing Target
- Goose Lake Southern Strafing and Low Level Bombing Target
- Clear Lake Reservoir Dive Bombing and Strafing Target
- Drew's Reservoir Dive and Glide Bombing Target
- Dog Lake Dive Bombing Target
- Gerber's Reservoir Dive Bombing Target

[i] The Siskiyou Rocket and Bombing Range was also known as **Macdoel Practice Gunnery Range**, **Rocket Range Siskiyou National Forest**, and **Practice Rocket Range NAS Klamath Falls**. Additionally, it was often referred to by its vicinity to **Butte Valley** and the town of **Dorris**.

[ii] The Saint Louis District is concurrently preparing an ASR on Klamath Falls Air to Air Gunnery Range No. 1 and the bombing targets within and contiguous to it. The associated project number is JO9CA7478.

- Willow Valley Reservoir Dive Bombing Target
- Klamath Falls Navy Dive and Glide Bombing Target at Yonna Valley Alkali Lake

The Navy added the Siskiyou Rocket and Bombing Range to the complex a year later. The Navy's desire to field aerial rockets led to the creation of the Siskiyou target range in 1945 because the intended "tactical warfare training eliminate[d] the joint use of an area for strafing and dive bombing."[11] By 28 May 1945 the Navy had gained use of the area for the rocket target at Siskiyou via leases and a permit. As of August 1945, the Navy expected to use Sub-Caliber Aerial Rockets (SCARs) and anticipated using "actual combat type rockets" in the future.[12] Approved uses for Siskiyou included air-to-ground firing, high and low level bombing and strafing.[13]

The Siskiyou Rocket and Bombing Range consisted of a target area:

> "constructed on a four-foot raised platform approximately one hundred feet in diameter. This is covered with a white cloth in order to make it visible and conspicuous. Radiating for a distance of approximately a mile from the center of the target in two directions is a straight line marked on the ground to assist the pilots in making a straight run on the target. Adjacent to the target is a device that is used to measure the angle of dive for pilots and is equipped with radio device for transmitting to pilots the actual dive angle while approaching the target. Also located at right angles to the target are two buildings that are used to house personnel to measure the accuracy of the hits on the target. The target area itself is completely surrounded by adequate fire breaks in compliance with fire protection and prevention measures deemed necessary for this type of installation."[14]

The general excess of military establishments following the end of World War II affected NAS KF. In early October the Interdepartmental Air Traffic Control Board (IATCB) canceled the Danger Areas designated for the NAS KF ranges, including Siskiyou, and the Navy placed the station in caretaker status by 10 October. The 13th Naval District terminated the leases and permits for the Siskiyou target in January and February 1946.[15]

4.1.2 Summary of Ordnance and Explosives Activities

An investigation of historical records did not specifically indicate the types and quantities of ordnance used on site by the NAS KF. Based on the Navy's described use of the Siskiyou target, the expected types of OE include small arms, practice rockets and practice bombs. The most common type of practice rocket in general use by the Navy at the time was the 2.25 inch SCAR (Sub-Caliber Aerial Rocket). Other types of Naval rockets in use at the time included the 3.5-inch AR (Aircraft Rocket) and the 5.0-inch aircraft high velocity aerial rocket (HVAR). The expected practice bombs would include the three types of typical Miniature Practice Bombs of the period; the iron, zinc or lead AN-MK 5 MOD 1, AN-MK 23 and AN-MK 43. The use of other types of practice bombs, such as the typical 100-pound practice sand or water filled bombs (e.g. Navy MK VII or XV) was also expected.

The ASR site visit confirmed use of the 2.25 inch SCARs, Miniature Practice Bombs, 100-pound practice sand or water filled bombs and .50 caliber small arms based on OE debris found on site. The Klamath National Forrest Goosenest Ranger District Office provided the ASR team with photographs of OE debris found in the past at the target by their archeologists. The items included in the photos were: two inert tips for 2.25-inch SCARs, three 50 caliber machine gun belt links, a .50 caliber cartridge and projectile, a 20 mm solid-jacket projectile with a non-explosive warhead. In addition to these items, the INPR site visit team reported finding debris from a 500-pound practice bomb, but examination of the OE debris by the ASR team did not confirm this assessment. [16]

NAS Klamath Falls maintained small arms, pyrotechnic magazines and inert storage facilities. The use of high explosive (HE) bombs at Siskiyou was not confirmed by any evidence. However, a map dated 30 June 1945, shows that there was an HE Magazine storage facility at NAS KF. The HE magazine building is marked on the map but was not included in the map's list of structures.[17] Aerial photography interpretation noted apparent dimpling or cratering, possibly from HE, within the target center but the site visit did not confirm the presence of craters at this location. The grassland specialist with the Klamath National Forrest who reviewed the imagery thought dimpling was a natural feature.

4.1.3 Summary of Chemical Warfare Material Activities

The archive search uncovered no documentation relating to CWM at Siskiyou Rocket and Bombing Range. The archive search team found no indication that the Navy conducted CWM training, storage or disposal at this site.

4.1.4 Certificates of Clearance

The archive search did not reveal any certificates of ordnance clearance, decontamination or dedudding associated with Siskiyou Rocket and Bombing Range.

4.2 REVIEW OF HISTORICAL RECORDS

Appendix A contains full references of all in text citations along with the location of the copied document. The research team searched at the following locations for records relating to OE and CWM activities at Siskiyou Rocket and Bombing Range. At these repositories the research team used finding aids and records managers to assist in locating documents relevant to the research topic. The ASR team also accumulated complementary documents reviewed on Siskiyou Rocket and Bombing Range but not specifically used. These complementary documents are stored with the original ASR documents. Appendix H lists additional repositories and personnel contacted which reported no pertinent information.

4.2.1 National Archives at College Park, Textual Records
8601 Adelphi Road
College Park, MD 20740
POC: Rich Boylan
301-713-6800

Record Group 16 (Records of the Office of the Secretary of the Agriculture)
Entry 17 General Correspondence of the Office of the Secretary, 1906-1970
Boxes 1542, 1570, 1652, 1653 & 2232
Entry 176 Records Concerning the Federal Real Estate Board, 1939-1942
Boxes 1-3

Record Group 38 (Records of the Office of the Chief of Naval Operations)
Entry Intelligence Records of Inactive Naval Stations, 1941-45 (former Acc. 38-93-001)
Box 75

Record Group 48 (Records of the Office of the Secretary of the Interior)
Entry 749B, Central Classified Files 1937-52
Box 3222 (2-68)

Record Group 71 (Records of the Bureau of Yards and Docks)
Entry 18, Location of Naval Activities, October 1944 & June 1945
Box 1

Entry 24 (former Acc 3305) Unprocessed Naval Property Case Files, 1940s
Boxes 16, 21 & 33-34

Entry 74A, Misc. Records, Plans Charts of Harbors Naval Bases and Airfields, 1938-54
Boxes 1-6

Entry 1001, Naval Property Case Files 1941-1958
Boxes 62, 161, 997-1001, 1015, 1399-1420, 1513-1516 & 1521

Entry 1008, Correspondence Relating to Inter-Federal Agency Transfer of Facilities to and From Navy Department, 1944-46
Boxes 1-2

Entry 1016, Navy Land Acquisition Report of the Real Estate Division 1 July 1940-31 Dec. 1943
Boxes 1-4

Entry 1017, Land Purchase Progress Reports 1942-45
Box 1, Land Purchase Progress Reports 1942 - 1945

Entry 1019, Misc. Reports and other Records Regarding Land Investigations
Boxes 1-4

Entry 1030, Report of Army Facilities Acquired in 1944
Box 1

Entry 1031 Correspondence with Naval Districts, 1947-48
Boxes 9 & 14

Entry 1037, Lease Files, 1941-47
Boxes 1, 4-5, 8, 10 & 12

Record Group 72 (Records of the Bureau of Aeronautics)
Entry 62B, General Correspondence, 1943-45
Boxes 1-5, 91, 883-884, 2437, 2808-2814, 2817-2819, 2828-2829, 2858, 2864-2865, 3075,3382-3383, 3414-3415 & 3461-3462

Entry 67, Formerly Confidential Correspondence, 1922-44
Boxes 8, 10, 37-50, 286, 291, 1004, 1077-1079, 1083-1086, 1161-1163 & 1179

Entry 67A Confidential General Correspondence, 1945
Boxes 8, 282-286, 291, 304, 309 & 312

Entry 75A, Formerly Secret Correspondence 1939-47
Boxes 1, 55-57, 59 & 344-345

Entry 171, Histories of BuAer, 1941 – 1947
Boxes 1-6

Entry 195, Division Histories World War II
Boxes 1-22

Entry 253, Index to Central Correspondence 1946-52
Boxes 1-8

Entry 254, Index to Secret Correspondence 1942
Boxes 1-2

Entry 1021, Records Relating to Inactive Air Stations (Real Estate Files)
Box 12

Entry 1025, Research and Development Master Plans 1946-48
Box 28

Record Group 77 (Records of the Office of the Chief of Engineers)
Entry 433 Project and Geographic Files (Old Accession 77-52A-0259)
Boxes 53-54

Entry 435, Geographic and Project Files (Former 77-53A-0325), Construction Files from 1949-50
Box 38

Entry 1011, Security Classified Subject Files 1941-45 (Geographic File)
Boxes 41-45 & 589-591

Entry 1021, Records Relating to Inactive Air Stations (Real Estate Files) 1943-1959
Boxes 2 and 3 (California)

Entry 1023, General Correspondence Relating to Airfields and Related Facilities, 1940-45
Boxes 16 through 58, Decimals 600 through 686

Entry 171, Histories of BuAer, 1941 – 1947
Boxes 1-6

Entry 1021, Records Relating to Inactive Air Stations (Real Estate Files)
Boxes 2-3 California

Record Group 107 (Records of the Office of the Secretary of War)
Entry 211, Establishment of Airfields and Air Bases, 1940-1945
Boxes 203-205

Record Group 127 (Records of the Marine Corps)
Entry 18A, Office of the Commandant, General Correspondence 1939 – 1950
Boxes 210-211

Entry 18B Office of the Commandant General Correspondence, 1939-1950
Box 231

Entry 1011, World War II Subject File
Boxes 4, 30-31 & 42

Record Group 237 (Records of the Federal Aviation Administration)
Entry 37, Minutes of the IATCB, 1941-46
Boxes 1-4

4.2.2 National Archives at College Park, Cartographic & Architectural Branch
8601 Adelphi Road
College Park, MD 20740
POC: Henry Gwiazda, RG 71
301-713-7040
POC: Sam Welch

Record Group 23 (Records of the U.S. Coast and Geodetic Survey); filed under Record Group 370 (Records of the National Oceanic and Atmospheric Administration
Entry Sectional Aeronautical Charts – Klamath Falls
Folders 1 and 2
Entry Sectional Aeronautical Charts – Mt Shasta
Folders 1 and 2

The research team reviewed the Military Posts Finding Aids, identifying the following items:

Record Group 71 (Records of the Bureau of Yards and Docks)
Entry Index Cards Bureau of Yards and Docks Drawings
Station 1347 Klamath Falls
Entry Microfilm Reels Series #2
Reels 802, 812 & 1445

4.2.3 National Archives at College Park, Still Pictures Branch
8601 Adelphi Road
College Park, MD 20740
POC: Reference Desk
301-713-6795

Record Group 80 (General Records of the Department of the Navy)
File Card index with 4 categories:
1941-1945
Subjects: Goose Lake, Klamath Falls, Lakeview, Modoc, &Siskiyou

4.2.4 National Archives and Records Administration - Pacific Alaska Region
6125 Sand Point Way NE
Seattle, Washington 98115-7999
POC: Susan Karen
206-526-6501

The research team reviewed the finding aids for the following record groups and reviewed selected items of interest as noted:

Record Group 22 (Records of the Fish and Wildlife Service)
- Entry Wildlife Refuges 1930-45
  - Box 5, CA
  - Box 13, Clear Lake Bird Refuge
- Entry: Wildlife Refuges, 1946-1950
  - Box 1, Ammunition
  - Box 5, CA - ID
  - Box 7, Clear Lake Bird Refuge,

Record Group 71 (Records of the Bureau of Yards and Docks)
- Entry: Real Property Case Files, 1962 - 1970
  - Box 1, Klamath Falls NAS
  - Box 2, Klamath Falls NAS-Klamath Falls Gunnery Range #1
  - Box 3, Klamath Falls Gunnery Range #1-Klamath Falls Gunnery Range #2
  - Box 4, Klamath Falls Gunnery Range #2-Klamath Falls Gunnery Range #1
  - Box 5, Klamath Falls Gunnery Range #1-Marine Recup. Barracks
  - Box 37 Utilization of Navy Real Estate
  - Box 52, Strafing and Bombing Range Pasco, & Lakeview Airport
  - Box 54, NAAS Quillayute – Port Angeles (practice rocket range Coos City, OR
  - Box 57, Curry County Community Airport-Parcel #4, Matt Boylan (NAS Pasco targets)
  - Box 58, Parcel #5, Arnold Falk-Shelton Supply Depot (NAS Pasco targets)
  - Box 60, Tacoma-13th Naval District Aerial Gunnery Targets
  - Box 138, Lake Hancock Target Range-Housing Survey

Record Group 181 (Records Of Naval Districts And Shore Establishments)
- Entry 2, Commandant's Office General Files, 1941-49
  - Boxes 1-2
- Entry 3, Commandant's Office Regular Navy Office, 1942-43
  - Boxes 6, 104 & 161-162
- Entry 4, Commandant, 13th Naval District Correspondence Files, 1947-49
  - Boxes 13-14
- Entry 5, Commandant, Correspondence Files, 1947-49
  - Box 7
- Entry 7, Commandants Misc. Administrative Files, 1944-46
  - Boxes 1, 46-50, 54, 55, 74, 110-113, 129, 140, 150 & 158-160
- Entry 8, Commandants Administrative Files, 1944-46
  - Boxes 4 & 15-16
- Entry 27, District Operations Subject Files, 1942-45
  - Boxes 1, 8, 12 & 22

Entry 32, District Operation Office, Central Subject, 1943-44
Box 3
Entry 34, Operations Assistant's Chief of Staff, General Correspondence, 1942-49
Box 9
Entry 35, District Operation Office, Central Subject, 1945
Box 35
Entry 36, District Operation Office, Central Subject, 1945
Box 3
Entry 60, Naval Station Seattle Administrative Files, 1948-52
Boxes 1-2
Entry 115, Commandant's Office Classified Central Subject Files, 1947-49
Box 1
Entry 13ND-3, Commandant's Office Central Subject Files 1944-49
Boxes 10 & 27
Entry 51-4911-15 (1944)
Boxes 6 & 7
Entry 60A-288
Box 1
Entry 60A-369
Box 1 (folder on NAS has info on reusing Klamath AGR #2)
Entry Director of Training 1943-44 Unclassified
Boxes 11 & 14
Entry Wartime Histories of Units in the 13th Naval District
Box 3, History of Naval Air Bases 13th ND, NAS Klamath Falls
Box 4 NAS Whidbey Island

The research team reviewed the following records in the faculty vault:

Record Group 181 (Records Of Naval Districts And Shore Establishments)
Entry 60A-582, Public Works Office, Classified
Box 1
Entry 63B-613, Commander Air Bases 1944
Box 1

Record Group 270 (Records Of The War Assets Administration)
Entry: Real Property Case Files
Boxes 139-143, Klamath Falls NAS, OR
Boxes 144-145, Lakeview NAAF, OR
Boxes 577-578, Miscellaneous Oversize, ID, OR, WA

Record Group 291 (Records of the Federal Property Resources Service)
Entry: Real Property Case Files, 1959 - 1966
Box 22, MT – OR

The research team also reviewed the finding aids for the following records groups but found nothing of interest:
Record Group 77 (Records of the Office of the Chief of Engineers)
Record Group 95 (Records of the US Forest Service)
Record Group 103 (Records Of the Farm Credit Administration)

4.2.5 Federal Records Center- Pacific Alaska Region
6125 Sand Point Way NE
Seattle, Washington 98115-7999
POC: Steve Ourada
206-526-6501

The research team reviewed the master 01 listings for the following records groups but found nothing of interest, with one exception:
Record Group 71 (Records of the Bureau of Yards and Docks)
Record Group 72 (Records of the Bureau of Aeronautics)
Record Group 77 (Records of the Office of the Chief of Engineers)
Record Group 175 (Records of the Office of the Chemical Warfare Service)
Record Group 181 (Records of the Naval Districts and Shore Establishments)
Record Group 338 (Records of U. S. Army Commands, 1942-)

Accession 181-87-0135
Box 62 of 70

4.2.6 Naval Aviation History Center
Building 157-1, Washington Navy Yard
Washington, D.C. 20374-5059
POC: Mark Evans
202-433-4355

Naval Aviation History Files, Aviation Command 1941 - 1952
Box Klamath Falls – Kodiak (Klamath Falls NAS, Lakeview NAS)
Box San Juan – Seattle (Santa Rosa NAAS)

4.2.7 Naval History Center Library
Building 44, Washington Navy Yard
Washington, D.C. 20374-5059
POC: Reference Librarian
202-433-4132

The research team reviewed: VG 93.A.35 1944, Summary Report on Facilities, Naval Shore Establishments, 1944.

4.2.8 Naval History Center Photographic Archive
Building 44, Washington Navy Yard
Washington, D.C. 20374-5059
POC: Jack Green, Archivist
202-433-2765

The research team reviewed: Historical Photograph Files

4.2.9 **Naval Engineering Field Activity- Northwest**
Naval Engineering Facilities Command
19917 7th AVE. NE
Poulsbo, WA 98370-7570
POC: Jerry Tomeo, Cadastral Section, Engineering Tech
360-396-0906
Mona Randel, records manager
360-396-0209
www.efanw.navfac.navy.mil

The research team reviewed the holdings for Oregon and Nevada and the historical drawers for the 13th Naval District in the Cadastral Section, copying one general map. They also reviewed the SF 135s with the records manager, responsible for sending material to the FRC and NARA. The records manager provided the team access to the 105mm microfiche cards of the map and drawings, which they reviewed in general and specifically for Klamath Falls, Fallon, and 13th Naval District General. There was no historical information of value to the FUDS investigations in those files.

4.2.10 U.S. Air Force Historical Research Agency
USAFHRA\HO
600 Chennault Circle
Maxwell AFB, AL 36112-6424
POC: Archie Difante
334-953-2447

U.S. Army Corps of Engineer Records

Box 02026880-02026932 (Kitsap-Klamath)
Box 02026933-02026973 (Klamath-Knollwood)
Box 02027591-02027624 (Lakeland-Lakeview)

4.2.11 U.S. Army Corps of Engineers Seattle District
CENWS-PM-HW
4735 East Marginal Way South
Seattle, WA 98134-2385
POC: Jonathon Maas, DERP-FUDS project manager
206-764-6745
POC: Grady May
206-764-6189
POC: Dave Rowden, program manager
206-764-3448

The research team discussed the information for the bombing and gunnery ranges associated with NAS Klamath Falls and Lakeview looking to share information and coordinate identification of the sites and future work on them.

4.2.12 U.S. Army Corps of Engineers - Sacramento District
Real Estate Division
1325 J St., 13th Floor
Sacramento, CA 95814-2922
POC: Lucille (Lucy) Ono, Cadastral Section
916-557-5312

The research team reviewed the final audit files in Cadastral Section's secure area and on microfiche for the subject sites, finding no information on these specific projects. Additionally, the team reviewed the back-up materials for the subject audits and the military and disposal map drawers for the above mentioned sites. They also reviewed the post-audit files kept in a separate location. A duplicate copy of the section's backup microfiche of the described folders is also held in the offsite temporary recordings holding area.

4.2.13 U.S. Army Corps of Engineers - Sacramento District
Information Management Division, Records Management
1325 J St., 9th Floor
Sacramento, CA 95814-2922
POC: Pam Ammo
916-557-7079

The research team reviewed the Record Locator SF 135s for the Sacramento District's temporary Records Holding Area (currently Capital Records Management, formerly Bryte Yard Records Holding Area):

Real Estate Division Management and Disposal Branch
Real Estate Division Acquisition Branch
Real Estate Division Planning and Control Branch

4.2.14 U.S. Army Corps of Engineers - Sacramento District
Engineering Division, Geotechnical and Surveys Branch
1325 J St., 11th Floor
Sacramento, CA 95814-2922
POC: Julie Dickinson
916-557-7151

The research team reviewed the index cards for military survey books and aerial photographs in the Survey Section File Room (1101) but found no pertinent information relating to the subject sites.

4.2.15 U.S. Army Corps of Engineers - Sacramento District
Engineering Division, DERP-FUDS
1325 J St., 12th Floor
Sacramento, CA 95814-2922
POC: Gerald Vincent, Program Manager
916-557-7452
POC: James P. McAlister
916-557-7401

The research team reviewed the INPRs for the following sites to see how they related to the subject sites:

J09CA1072	Siskiyou Bombing Target
J09CA7478	Modoc Aerial Gunnery & Bombing Area

4.2.16 U.S. Army Corps of Engineers - Sacramento District
Engineering Division, Military Design Branch
Engineering, Technology and Specification Section
CADD Management and Archives Unit
1325 J St., 10th Floor
Sacramento, CA 95814-2922
POC: Raymond Dennis
916-557-7244

The research team visited the Engineering Division's Map Files room. Sacramento is the military Design District for California, Utah, Nevada and Arizona (LA District has retained the Construction mission since the late 1960's). Sacramento had the Design mission for Washington, Oregon, Idaho and Montana before it was transferred to Seattle. Old LA District design files have been archived on 105mm film, while Sacramento District files are on 35mm film aperture cards. The research team reviewed notebooks on:

Installation Names: Each installation has been given a unique three-digit number. Drawings are created in sequential order. They have a database of all the drawings they created. We received a print out.
FRC (Military-DAs and Topos)
Transfers (Sacramento to Various Military Agencies #1 and #2)

Note: The following three repositories were consulted for aerial imagery of the site. Yellow shading indicates that historical imagery was actually acquired for use in aerial photography interpretation analysis.

4.2.17 National Archives at College Park, Cartographic & Architectural Branch
8601 Adelphi Road
College Park, MD 20740
POC: Henry Gwiazda, RG 71
301-713-7040

The research team also consulted *Aerial Photographs in the National Archives-Special List 25*, dated 1990, for available imagery from:
Record Group 57 (Records of the U.S. Geological Survey)
Record Group 95 (Records of the U.S. Forest Service)
Record Group 114 (Records of the Soil Conservation Service)
Record Group 145 (Records of the Agriculture Stabilization and Conservation Service)
Using the indexes, the following imagery was available for acquisition:

The research team also consulted the aerial photo coverage overlays in Record Group 373 (Records of the U.S. Defense Intelligence Agency) for imagery at 1:40,000 scale or better covering the area. They pulled the index sheets for N41 W120, N41 W121.

Date	RG 373 Box	Scale	Old Can	New Can	IM/NUS#	Frames	Frame Quantity
29 Oct 61	705	1:31,000		ON005769	10199216	G 13025 83 to 85	3

4.2.18 U.S. Department of Agriculture - Aerial Photography Field Office
2222 W 2300 S
Salt Lake City, Utah 84119-2020
POC: Sharon McGiff
801-975-3503

CEMVS-ED-S tasked a Contractor to perform an initial search of available imagery for Siskiyou County, CA. The imagery which covered the site includes:

Year	Program	Scale	Film Type	Frames	Frame Quantity
2 August 1955	FSA	1:20,000	B/W	DDC-5P-112 to 117; DDC-7P-9 to 14, 102 to 107	18
1964	FSA	1:20,000	B/W	DDC-22DD-64 to 69, 92 to 97, 120 to 125.	18
1971	FSA	1:20,000	B/W	DDC-6MM-109 to 115, 137 to 143, 147 to 152	20
1979	FSA	1:40,000	B/W	06093-179-189 to 192, 222 to 225	8
1989	NAPP1	1:40,000	CIR	1250-60 to 63; 1292-10 to 13	8
1993	NAPP2	1:40,000	B/W	6223-42 to 45 6254-24 to 27	8
27 August & 13 September 1998	NAPP3	1:40,000	B/W	10508-29 to 32 10487-16 to 19	8

4.2.19 U.S. Geological Survey - EROS Data Center
Sioux Falls, South Dakota 57198
POC: Kimberly Kringen
605-594-6151 ext. 2075

The research team did not review specific photo-mosaics of available imagery for the Siskyou sites. Specific indices are noted below.

Year	Scale	Entity ID	Film Type	Indexes	Frame Quantity
7/14/48	1:27,230	ARDC1ECA000900234	B/W		
7/14/48	1:27,230	ARDC1ECA000900241	B/W		
9/4/84	1:24,000	ARDC1VFHDCO690373	COLOR		
6/22/84	1:24,000	ARDC1VFHDCO690379	COLOR		
9/1/84	1:24,000	ARDC1VFHDCO690436	COLOR		
6/30/85	1:24,000	ARDC1VFHPCO690980	COLOR		
6/30/85	1:24,000	ARDC1VFHPCO690981	COLOR		
6/30/85	1:24,000	ARDC1VFHPCO690982	COLOR		
6/30/85	1:24,000	ARDC1VFHPCO690984	COLOR		
6/30/85	1:24,000	ARDC1VFHPCO690985	COLOR		
6/30/85	1:24,000	ARDC1VFHPCO690986	COLOR		
6/30/85	1:24,000	ARDC1VFHPCO690988	COLOR		
6/29/85	1:24,000	ARDC1VFHPCO690989	COLOR		
6/29/85	1:24,000	ARDC1VFHPCO690990	COLOR		

Year	Scale	Entity ID	Film Type	Indexes	Frame Quantity
6/29/85	1:24,000	ARDC1VFHPCO690992	COLOR		
6/29/85	1:24,000	ARDC1VFHPCO690993	COLOR		
6/29/85	1:24,000	ARDC1VFHPCO690994	COLOR		
6/29/85	1:24,000	ARDC1VFHPCO690996	COLOR		
6/29/85	1:24,000	ARDC1VFHPCO690997	COLOR		
6/29/85	1:24,000	ARDC1VFHPCO690998	COLOR		

CEMVS-ED-S tasked a Contractor to perform an initial search of available imagery for Siskiyou County, CA. The imagery which covered the site include.

Year	Scale	Entity ID	Film Type	Frames	Frame Quantity
7/9/48	1:27,230	CS-ECA	B/W	2-83 to 87 2-88 to 91	9
7/30/51		GS-PM	B/W	1-4 to 7	4
6/1/80	1:20,000	VEYPC	B/W	1-121 to 124 1-136 to 140 1-183 to 187 1-248 to 253	20

4.3 SUMMARY OF INTERVIEWS

The archive search team conducted telephone and personal interviews to assist in the collection of information for this report. Appendix H lists interviewees and copies of pertinent individual conversation records. Contact with local law enforcement hazardous device squads and military Explosive Ordnance Disposal (EOD) units resulted in negative incident reports of OE or CWM in this area. All interviewees recalled no past incidents involving OE or CWM.

4.4 AIR PHOTO INTERPRETATION AND MAP ANALYSIS

4.4.1 Map Analysis

The archive search located 2 relevant site specific maps for the Siskiyou Rocket and Bombing Range, though they present similar information. These maps helped to identify the owners of the land used for the target area as well as a portion of land the Navy may have presumed they owned. The paragraphs below discuss the relevant information retrieved from the reviewed historical map, included in Appendix K. The maps contained in Appendix K are printed on 11i by 17-inch paper for reproduction. Full sized copies remains in the ASR backup files.

Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California
10 April 1945
Appendix K-1[18]

Land Ownership Proposed Rocket Range Siskiyou County, California, U.S. Naval Air Station Klamath Falls Oregon
6 February 1945
Appendix K-2[19]

These two real estate maps are extremely similar and show the proposed boundary lines for the Siskiyou target. It appears that the later map may have been copied from the earlier one. The proposed site consisted of a polygon 3 sections wide by 3 & ½ sections high (about 10 & ½ sections or 6,720 acres), with an additional triangle (with a concave NW side) located south of a road in the northeastern most corner. The curvilinear triangular portion appears to be roughly 9/16 of a section or 360 acres for a total of approximately 7,080 acres. There are several discrepancies with this representation, the available textual real estate descriptions, and the location of the road. Most of the disagreements are centered on the northeast triangular addition, as the use and acquisition of the lower 10 & ½ sections is apparent.

The estimated acreage is about 40 acres more than the number of acres acquired by lease and permit. None of the acquired real estate documents describe the road as a boundary, rather they rely on rectangular and triangular land descriptions, even though the road is shown as an arc on the map. The problem is that the road is depicted incorrectly, as confirmed by contemporary and current aerial photography. There is no curvilinear road present. The road is a straight-line heading diagonally NW from the center of section 19 bisecting section 17 of T47N, R1W. If the road is the boundary, the triangular area covered should be about 720 acres for a total of 7,440 acres.

According to the leases and permits signed, the Navy did not have possession of any land in the SE¼NE¼ of Section 19 and only owned the SE½NW¼ Section 20 (as opposed to the slightly more then ½ shown on the maps) in T47N, R1W. However, the maps show that the Navy believed they had possession of this area. Additionally, the maps list the State of California as owning a total of 800 acres for which J.C. Stevenson and the Butte Valley Irrigation District signed leases respectively. The leases signed by the Navy with J.C. Stevenson and the Butte Valley Irrigation district may be sub-leases, but it is not clear. The maps list a total of ¾ of a section of land as belonging to J.C. Stevenson which, based on the leases, appears to belong to the Butte Valley Irrigation District.[20]

4.4.2 Air Photo Interpretation

Government and contractor personnel conducted an aerial photography database search, (included in section 4.2). The aerial photography retrieved covered Siskiyou Rocket and

Bombing Range following military use. The imagery acquired is in photographic print format. The analyst performed the interpretation using the following source materials:

PHOTO DATE	CALCULATED SCALE
9 July 1948	1:31,680
30 July 1951	1:49,500
5 August 1955	1:24,000
27 August 1998	1:45,000

The analyst delineated imagery containing important areas on hard copy plots and digitized it using Computer-Aided Drafting and Design (CADD) software. The digitized features overlay scanned aerial photography, resulting in the final plots (see Plate 3). The analysis involved using stereo viewing of photography, which allows more accurate identifications than monoscopic interpretations. The resolution and scale of the imagery limited the identification of features discussed in this study. The analyst used the word "probable" when discussing features for which identification is reasonably accurate. The analyst used the term "possible" when identification was not positive, but the object/area matched known features/locations on other sources. Analysis of the aerial photographs referenced the site maps discussed in sections 4.4.1 above. The boldfaced numbers in parentheses referenced in the sub-paragraphs below refer to the feature descriptions on the annotated aerial photography plates.

4.4.2.1 1948 and 1951 Imagery

The 1948 imagery is only three years after the Navy's use of the site, but it covers only the southern two thirds of the site. The target is visible as is the SW approach flight line. Unfortunately, at 1:31,680, it is at a rather poor scale for detailed analysis. Later imagery provides a better basis for analysis. Similarly, the 1:49,500 scale of the 1951 imagery limits the value of that imagery as well.

4.4.2.2 1955 Imagery (Plate 3)

The 1955 photography offers the best imagery for analysis of the site because of the scale (i.e. 1:24,000) and complete coverage. The rocket target appears in the central portion of the northern half of the acquired property. It consisted of a 600-foot diameter circle (**A**) centered within a square with 2,200-foot long sides (**B**). The approach flight line is clearly a NE/SW diagonal across the target square continuing about 7,800 feet both NE and SW from the target center (**C**). A 4,000-foot diagonal begins at the center heading to the NW (**D**), ostensibly for a rake station, though no structures are visible in the imagery. The target center has dozens of 30-foot diameter dimples that may be natural but may be the result of cratering or scaring from OE use, though the site visit found no evidence to support that supposition. The imagery was scanned for other targets that the Navy may have established, but no other noteworthy features appeared. A road that is perpendicular

to the approach flight line (**E**) was added between 1948 and 1951 and hence is not related to the target at all.

4.4.2.3 Later Imagery

The later imagery was reviewed for additional evidence of the military's use of the site, though no features of any significance beyond those described above were noted.

5 REAL ESTATE

5.1 CONFIRMED DOD OWNERSHIP

The former Siskiyou Rocket and Bombing Range consisted of at least 7,040 acres of acquired property, but probably totaled as much as 7,440 acres of real estate that the Navy presumed they controlled (*see section 5.2*). The real estate acquired came from three separate owners: J.C. Stevenson owned 2,160 acres, the Butte Valley Irrigation District owned 3,920 acres and the U.S. Department of Agriculture (USDA) owned 960 acres.[21]

By 21 June 1945 the Butte Valley Irrigation District had leased 3,920 acres of land to the Navy under leases NOy(R)-38137 and NOy(R)-38137 supplement #1. 3,910 acres of this had previously been under option contract to the USDA.[22] This land, located in the Mount Diablo Meridian, consisted of:

T46N, R1W
Section 5, E½ Section 6
T47N, R1W
Section 29, Section 30, E½and NE½NW¼ of Section 31, Section 32
T47, R1W
S½ Section 24, NE½ Section 25[23]

On 5 May 1945 a lease for 2,160 acres was signed with J. C. Stevenson. Located in the Mount Diablo Meridian, it consisted of:

T46N, R2W
Section 1
T46N, R1W
W½ Section 6
T47N, R1W
SW¼, SW½NW¼ Section 31
T47N, R2W
SW½ of Section 25 and Section 36[24]

On 28 May 1945, the USDA (Soil Conservation Service) granted the Navy temporary jurisdiction over 960 acres[25]. On 6 August 1945 the USDA signed a memorandum of understanding for 960 acres consisting of:

T47N, R1W
SE½SE¼ Section 17, S½ Section 19, S½, NE¼, and SE½NW¼ Section 20

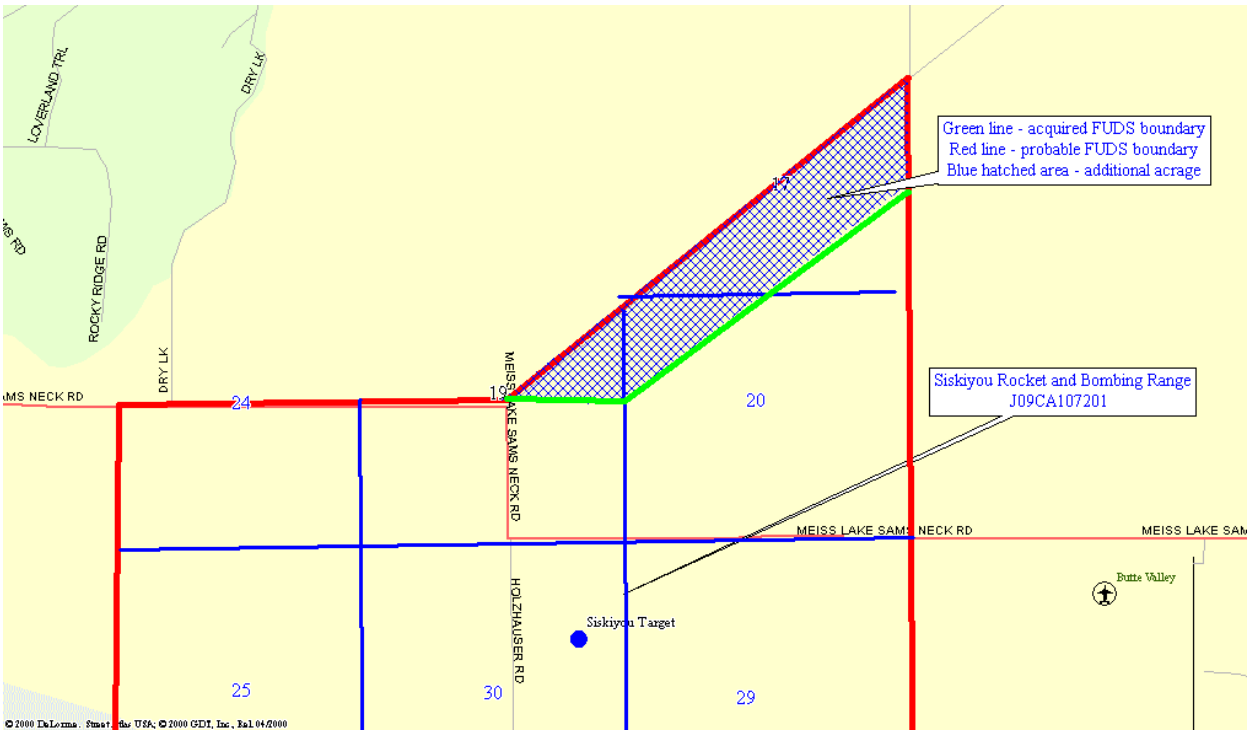
Based on contemporary aerial photography, the road used to define the NW boundary of part of the site actually began about a ½ mile further west then the lease describes. This

would result in an additional 400 acres of land under the Navy's control (See Section 5.2).[26]

By 10 October 1945 NAS Klamath Falls was reduced to caretaker status, at which point none of its associated activities would be in use.[27] Leases NOy(R)-38137, NOy(R)-38137 supplement #1 and NOy(R)-37906 were terminated on 21 January 1946.[28] On 21 February 1946 the Navy terminated their agreement with the USDA.[29]

The real estate figure for the acquired acreage concurs with the acreage number stated in the INPR but does not include the 400 additional acres.[30] Based on a review of available real estate documents, the Navy released Siskiyou Rocket and Bombing Range with no restrictive covenants or land use restrictions.

5.2 POTENTIAL DOD OWNERSHIP



The archive search identified additional areas of probably military land use associated with Siskiyou Rocket and Bombing Range. The Navy listed Road 7 as the northwestern boundary to part of the site. However, the road is incorrectly drawn on Navy maps resulting in the following additional acreage, not officially obtained by the Navy:[31]

T47N, R1W

Section 17	SE¼SW¼, NW¼SE¼, SE¼NE¼
Section 19	SE¼NE¼
Section 20	NW¼NW¼

Since all of this land appears to have belonged to the Department of Agriculture and because the Navy had permission to use the land prior to signing a memorandum of understanding, it is possible that the Navy presumed they had control of all the land up to road 7 and the Department of Agriculture was not concerned with enforcing the memorandum.[32]

The archive search did not identify any additional areas of undocumented military ownership associated with Siskiyou Rocket and Bombing Range. However, when range safety fans or OE potential range cells are drawn for this site, they extend beyond the acquired FUDS boundaries and potentially represent land use by the DOD. The archive search did not find direct evidence of OE hazards on the real estate contained within these fans beyond the FUDS boundary. The DOD accepts responsibility for remediation of OE hazards resulting from their activities. If DOD OE hazards exist on real estate never acquired, they are generally eligible for cleanup under the Defense Environmental Restoration Program.

5.3 SIGNIFICANT PAST OWNERSHIP OTHER THAN DOD

This investigation did not reveal any significant past ownership of Siskiyou Rocket and Bombing Range with relationship to OE or CWM.

5.4 PRESENT OWNERSHIP

Records reviewed indicate the current property owner is the U.S. Forest Service, who manages the site under the Klamath National Forest, Goosenest Ranger District.

6 SITE INSPECTION

6.1 GENERAL PROCEDURES AND SCOPE

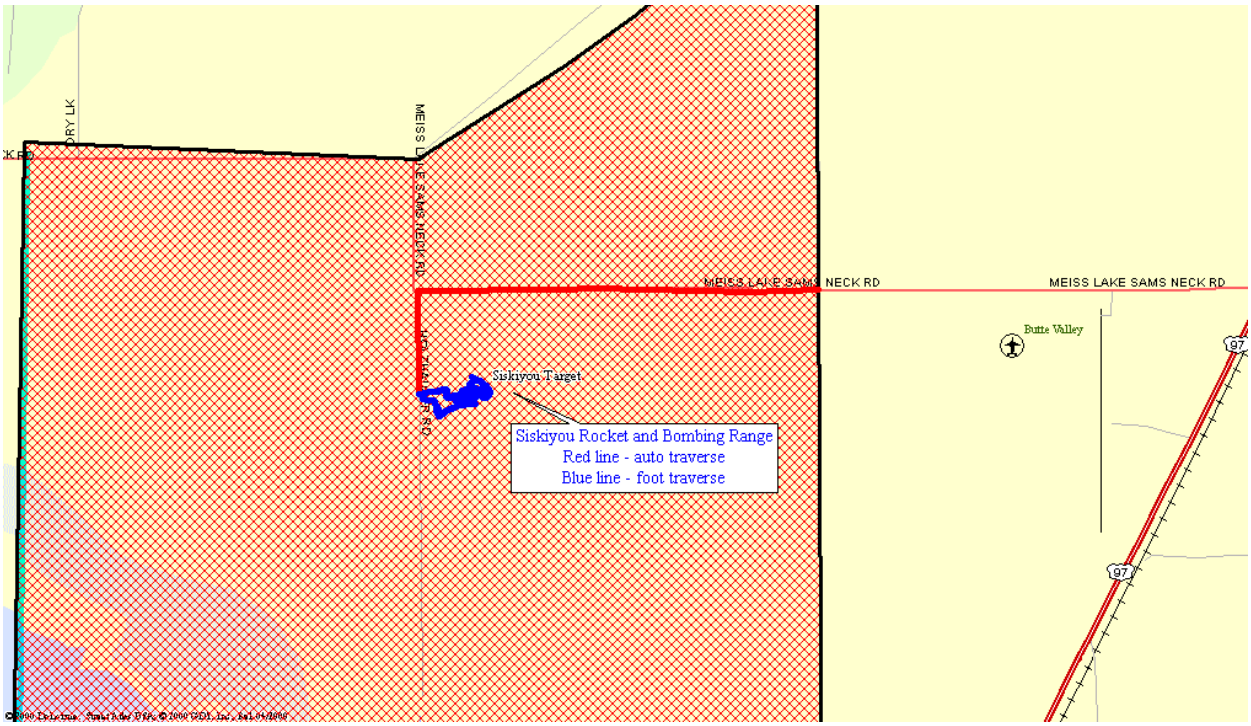
An ASR site inspection is limited in scope to a visual, non-intrusive inspection of the areas suspected of having an OE or CWM hazard potential. This potential is based on an analysis of the collected information. Prior to the inspection, the Archive Search team determines the areas of the site to investigate. The team follows a site safety and health plan (SSHP) prohibiting digging or handling of potential OE and CWM. The SSHP defines standard operating procedures to ensure safety and prevent accidents. Appendix L-1 contains a copy of the SSHP. The inspection team consisted of the following St. Louis District Corps of Engineers personnel: Randal Curtis, Alix Borrok, and George Sloan. They performed the site survey on 25 August 2001. Subsection 6.2 contains a synopsis of the site inspection and Appendix L-2 contains a detailed account. Appendix I includes current site photographs.

6.2 SITE INSPECTION SYNOPSIS

The ASR team met with Jim Stout (530-398-4391) of the Klamath National Forest, Goosenest Ranger District at 37805 Highway 97, three miles south of Macdoel. Mr. Stout is the grasslands manager for the district and had led the INPR team to the site. The team held a short meeting in the district office reviewing the aerial imagery, the general history of this site and related NAS Klamath Falls targets in northern California. Mr. Stout mentioned that one of their staff archeologist had taken pictures of OE debris in the past. The descriptions matched the expected types of practice bombs and rockets but also included a "20 mm" projectile as identified by archeologist. Mr. Stout agreed to try and locate the picture of the "20 mm" and send it to the ASR team.

The team traveled to the site via Meiss Lake Sam's Neck Road north off of Highway 97. About 2.5 miles west of Highway 97, there was a gate to a dirt road (Holtzhauser Road) heading south. The team drove south about a quarter of a mile, then walked to the target site using a GPS to ascertain the location[iii]. The 600-foot diameter circular perimeter of the target is marked by a short berm less than two feet high that is readily discernable. The team crisscrossed the target a number of times finding scrap weathered wood within the berm, roughly in a ring pattern around the center. Ostensibly this was the smaller 100-foot diameter aiming circle, which must have been knocked down before the aerial imagery was taken.

[iii] Target coordinates were determined using georeferenced historic aerial imagery. The resulting waypoints were uploaded into a Garmin Etrex Legend GPS (Global Positioning System) receiver using mapping datum WGS 1984.



Within the bermed target area the team located OE debris from 100-lb. Practice Bombs (i.e. Navy MK VII or XV), 2.25 inch SCARs (Sub-Caliber Aerial Rocket), AN-MK 23 iron miniature practice bomb and a link for a .50 caliber machine gun. The vast majority of the items located were sheet metal from practice bombs, tailfins and expended rocket motors. The team did not find any evidence of high explosives (HE) use on the site such as cratering or HE frag. Mr. Stout thought that the dimpling observed on the aerial imagery was probably natural in origin. The team continued their examination to NE of the target berm. They then proceeded through the target and thence SW along the approximate path of the rocket approach line. Only a few OE debris items were noted beyond the target area. The team returned to the vehicle, backtracked to the district office and parted company with Mr. Stout.

Mr. Stout reported having found a bomb that looked like a larger version of an MK 23. Other people have reported finding practice bombs in the past as well. 16-17 years ago rockets were reportedly found in the area.

Range Feature Locations based on Georeferenced Aerial Photography				
Latitude	**Longitude**	**Easting**	**Northing**	**Feature**
N41 ^{o} 53’ 21”	W122 ^{o} 01’ 12”	581306	4637749	Siskiyou Target

7 EVALUATION OF ORDNANCE POTENTIAL

7.1 CONVENTIONAL ORDNANCE CONTAMINATION

The archive search uncovered evidence that the Navy utilized conventional ordnance at Siskiyou Rocket and Bombing Range. The types of ordnance and explosives associated with the site included small arms, practice rockets and practice bombs. This information was gathered from documentation, maps, aerial photography results and interviews. None of the reviewed information indicated any other ordnance related operations at Siskiyou Rocket and Bombing Range.

The ASR team did not find an overt indication of a current ordnance and explosive hazard at Siskiyou Rocket and Bombing Range. OE debris (expended 2.25-inch SCAR's, miniature and 100-pound practice bombs) was observed on the site along with evidence of the use of .50 cal machine guns. Research discovered no historical records indicating ordnance disposal on site. Interviews did not disclose any incidents of ordnance or explosive hazards found in the past. Aerial photography analysis did not locate any distinct signs of on-site burial. Additionally, the site inspection did not uncover evidence of ordnance or explosive hazards.

7.2 CHEMICAL WARFARE MATERIAL CONTAMINATION

The archive search uncovered no evidence of chemical warfare materials storage, usage or disposal at Siskiyou Rocket and Bombing Range. The mission of Siskiyou Rocket and Bombing Range does not imply the presence of CWM. Research discovered no historical records associating CWM with the site. Interviews did not disclose any correlation of CWM with the site. Additionally, the site inspection did not uncover any evidence of CWM hazards.

8 TECHNICAL DATA OF ORDNANCE AND EXPLOSIVES

8.1 POTENTIAL OE AND CWM ITEMS

The archive search identified the following ordnance items associated with Siskiyou Rocket and Bombing Range. The team compiled this list from maps, documentation, the site visit and EOD incident reports.

Practice Bombs
- Miniature Practice Bombs
- 100 lb Practice Bombs

Aerial Rockets
- 2.25-inch Sub-caliber Practice Aerial Rockets (SCAR)
- 3.5-inch Aircraft Rocket (Practice)
- 5-inch High Velocity Aircraft Rocket (HVAR)(Practice)

Small Arms
- .50 Caliber Machine Gun
- 20mm Target Practice

The archive search did not uncover evidence of the use of chemical warfare materials at Siskiyou Rocket and Bombing Range. The activities at this site did not include the storage, disposal or use of CWM in training.

8.2 DESCRIPTION OF CONVENTIONAL ORDNANCE

The following sections in Appendix C contain Ordnance Technical Data Sheets of typical examples[iv] of OE items identified with Siskiyou Rocket and Bombing Range:

Page No.	Ordnance Technical Data Sheets[33]
C-2	Miniature Practice Bombs AN-Mk 5 Mod 1, AN-Mk 23, AN-Mk 43, and Mk 19
C-3	Rocket, 2.25-inch Practice
C-4	Bomb, Practice, 100-lbs, Mk 15 Mod 3
C-5	Small-Arms Ammunition
C-22	Aircraft Rocket, 3.5 inch, Mk 4, Semi-Armor Piercing
C-23	Rockets, 5 inch (HVAR)

iv These are general descriptions and may not include all the specific variations of a particular ammunition item. This list is compiled from documentation found on the site and may not be comprehensive.

8.3 DESCRIPTION OF CHEMICAL WARFARE MATERIALS

The archive search did not uncover evidence of any CWM ever being associated with the former Siskiyou Rocket and Bombing Range.

9 EVALUATION OF OTHER SITE INFORMATION

The archive search did not reveal any additional areas of potential environmental concern associated with the military use of Siskiyou Rocket and Bombing Range.

APPENDIX A

REFERENCES

The following list of references only represents the items cited in preparation of this report, and does not illustrate all the documents reviewed or copied for the backup files (see Records Review section 4.2 for further details). Source listings for locating each underlined reference are noted and printed portions are included in this ASR. Furthermore, underlined references are hyperlinked to scanned images of the backup documents on the digital version of this report. References that are not underlined are generally available and not reproduced for this report.

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[1] Section 2.0 PREVIOUS SITE INVESTIGATIONS

Corps of Engineers – Sacramento

1999 *Inventory Project Report Siskiyou Bombing Range, Siskiyou County, CA, FUDS Site No. J09CA1072,* September 1999

Appendix D-1

[2] Section 3.2 CLIMATIC DATA

Federal Climate Complex Asheville, NC.

1996 *International Station Meteorological Climate Summary, Version 4.0 CD ROM*, September 1996. Jointly produced by: Department of the Navy - Fleet Numerical Meteorology and Oceanography Detachment, National Oceanic and Atmospheric Administration- National Climate Center and the U.S. Air Force Environmental Technical Application Center (USAFETAC) OL-A.

National Oceanic and Atmospheric Administration National Ocean Service (NOS)

2001 Center for Operational Oceanographic Products and Services (CO-OPS) website information downloaded http://www.co-ops.nos.noaa.gov/ August 2001.

[3] Sections 3.3.1 GEOLOGY

MacDonald, Gordon A.

1966 *Geology of the Cascade Range and Modoc Plateau.* US Geological Survey and Hawaii Institute of Geophysics, University of Hawaii, Honolulu, HI.

[4] Sections 3.3.2 SOILS

Newlun, J.J., Lindsey, W.C., Jahnke, J.J., and Day, L.A.

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[5] Section 3.4.1 SURFACE WATER HYDROLOGY
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1985 *Sams Neck Quadrangle, California - Siskiyou County, 7.5 Minute Series (topographic)*, provisional edition 1985.

[6] Sections 3.4.2 GROUND WATER HYDROLOGY
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[7] Section 3.5 ECOLOGY
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2001 Official correspondence, dated 30 July 2001 (Correspondence Reference # 1-1-10-00-PS-091).

[8] Section 3.6 DEMOGRAPHICS
U.S. Department of Commerce - Bureau of the Census
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[9] Section 4.1 HISTORICAL SITE SUMMARY (cited references only)
Navy Department, Office of the Chief of Naval Operations, Washington DC
1945 Aviation Planning Directive 56-NN-45, 4 September 1945. RG 181, Entry Wartime Histories 13th Naval District, Box 3, Folder: History of 13th Naval District, NARA-Seattle, WA.
Appendix E-11

[10] NAS Klamath Falls, Historical Officer
1944 History of US Naval Air Station Klamath Falls, Oregon and US Naval Auxiliary Air Facility Lakeview Oregon, 30 December 1944, Naval Aviation History Center, Box Aviation Command 1941-52, Klamath Falls-Kodiak, Folder: Klamath Falls NAAS, US Navy Yard, Washington, DC.
Appendix E-9

Navy Department, Office of the Chief of Naval Operations, Washington DC
1945 Aviation Planning Directive 56-NN-45, 4 September 1945. RG 181, Entry Wartime Histories 13th Naval District, Box 3, Folder: History of 13th Naval District, NARA-Seattle, WA.
Appendix E-11

[11] Bureau of Yards and Docks Real Estate Division
1945 Project No. 127-C Leasehold, 13 March 1945. RG 71, Entry 1001, Naval Property Case Files, Folder: Klamath Falls C5-90-KF,NARA-College Park, MD.
Appendix E-3

[12] NAS Klamath Falls and NAAF Lakeview Oregon
1945 History of U.S. Naval Air Station Klamath Falls, Oregon and U.S. Naval Auxiliary Air Facility Lakeview, Oregon, June, July and August 1945, circa September 1945. RG 181, Entry Wartime Histories 13th Naval District, Folder: NAAS Klamath Falls, NARA-Seattle, WA.
Appendix E-10

[13] Interdepartmental Air Traffic Control Board
1945 IATCB minutes, meeting #675, 8 October 1945. RG 237, Entry 37, Box 4, NARA-College Park, MD.
Appendix E-8

[14] NAS Klamath Falls and NAAF Lakeview Oregon

1945 History of U.S. Naval Air Station Klamath Falls, Oregon and U.S. Naval Auxiliary Air Facility Lakeview, Oregon, June, July and August 1945, circa September 1945. RG 181, Entry Wartime Histories 13th Naval District, Folder: NAAS Klamath Falls, NARA-Seattle, WA.

Appendix E-10

[15] Commander Naval Air Bases, 13th Naval District

c.1946 Historical Narrative Commander Naval Air Bases, 13th Naval District For Period 1 September 1945 to 1 October 1946, October 1946. RG 181, Entry Wartime Histories of 13th Naval District, Box 3, Folder: History of 13th Naval District, NARA-Seattle, WA.

Appendix E-6

Interdepartmental Air Traffic Control Board

1945 IATCB minutes, meeting #675, 8 October 1945. RG 237, Entry 37, Box 4, NARA-College Park, MD.

Appendix E-8

[16] Klamath National Forrest Goosenest Ranger District

1992 Artifacts found in WWII bombing practice range, T.47N., R.1.W. Sec. 30, Exposure 15, Frame 14 & Exposure 5 Frame 4, dated 8 January 1992, archeologist files Klamath National Forrest Goosenest Ranger District.

Appendix E-15

Corps of Engineers – Sacramento

1999 *Inventory Project Report Siskiyou Bombing Range, Siskiyou County, CA, FUDS Site No. J09CA1072,* September 1999

Appendix D-1

[17] Naval Air Bases 13th Naval District Public Works Office

1945 Map of Naval Air Station Klamath Falls, Ore Showing Conditions on June 30 1945, 30 June 1945, RG 71, Entry Microfilm Reels Series #2, Sheet #419,378, NARA-College Park, MD.

Appendix K-AB

[18] Section 4.4 AIR PHOTO INTERPRETATION AND MAP ANALYSIS

Naval Air Station Klamath Falls

1945 Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California, 10 April 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.

Appendix K-1

U.S. Geological Survey
1985 *Macdoel Quadrangle, California - Siskiyou County, 7.5 Minute Series (topographic)*, provisional edition 1985.

U.S. Geological Survey
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[19] Public Works Officer, Naval Air Bases
1945 Land Ownership Proposed Rocket Range Siskiyou County, California, U.S. Naval Air Station Klamath Falls Oregon, 6 February 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.
Appendix K-2

[20] Bureau of Aeronautics
1945 Lease Between the U.S. Navy and the Butte Valley Irrigation District, 17 May 1945, supplemented 1 June 1945. RG 72, Entry 62B, Box 2858, Folder: N1-9/NA (150), NARA-College Park, MD.
Appendix E-1

Headquarters 13th Naval District, Seattle Washington
1945 Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air station, Klamath Falls, Ore., 8 May 1945. RG 71, Entry 1001: Naval Property Case Files, 1941-58, Box 62, NARA-College Park, MD.
Appendix E-7

Commandant, 13th Naval District
1945 Memorandum of Understanding, 6 August 1945. RG 71, Entry 1037, Lease Files 1941-47, Box 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.
Appendix E-5

Naval Air Station Klamath Falls
1945 Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California, 10 April 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.
Appendix K-1

Public Works Officer, Naval Air Bases
Land Ownership Proposed Rocket Range Siskiyou County, California, U.S. Naval Air Station Klamath Falls Oregon, 6 February 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.
Appendix K-2

[21] Bureau of Aeronautics
1945 Lease Between the U.S. Navy and the Butte Valley Irrigation District, 17 May 1945, supplemented 1 June 1945. RG 72, Entry 62B, Box 2858, Folder: N1-9/NA (150), NARA-College Park, MD.
Appendix E-1

Headquarters 13th Naval District, Seattle Washington
1945 Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air station, Klamath Falls, Ore., 8 May 1945. RG 71, Entry 1001: Naval Property Case Files, 1941-58, Box 62, NARA-College Park, MD.
Appendix E-7

Commandant, 13th Naval District
1945 Memorandum of Understanding, 6 August 1945. RG 71, Entry 1037, Lease Files 1941-47, Box 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.
Appendix E-5

Naval Air Station Klamath Falls
1945 Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California, 10 April 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.
Appendix K-1

Public Works Officer, Naval Air Bases
Land Ownership Proposed Rocket Range Siskiyou County, California, U.S. Naval Air Station Klamath Falls Oregon, 6 February 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.
Appendix K-2

[22] Public Works Department, Klamath Falls

1945 Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air Station, Klamath Falls, Oregon, 5 June 1945. RG 71, Entry 1037 Lease Files 1941-47, Box 4, L5-5-MO-L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.

Appendix E-14

[23] Bureau of Aeronautics

1945 Lease Between the U.S. Navy and the Butte Valley Irrigation District, 17 May 1945, supplemented 1 June 1945. RG 72, Entry 62B, Box 2858, Folder: N1-9/NA (150), NARA-College Park, MD.

Appendix E-1

Naval Air Station Klamath Falls

1945 Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California, 10 April 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.

Appendix K-1

[24] 13th Naval District

1945 Lease Between the U.S. Navy and J.C. Stevenson, 5 May 1945. G 71, Entry 1037 Lease Files 1941-47, Box 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI, NARA-College Park, MD.

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Naval Air Station Klamath Falls

1945 Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California, 10 April 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.

Appendix K-1

[25] Navy Department, Washington DC

1945 Use of 7040 acres of land in Siskiyou County, California, for practice target range in connection with NAS, Klamath Falls, Oregon, 28 May 1945. RG 72, Entry 62B General Correspondence 1943-45, Box 2858, Folder: N1-9/NA (150), NARA-College Park, MD.

Appendix E-11

[26] Commandant, 13th Naval District
1945 Memorandum of Understanding, 6 August 1945. RG 71, Entry 1037, Lease Files 1941-47, Box 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.
Appendix E-5

[27] Commander Naval Air Bases, 13th Naval District
c.1946 Historical Narrative Commander Naval Air Bases, 13th Naval District For Period 1 September 1945 to 1 October 1946, October 1946. RG 181, Entry Wartime Histories of 13th Naval District, Box 3, Folder: History of 13th Naval District, NARA-Seattle, WA.
Appendix E-6

[28] Navy Real Estate Division
1945 Termination of Leases NOy(R)-38137, NOy(R)-38137 Supp. #1, NOy(R)-37906 and memorandum of Understanding with Department of Agriculture, Soil Conservation Service dated 6 Aug 1945, covering Rocket Range, Siskiyou National Forest, California, 29 December 1945. RG 71, Entry 1037 Lease Files 1941-47, Box 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI, NARA-College Park, MD.
Appendix E-13

[29] Commandant, 13th Naval District
1945 Termination of Permit covering the use of 960 acres of land in Siskiyou County, California, For a Practice Target Range in connection with Natal Air Station, Klamath Falls, Oregon, 21 February 1946. RG 71, Entry 1037, Lease Files 1941-47, Box 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.
Appendix E-4

[30] Corps of Engineers – Sacramento
1999 *Inventory Project Report Siskiyou Bombing Range, Siskiyou County, CA, FUDS Site No. J09CA1072,* September 1999
Appendix D-1

[31] Section 5.0 REAL ESTATE

Naval Air Station Klamath Falls
1945 Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California, 10 April 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.
Appendix K-1

[32] Naval Air Station Klamath Falls

1945 Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California, 10 April 1945. RG 71, Entry 1001 Naval Property Case Files, Box 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.

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Commandant, 13th Naval District

1945 Memorandum of Understanding, 6 August 1945. RG 71, Entry 1037, Lease Files 1941-47, Box 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.

Appendix E-5

[33] Section 8.0 TECHNICAL DATA OF ORDNANCE AND EXPLOSIVES
References for Individual Ordnance Data Sheets contained Appendix C are noted at the bottom of each sheet.

APPENDIX B

ABBREVIATIONS, ACRONYMS, AND BREVITY CODES

ABBREVIATIONS, ACRONYMS AND BREVITY CODES

The following list contains abbreviations, acronyms and brevity codes within this ASR, as well as typical others.

AAF*	Army Air Field
AA	Anti-Aircraft
ACGIH	American Conference of Governmental Industrial Hygienist
AEC	Army Environmental Center
AFB	Air Force Base
ACGIH	American Conference of Governmental Industrial Hygienist
ANSI	American National Standards Institute
AP	Armor Piercing
APDS	Armor Piercing Discarding Sabot
APERS	Anti-Personnel
AP-T	Armor Piercing-Tracer
ASR	Archive Search Report
AT	Anti-Tank
BD	Base Detonating
BD/DR	Building Demolition/Debris Removal
BLM	Bureau of Land Management
BRAC	Base Realignment and Closure
CADD	Computer-Aided Drafting and Design
CAIS	Chemical Agent Identification Set
cal	Caliber
CBDCOM	Chemical and Biological Defense Command
CE	Corps of Engineers
CEHNC	Corps of Engineers, Huntsville Engineering and Support Center
CEMVS	Corps of Engineers, Mississippi Valley-St. Louis District
CEMVK	Corps of Engineers, Mississippi Valley-Vicksburg District
CEP	Circular Error of Probability
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COE	Chief of Engineers
ctg	Cartridge
CWM	Chemical Warfare Materials
CWS*	Chemical Warfare Service
CX	Center of Expertise
DA	Department of the Army
DEET	Diethyltoluamide
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DOI	Department of Interior

EE/CA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EM	Engineer Manual
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ETL	Engineering Technical Letter
FGDC	Federal Geographic Data Committee
FM	Field Manual
FS	Feasibility Study
FUDS	Formerly Used Defense Sites
GIS	Geographic Information System
GPM	Gallons Per Minute
GPS	Global Positioning System
GSA	General Services Administration
HAZWOPER	Hazardous Waste Operations
HBX	high blast explosives; mixtures of RDX, TNT and aluminum
HE	High Explosive
HEAT	High Explosive Anti-Tank
HEI	High Explosive Incendiary
HEP	High Explosive Plastic
HMX	cyclotetramethylenetetranitramine (a type of high explosive)
HTRW	Hazardous Toxic and Radioactive Waste
HTW	Hazardous and Toxic Waste
HVAR	High Velocity Aerial Rocket
IAS	Initial Assessment Study
IATCB	Interdepartmental Air Traffic Control Board
INPR	Inventory Project Report
IRP	Installation Restoration Program
KF	Klamath Falls
LD	Lyme Disease
MCX	Mandatory Center of Expertise
MT	Mechanical Time
MTSQ	Mechanical Time Super Quick
NARA	National Archives and Records Administration
NAVSEA	Naval Sea Systems Command
NAAS*	Naval Auxiliary Air Station
NAS*	Naval Air Station
NCP	National Contingency Plan
n.d.	No Date
NEW	Net Explosive Weight
NGVD	National Geographic Vertical Datum
NIMA	National Imagery and Mapping Agency
NIOSH	National Institute for Safety and Health
NMAS	National Map Accuracy Standards

NPL	National Priorities List
NOAA	National Oceanic and Atmospheric Administration
NOFA	No Further Action
NPRC	National Personnel Records Center
NRC	National Records Center
NWS	National Weather Service
OCE	Office Chief of Engineers
OE	Ordnance and Explosives
OP	Ordnance Pamphlet
OSHA	Occupational Safety and Health Administration
PA	Preliminary Assessment
PD	Point Detonating
PE	Professional Engineer
PETN	pentaerythritol tetranitrate (a type of high explosive)
PIBD	Point Initiating, Base Detonating
PM	Project Manager
PPE	Personal Protective Equipment
QASAS	Quality Assurance Specialist, Ammunition Surveillance
RAC	Risk Assessment Code
RDX	cyclotrimethylenetrinitramine; also known as cyclonite or hexogen (a type of high explosive)
RG	Record Group
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SARA	Superfund Amendments and Reauthorization Act
SCAR	Sub-Caliber Aerial Rocket
SEP	Spherical Error of Probability
SOP	Standing Operating Procedures
SPB*	Surplus Property Board
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
TCRA	Time Critical Removal Action
TEU	United States Army Technical Escort Unit
TM	Technical Manual
TNT	Trinitrotoluene
TP	Target Practice
USACE	U.S. Army Corps of Engineers
USADACS	U.S. Army Defense Ammunition Center and School
USAFHRA	U.S. Air Force Historical Research Agency
USATCES	U.S. Army Technical Center for Explosive Safety
USATHMA	U.S. Army Toxic and Hazardous Materials Agency
USC	United States Code
USCG	Untied States Coast Guard
USDA	U.S. Department of Agriculture

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
WAA*	War Assets Administration
WAGE	Wide Area GPS Enhancemen
WGS	World Geodetic System
WNRC	Washington National Records Center
WW I	World War I
WW II	World War II

* designates an historic acronym

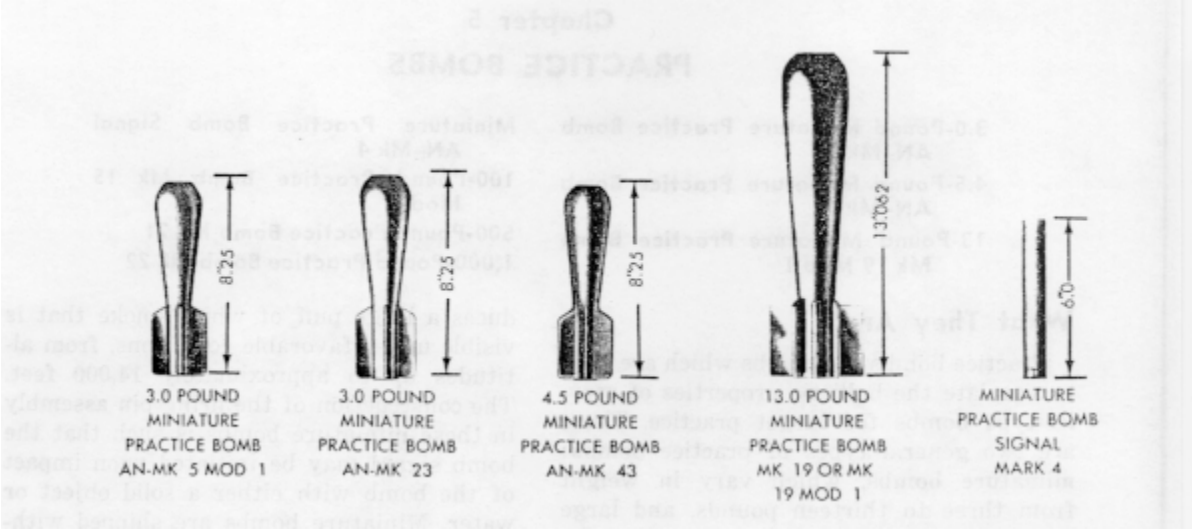
APPENDIX C

TEXT / MANUALS

TEXT / MANUALS

All Ordnance Technical Data Sheets Prepared by U.S. Army Corps of Engineers St. Louis District, Ordnance and Technical Services Branch-Engineering Division

MINIATURE PRACTICE BOMBS
AN-Mk 5 Mod 1, AN-Mk 23, AN-Mk 43, and Mk 19

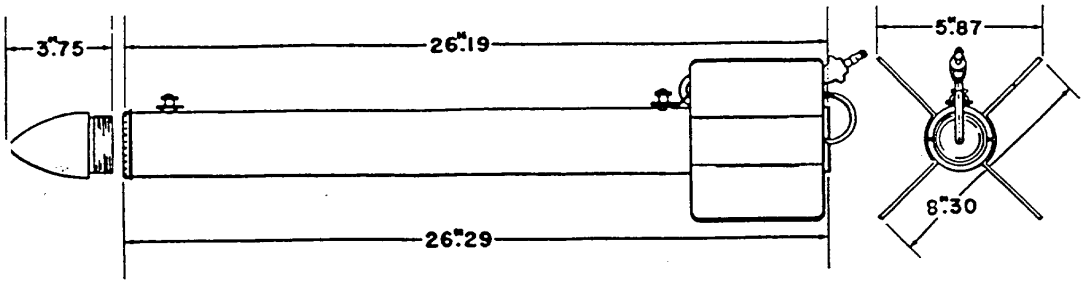


Description. These bombs are used for low-altitude horizontal, or dive-bombing practice. The four bombs are similar in physical appearance, but differ basically in the metal used to cast the body. Bombs are used with the AN-Mk 4 practice bomb signal that is a blank 10-gauge shotgun shell (extended length). Signals contain a black powder expelling charge and a red phosphorous pyrotechnic mixture. These bombs also are used with the MK5 signal that contains a fluorescein dye and is actuated by impact on water. When the Mk5 signal is installed, the firing pin assembly is not used.

	Mk 5	**Mk 23**	**Mk 43**	**Mk 19**
Over-all length inches	8.25 inches	8.25 inches	8.25 inches	13.062
Body Diameter inches	2.18 inches	2.18 inches	2.18 inches	2.62
Fin Dimension inches	2.5 inches		2.5 inches	3.67
Weight	2 lb. 11 oz. ± 1 oz	3 lb. ± 2 oz	4 lb. 7 oz. ± 2 oz.	13 lb ± 3 oz
Body Material	Zinc Alloy	Cast Iron	Lead-antimony antimony	Lead
Signal	AN-Mk 4, Black powder/pyrotechnic charge; Mk 5, Fluorescein dye			

Reference: OP 1280, *Aircraft Bombs*, February 1945; TM 9-1325-200, *Bombs and Bomb Components*, April 1966

ROCKET, 2.25-INCH PRACTICE



Use. These rockets were used for practice firing against surface targets. The rocket is forward fired from aircraft and simulated the trajectories of the 5 inch rockets.

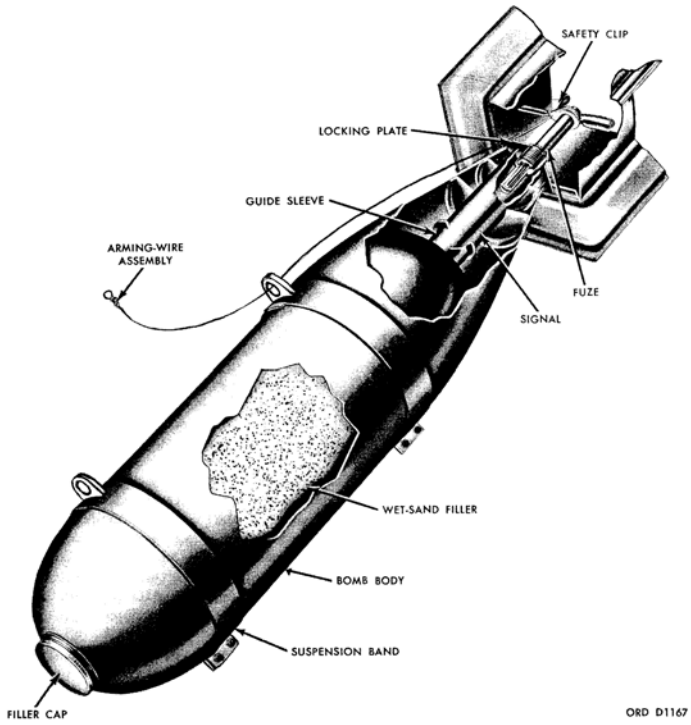
Description. The 2.25 inch practice rockets originally came in two different Marks (Mk) or models, the Mk II and Mk III. The acronym associated with them was SCAR, or sub-caliber aerial rocket. Other models followed. They consisted of a head, rocket motor, fins, igniter, and an electrical cable. The heads are solid steel, zinc die cast, or cast iron and contain no fuzes,

Motor. Mk 15 Mod 0,2, is 26.18 inches long and weighs to 10.90 pounds (max). The item's explosive hazard is the propellant (Mk 16 Mod 0,1) in the rocket motor and the igniter (Mk 112 Mod 0,1,2).

Weight..... 12.47 pounds
Diameter of Body..... 2.25 inches
Length..... 29.07 inches

Reference: NAVSEA OP 1415, *Rocket Assemblies*, May 1955

BOMB, PRACTICE, 100-LBS, Mk 15 Mod 3



Description. The Mk 15 Mod 3 Practice Bomb is a light-cased, cylindrical body with a threaded filling hole in its rounded nose. A box fin assembly consisting of four metal vanes attached to a cone is welded to the aft end of the body. The bomb has two metal suspension band assemblies (each consisting of a circular clamp, a suspension lug, and two cap screws) for tightening the band to the bomb. The bomb is used with the practice bomb signal, Mk7 Mod 0 and inert fuze Mk 247 Mod 0 both of which are secured to the aft of the bomb. Upon impact of the bomb with the target, the signal is detonated, producing a flash and a large puff of smoke. The bomb is filled with wet sand and when fully assembled weighs approximately 100 pounds

Length of assembled bomb .....41.2 inches
Diameter .....8.0 inches
Fin Span.....11.24 inches
Weight, assembled .....100 pounds
Filler.....Sand, Wet sand, or water
Signal .....Mk 7 Mod 0
Color .....Black

References: TM 9-1325-200, *Bombs and Bomb Components*, April 1966; NAVSEA OP 1664 Volume 2, *U.S. Explosive Ordnance*, February 1954

SMALL-ARMS AMMUNITION

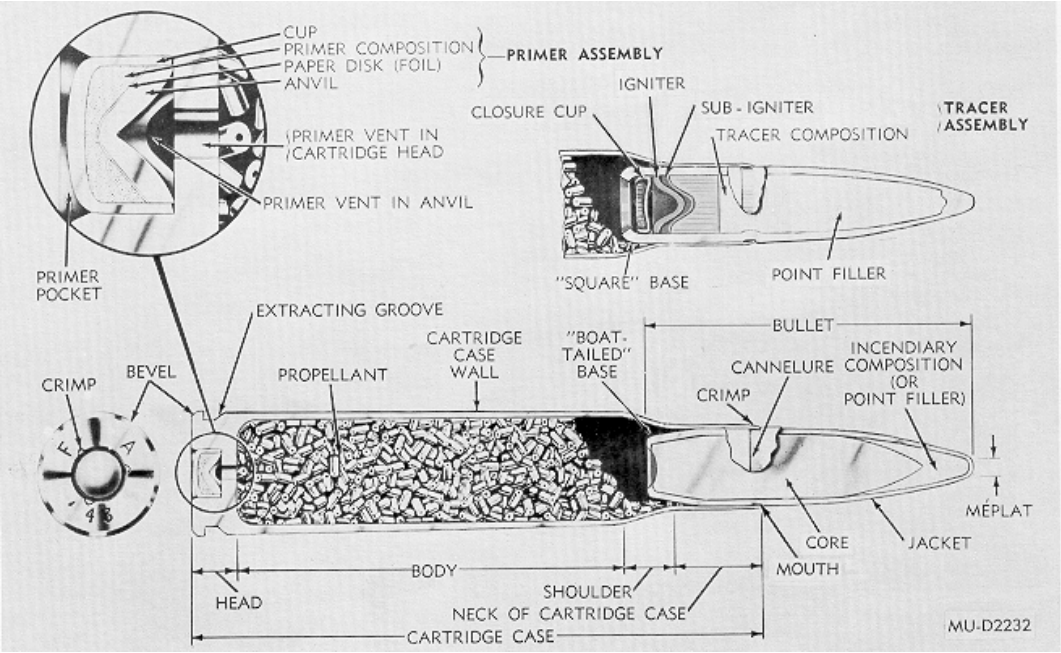


Figure 1. Typical cartridge (sectional)

General. Small-arms ammunition, as used herein, describes a cartridge or families of cartridges intended for use in various types of hand-held or mounted weapons through 30 millimeter. Within a caliber designation, these weapons may include one or more of the following: rifles (except recoilless), carbines, pistols, revolvers, machineguns and shotguns. For purposes of this publication, small-arms ammunition may be grouped as cartridges intended primarily for combat or training purposes (API, HEI, tracer or ball); for training purposes only (blank or dummy); or for special purposes (rifle grenade or spotter-tracer). Refer to TM 9-1306-200 for more detailed information on small-arms ammunition.

Cartridges. In general, a small-arms cartridge is identified as an assembly of a cartridge case, primer, a quantity of propellant within the cartridge case, and a bullet or projectile. Blank and rifle grenade cartridges are sealed with paper closure disks in lieu of bullets. Dummy cartridges are composed of a cartridge case and a bullet. Some dummy cartridges contain inert granular materials to simulate the weight and balance of live cartridges. A typical cartridge and the terminology of its components are shown in figure 1.

Case. Although steel, aluminum, zinc and plastic materials have been used experimentally, brass, a composition of 70 percent copper and 30 percent zinc, is the most commonly used material for cartridge cases. Steel, as well as brass, is an approved material for caliber .45 cartridge cases. Brass, paper and plastic are used for 12 gage shotshell bodies. Aluminum is used for military-type .410 gage shotshell bodies. Configurations of cartridges and bullets are illustrated in figures 2 through 11.

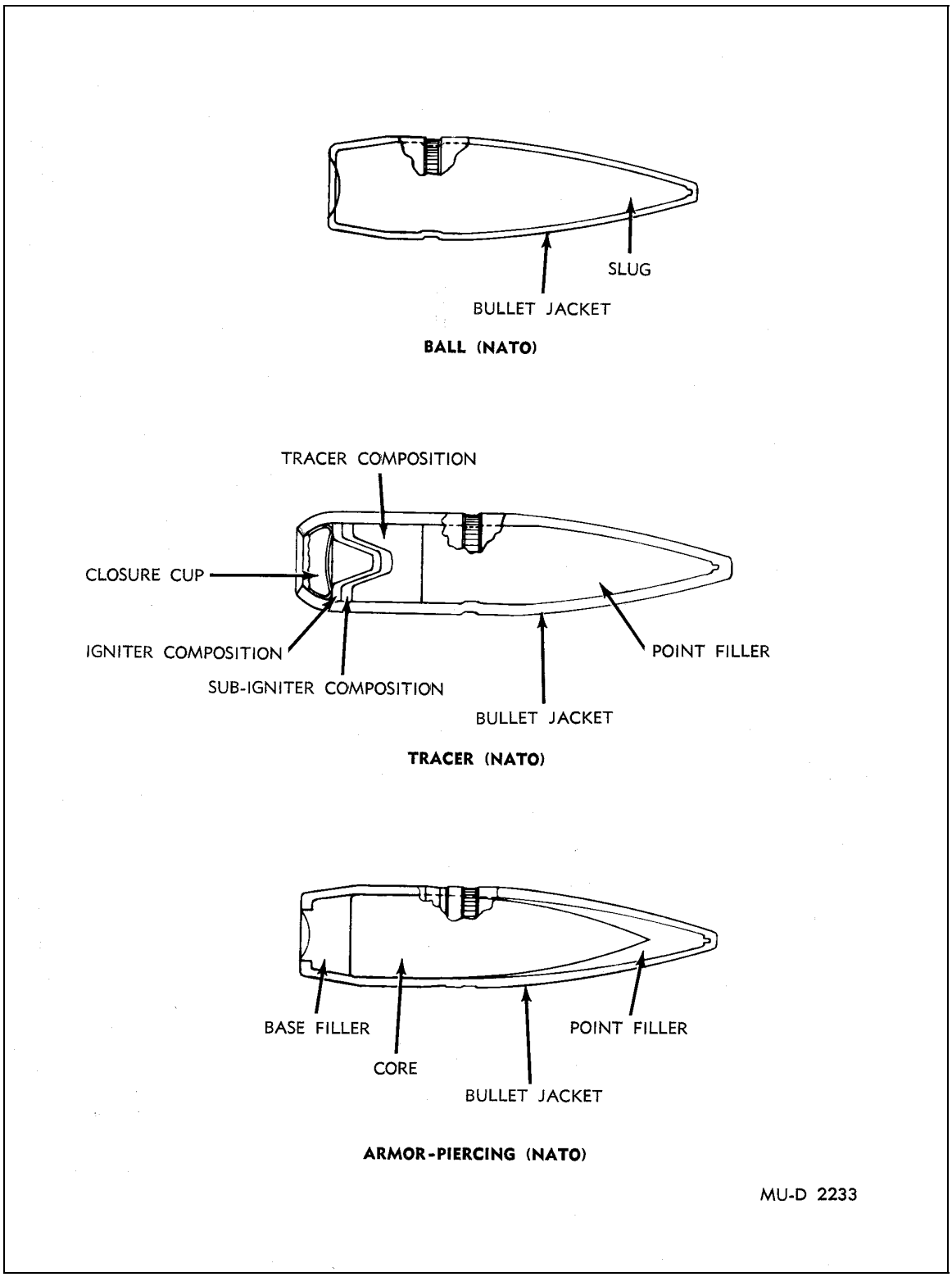


Figure 2. 7.62 mm bullets (sectional)

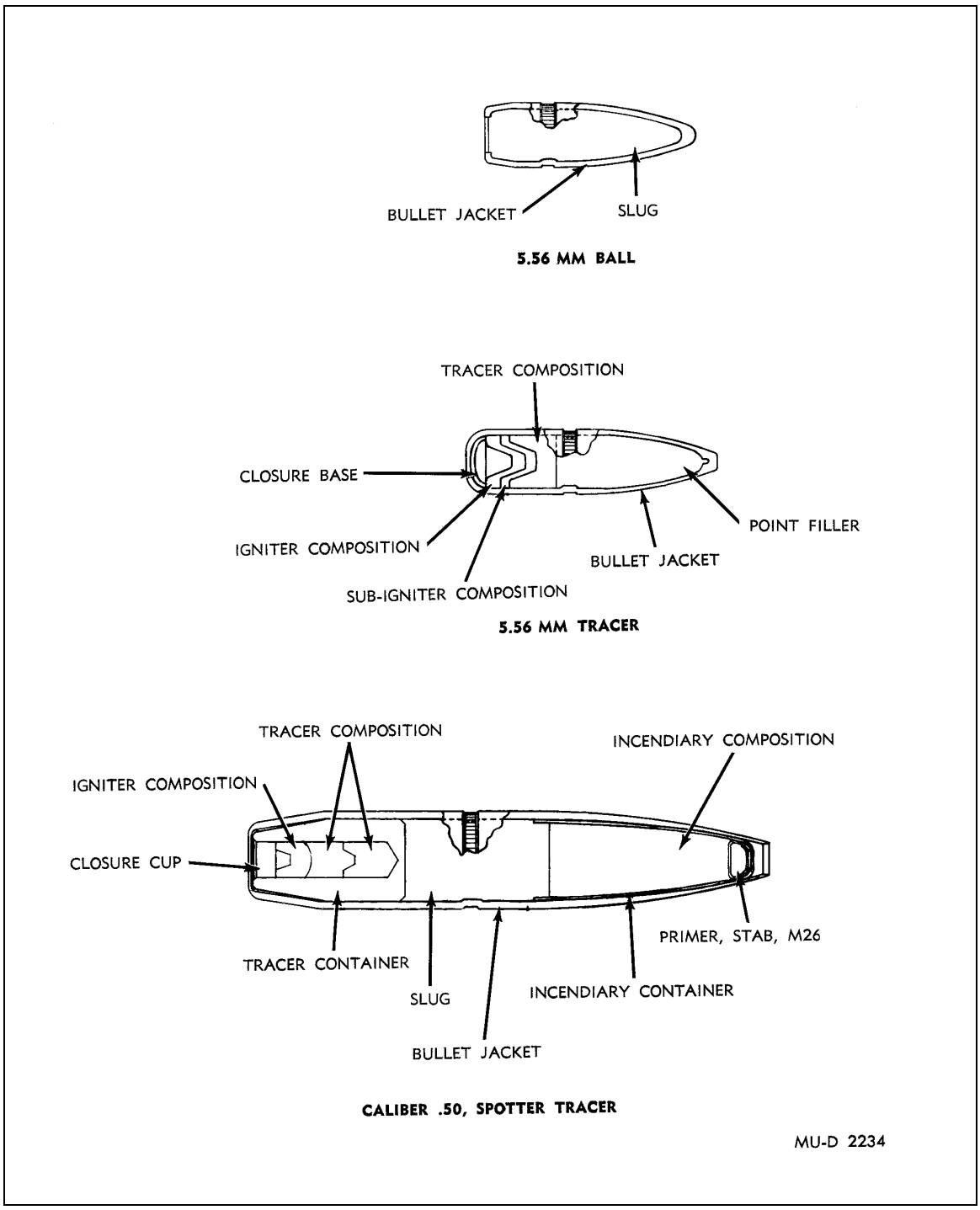


Figure 3. 5.56mm and caliber .50 spotter tracer bullets (sectioned)

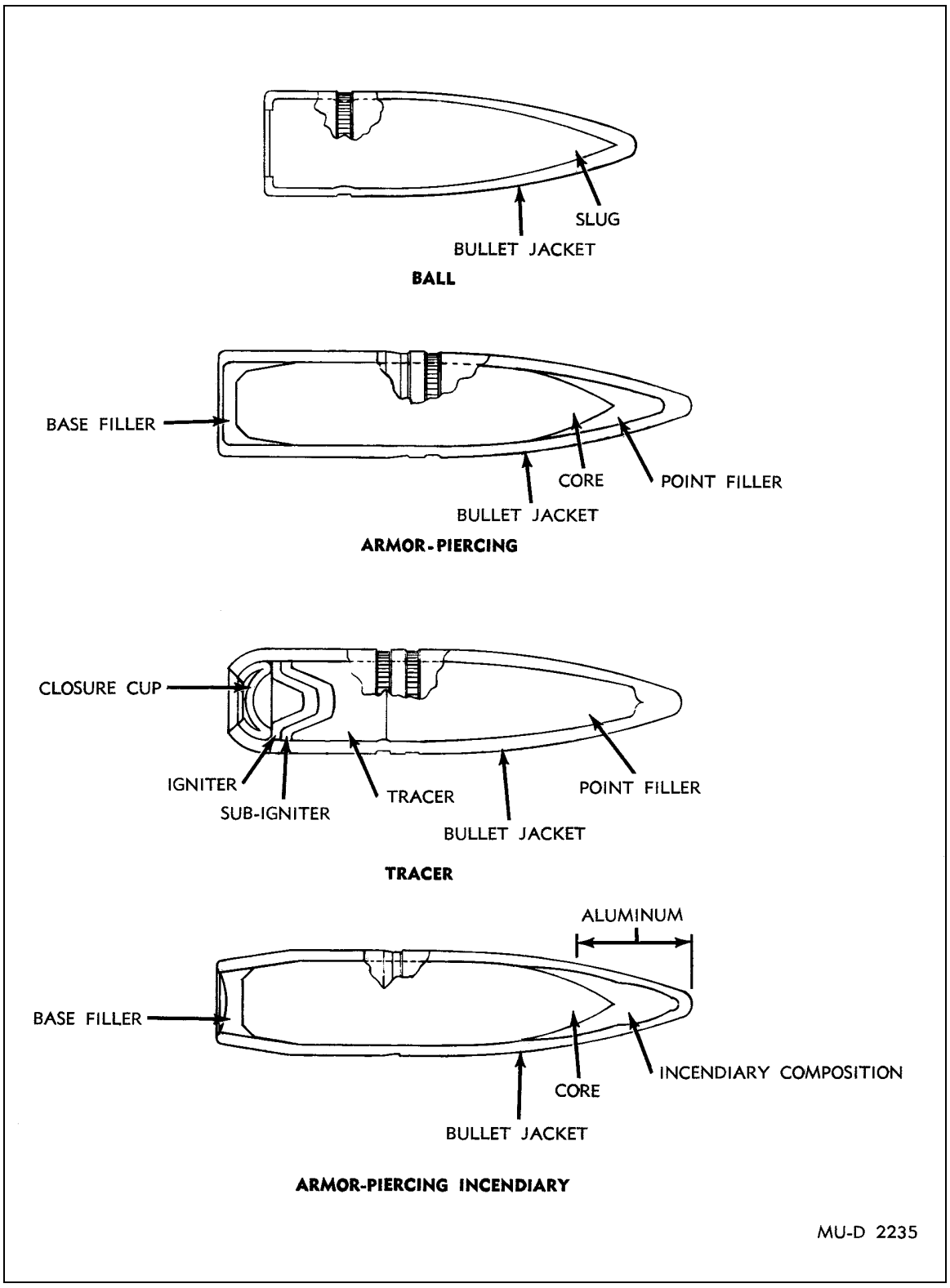


Figure 4. Caliber .30 bullets (sectional)

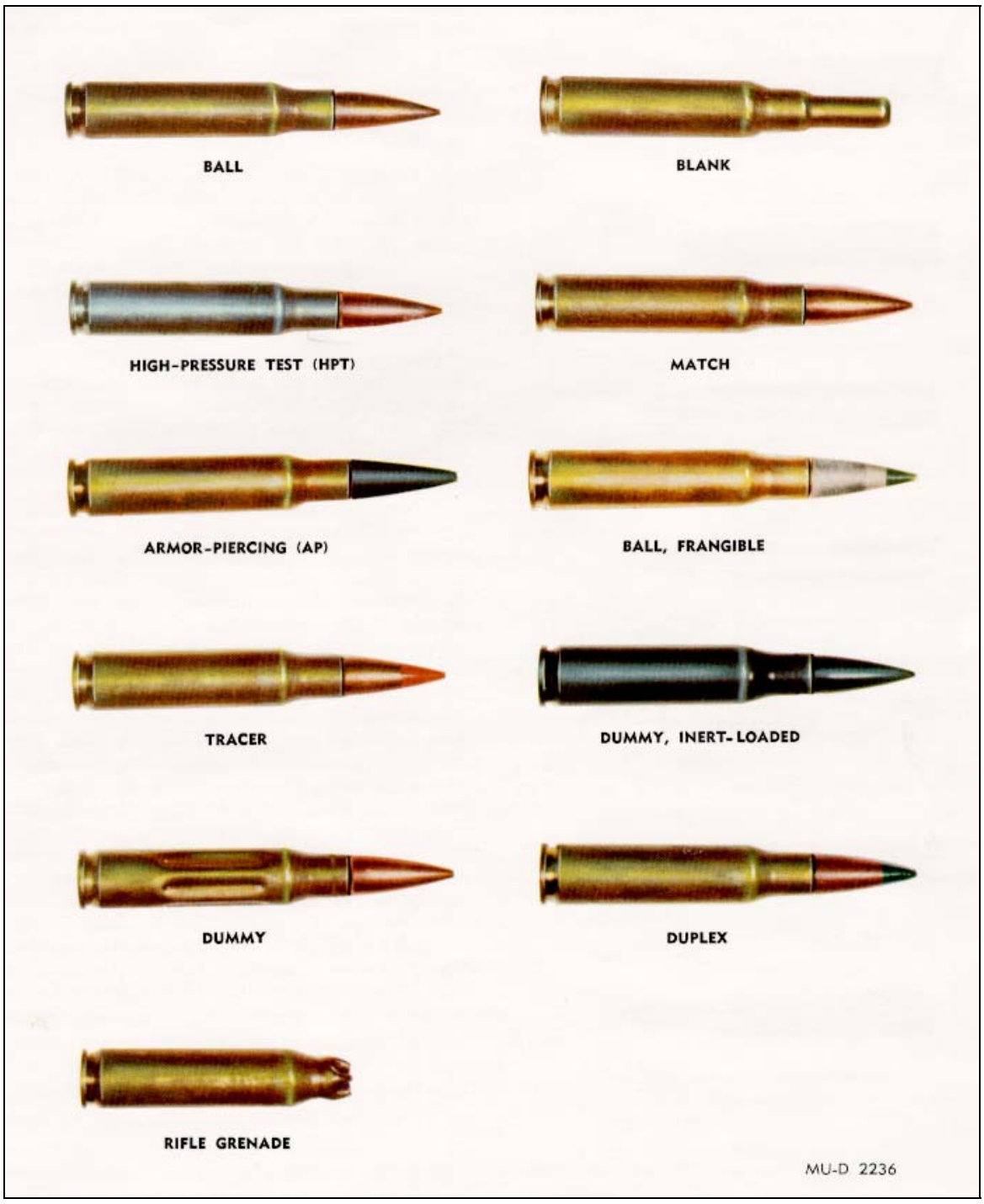


Figure 5. 7.62mm cartridges

Figure 6. 5.56mm cartridges

Propellant. Cartridges are loaded with varying weights of propellant. This is to impart sufficient velocity (within safe pressures) to the projectile to obtain the required ballistic performance. These propellants are either of the single-base (nitrocellulose) or double-base (nitrocellulose and nitroglycerine) type. The propellant grain configuration may be cylindrical with a single, lengthwise perforation, spheroid (ball) or flake. Most propellants are coated with a deterrent (to assist in controlling the rate of combustion) and with a final coating of graphite (to facilitate flow of propellant and eliminate static electricity in loading cartridges).

Primer. Small-arms cartridges contain either a percussion or electric primer. The percussion primer consists of a brass or gilding metal cup that contains a pellet of sensitive explosive material secured by a paper disk and a brass anvil. The electric primer consists of an electrode button in contact with the priming composition, a primer cup assembly and insulator. A blow from the firing pin of the weapon on the center of the percussion primer cup base compresses the primer composition between the cup and the anvil. This causes the composition to explode. The function of the electric primer is accomplished by a firing pin with electrical potential, which contacts the electrode button. This allows current to flow through the energy-sensitive priming composition to the grounded primer cup and cartridge case, exploding the priming composition. Holes or vents in the anvil or closure cup allow the flame to pass through the primer vent in the cartridge case and ignite the propellant. Rimfire ammunition, such as the caliber .22 cartridge, does not contain a primer assembly. Instead, the primer composition is spun into the rim of the cartridge case and the propellant is in intimate contact with the composition. On firing, the firing pin strikes the rim of the cartridge case, compressing the primer composition and initiating its explosion.

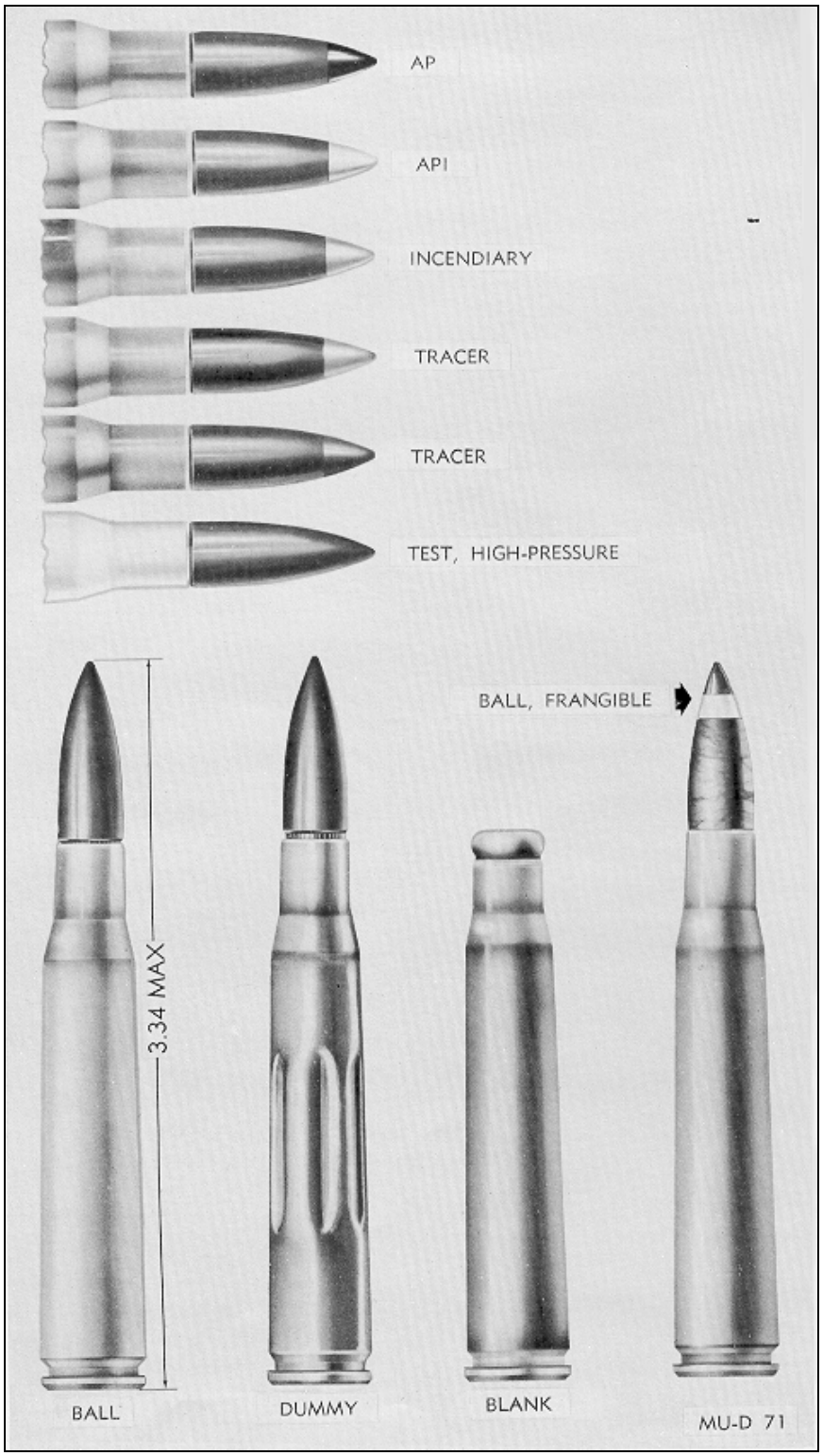


Figure 7. Caliber .30 cartridges

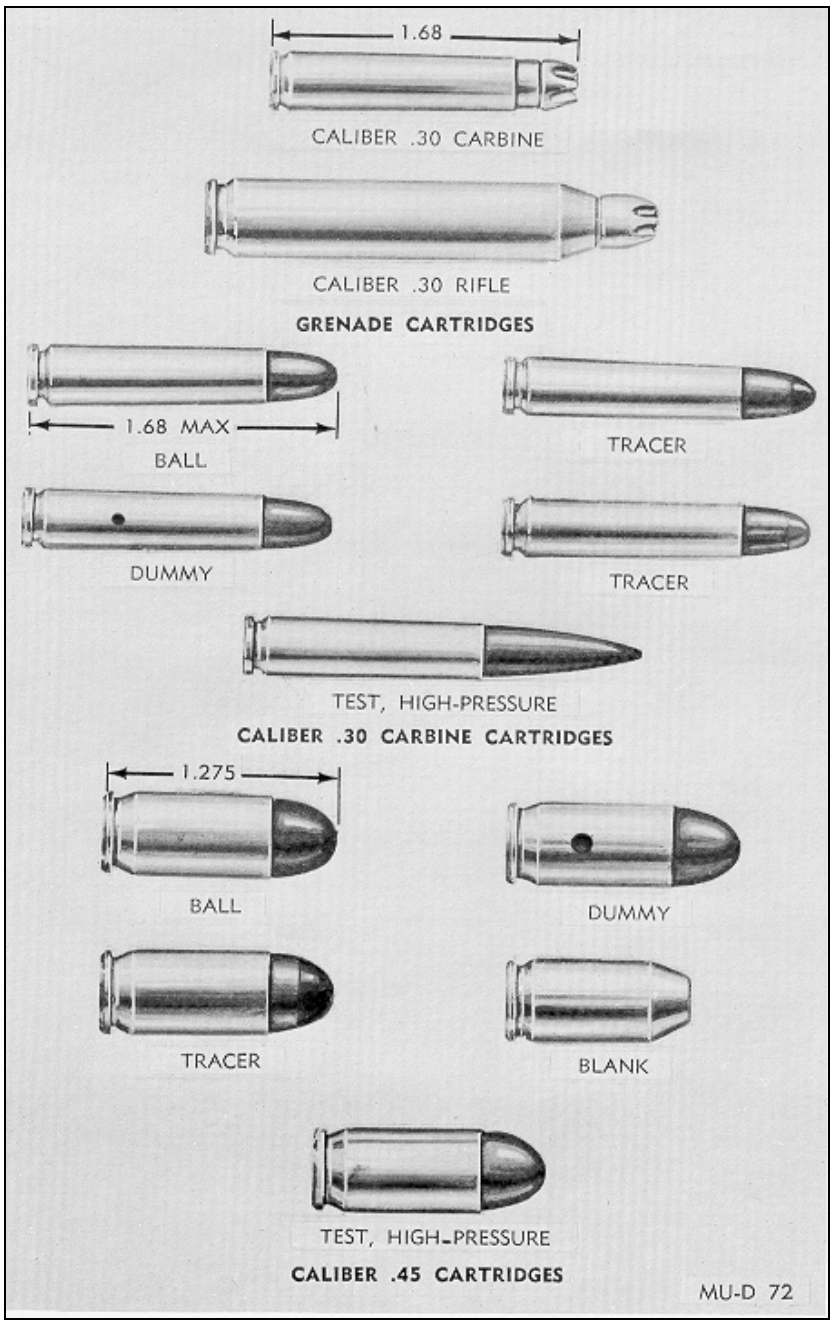


Figure 8. Caliber .30 carbine and caliber .45 cartridges

Bullet. With few exceptions, bullets through caliber .50 are assemblies of a jacket and a lead or steel core. They may contain other components or chemicals which provide the terminal ballistic characteristics of the bullet type. The bullet jacket may be either gliding metal, gliding-metal clad steel, or copper plated steel. Caliber .30 and 7.62mm frangible bullets are molded of powdered lead and a friable plastic which pulverizes into dust upon impact with the target. The pellets used in the shotgun shells are spheres of lead alloys varying from 0.08 inch to 0.33 inch in diameter.

Figure 9. Caliber .50 cartridges

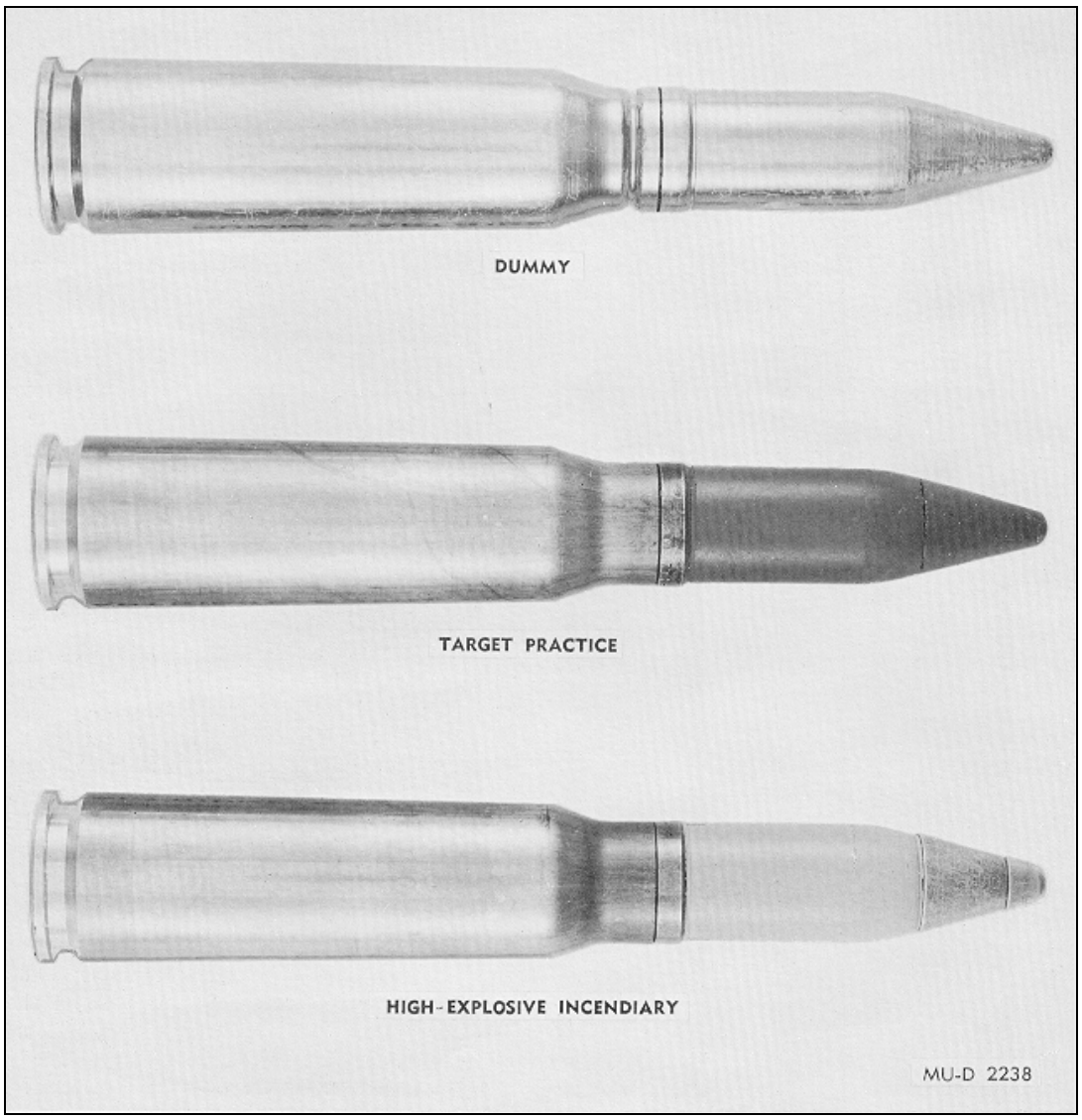


Figure 10. 20mm cartridges

Ball Cartridge. The ball cartridge is intended for use in rifles, carbines, pistols, revolvers and/or machineguns against personnel and unarmored targets. The bullet, as designed for general purpose combat and training requirements, normally consists of a metal jacket and a lead slug. Caliber .50 ball bullet and 7.62-mm, Ball M59 bullet contain soft steel cores.

Tracer Cartridge. By means of a trail of flame and smoke, the tracer cartridge is intended to permit visible observation of the bullet's in-flight path or trajectory and the point of impact. It is used primarily to observe the line of fire. It may also be used to pinpoint enemy targets to ignite flammable materials and for signaling purposes. The tracer element consists of a compressed, flammable, pyrotechnic composition in the base of the bullet. This composition is ignited by the propellant when the cartridge is fired. In flight, the bullet emits a bright flame which is visible to the gunner. Trace burnout occurs at a range between 400 and 1,600 yards, depending upon the caliber of ammunition.

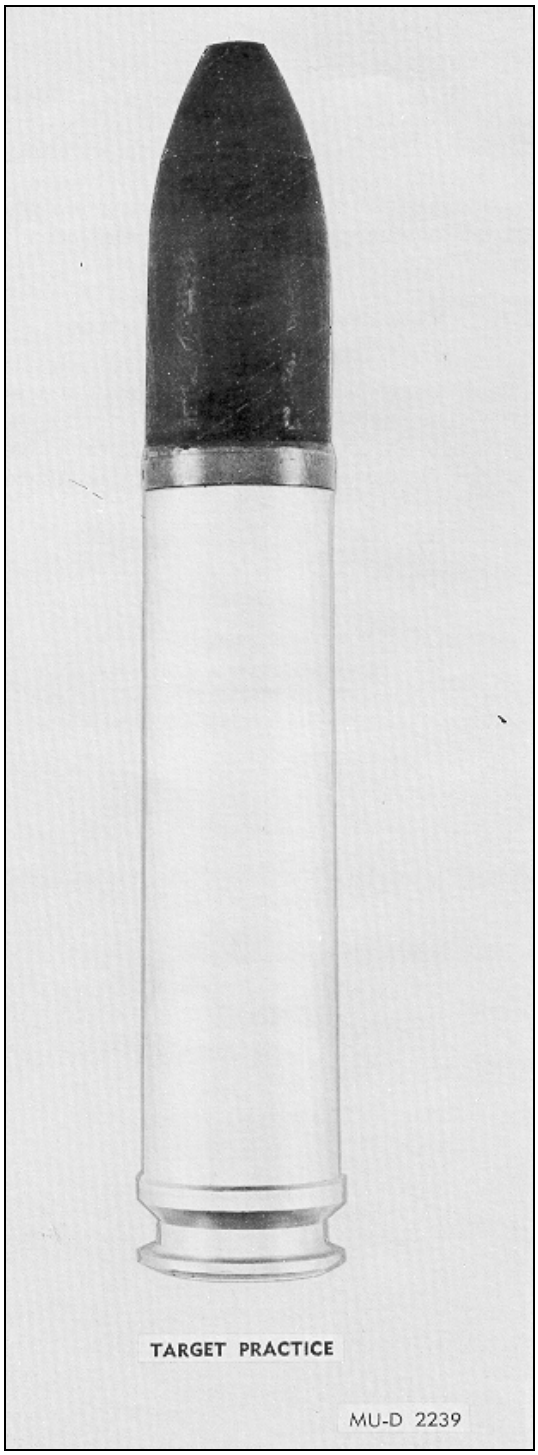


Figure 11. Typical 30mm projectile

Match Cartridge. The match cartridge is used in National and International Match Shooting competitions. The bullet consists of a gliding-metal jacket over a lead slug. The cartridges are identified on the head face with the designation NM (National Match) or Match.

Armor-Piercing Cartridges. The armor-piercing cartridge is intended for use in machine-guns or rifles against personnel and light armored and unarmored targets, concrete shelters, and similar bullet-resisting targets. The bullet consists of a metal jacket and a hardened steel-alloy core. In addition, it may have a base filler and/or a point filler of lead.

Armor-Piercing-Incendiary Cartridge. The armor-piercing-incendiary cartridge is used in rifles or machineguns as a single combination cartridge in lieu of separate armor-piercing and incendiary cartridges. The bullet is similar to the armor-piercing bullet, except that the point filler is incendiary mixture instead of lead. Upon impact with the target, the incendiary mixture burst into flame and ignites flammable material.

Armor-Piercing-Incendiary Tracer Cartridge. The bullet of the armor-piercing- incendiary-tracer cartridge combines the features of the armor-piercing, incendiary, and tracer bullets and may be used to replace those cartridges. The bullet consists of a hard steel core with compressed pyrotechnic mixture in the cavity in the base of the core. The core is covered by a gilding-metal jacket with incendiary mixture between the core point and jacket. This cartridge is for use in caliber .50 weapons only.

Duplex Cartridge. The duplex cartridge contains two special ball type bullets in tandem. The front bullet is positioned partially in the case neck, similarly to a standard ball bullet. The rear bullet, positioned completely within the case, is held in position by a compressed propellant charge. The base of the rear bullet is angled so that in flight, it follows a path slightly dispersed from that of the front bullet.

Spotter-Tracer Cartridge. The spotter-tracer cartridge is intended for use in coaxially mounted caliber .50 spotting rifles. The bullet trajectory closely approximates that of 106mm projectiles. Thus, this cartridge serves as a fire control device to verify weapon sight settings before firing 106mm weapons. The bullet contains an impact detonator and incendiary composition which identify the point of impact by flash and smoke.

Blank Cartridge. The blank cartridge is distinguished by absence of a bullet. It is used for simulated fire, in training maneuvers, and for saluting purposes. It is fired in rifles and machineguns equipped with blank firing attachments.

Grenade Cartridge. The grenade cartridge is used to propel rifle grenades and ground signals from launchers attached to rifles or carbines. All rifle grenade cartridges are distinguished by the rose petal (rosette crimp) closure of the case mouth.

Frangible Cartridge. The caliber .30 frangible cartridge, designed for aerial target training purposes, is also used in rifles and machineguns for target shooting. Caliber .30 and 7.62mm frangible cartridges are used in tank machineguns, firing single shot, for training in tank gunnery. At its normal velocity, the bullet, which is composed of powdered lead and friable plastic, will completely disintegrate upon striking a 3/16-inch aluminum alloy plate at 100 yards from the muzzle of the gun. These cartridges are not to be used on any but well ventilated indoor ranges to preclude buildup of toxic bullet dust. Inhalation of bullet dust may be injurious to health.

Incendiary Cartridge. The incendiary cartridge was designed for aircraft and ground weapon use to ignite combustible targets (e.g., vehicular and aircraft fuel tanks). The bullet contains a compressed incendiary mixture which ignites upon impact with the target. The incendiary cartridge has been superseded by the API and APIT cartridges because of their improved terminal ballistic effects.

Target-Practice Cartridge. The 20mm target-practice cartridge is the conventional steel shell with steel nose plug. It is used primarily for training purposes. This is not a combat cartridge; hence, no fuze is used in the assembly.

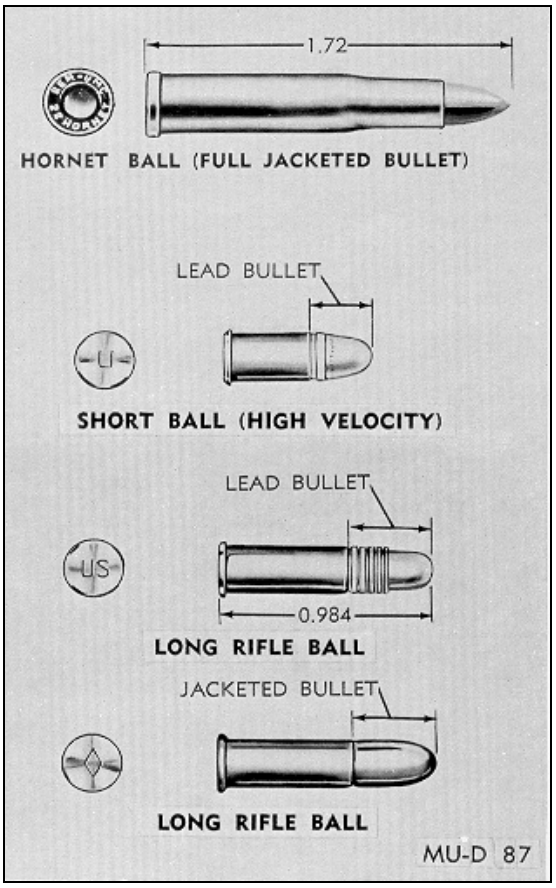


Figure 12. Caliber .22 cartridges

Special Purpose Cartridge

Cartridges of various calibers. (figures. 11 through 14), which consist of different types of projectiles and bullets, are used for training and special purposes. They include the following:

(1) Caliber .22 long rifle and caliber .38 and .45 wad-cutter cartridge for target shooting.

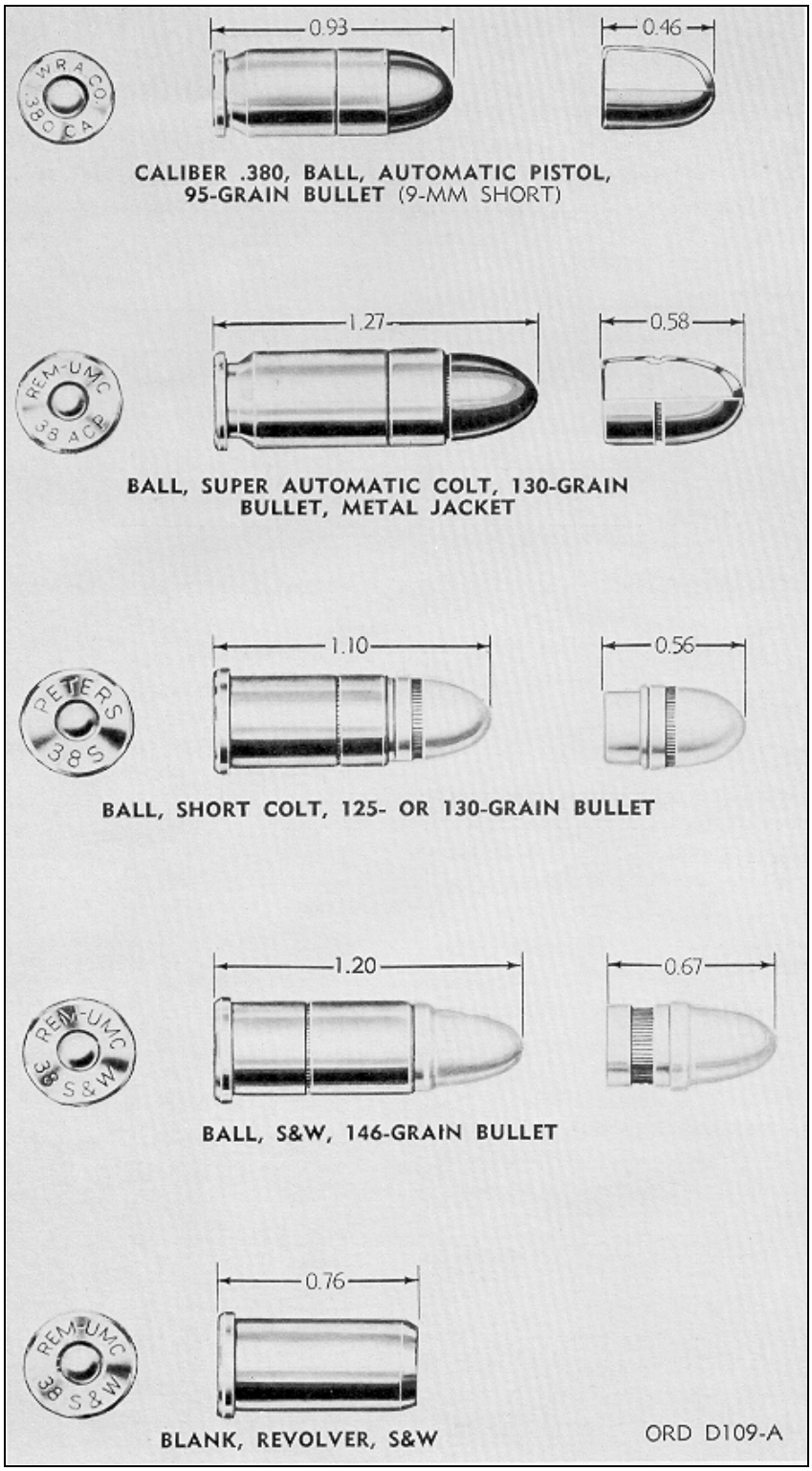


Figure 13. Caliber .38 cartridges

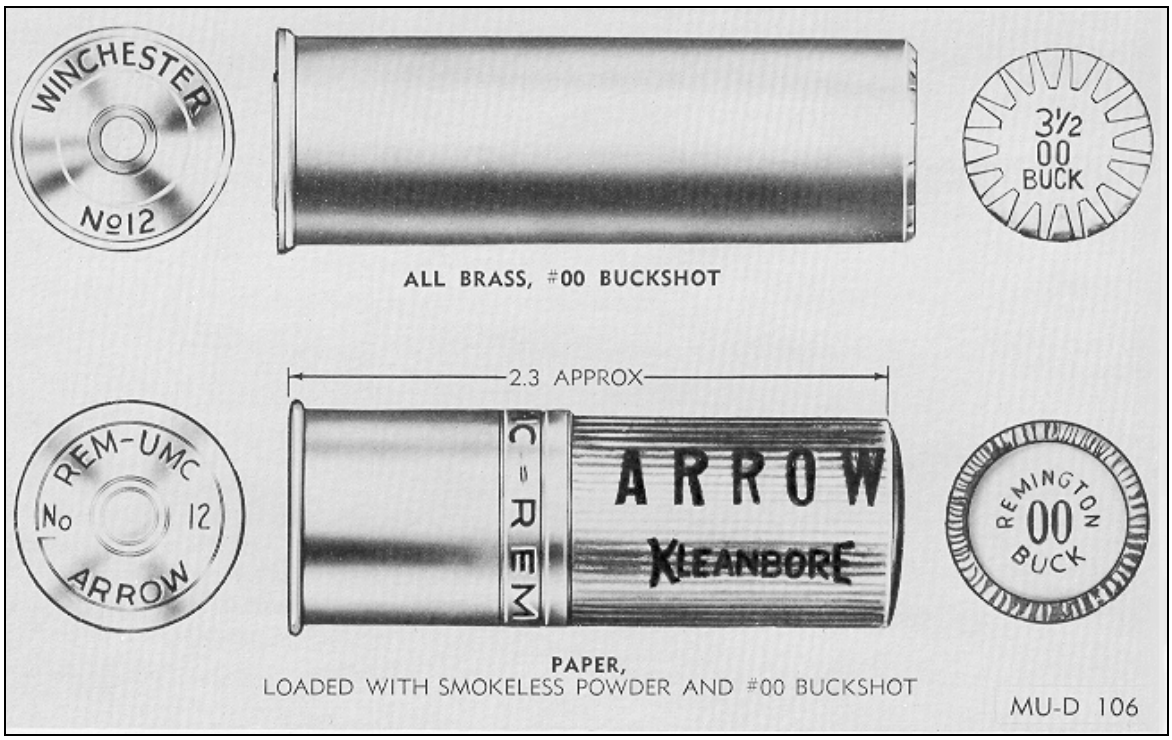


Figure 14. 12 gage shotgun shells

(2) Caliber .45 blank cartridges fired in exercises to condition dogs to gun fire.

(3) Caliber .22 hornet and .410 shotgun cartridges for firing in Air Force combination (survival) weapons for hunting purposes.

(4) Caliber.45 line-throwing cartridges for firing in caliber .45 line-throwing rifles. The Navy uses these for throwing lines from ship-to-ship. The Army Signal Corps uses these for projecting signal wires over elevated terrain.

(5) Shotshells containing the designated shot sizes as required for the following:

12 gage #00 Buck for guard duty
12 gage #4 Buck for guerrilla purposes.
12 gage #6, 7½ and 8 shot for clay target shooting for training purposes.
.410 gage #7 shot for caliber .22/.410 survival weapons maintained by aircraft

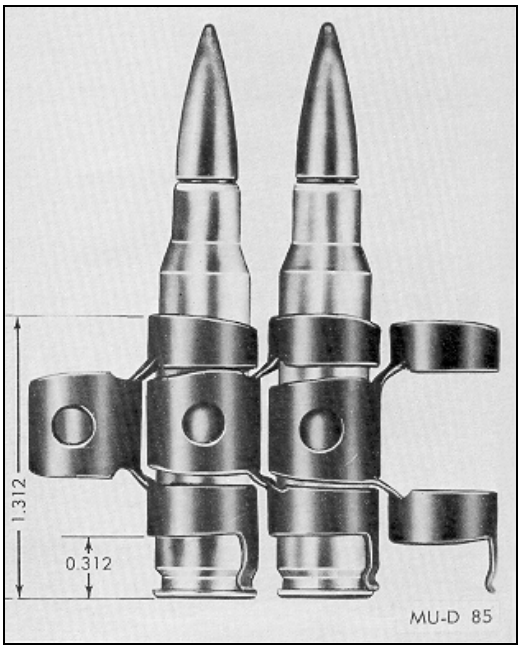


Figure 15. Linked 7.62-mm cartridges

Special purpose cartridges These also include the following types of military cartridges:

(1) Dummy. The dummy cartridge is used for practice in loading weapons and simulated firing to detect flinching of personnel when firing weapons. It consists of a cartridge case and a ball bullet. Cartridge identification is by means of holes through the side of the case or longitudinal corrugations in the case and by the empty primer pocket.

(2) Dummy inert-loaded. This cartridge consists of a cartridge case, a ball bullet and inert granular material in the case simulating the weight and balance of a live cartridge. The exterior of the cartridge is identified by a black chemical finish and by the absence of a primer. This cartridge is used by installations for testing weapon function, linkage and feed chutes.

(3) High-pressure test. High-pressure test ammunition is specially loaded to produce pressures substantially in excess of the maximum average or individual pressures of the corresponding service cartridge. This cartridge is not for field issue. It is used only by armorers and weapons mechanics for proof firing of weapons (rifles, pistols, machine guns) at place of manufacture, test and repair. Because of excessive pressures developed by this type of ammunition, and the potential danger involved in firing, proofing of weapons is conducted only by authorized personnel from fixed and shielded rests by means of a lanyard or other remote control methods.

1.1.1 Metallic Links and Clip

Metallic links. (figures. 15 and 16) are used with caliber .30, caliber .50, 5.56mm, 7.62mm and 20mm cartridges in machine guns. The links are made of steel, surface treated for rust prevention. They are used to assemble cartridges into linked belts of 100 to 750 cartridges per belt. The links must meet specific test and dimension requirements to assure satisfactory ammunition feed and functioning in the machine gun under all training and combat service conditions.

Different configurations of cartridge clips. These permit unitized packages of ammunition. This facilitates transfer of cartridges to appropriate magazines for caliber .30, 7.62mm and 5.56mm rifles. The caliber .30 eight-round clip feeds eight cartridges as a unit into the receiver of the rifle. The caliber .45 clip feeds three cartridges as a unit into the revolver cylinder. Five-round and eight-round clips are used with caliber .30 cartridges; five-round clips with 7.62mm cartridges; ten- round clips with caliber .30 carbine and 5.56-mm cartridges; and three-round clips with caliber .45 cartridges.

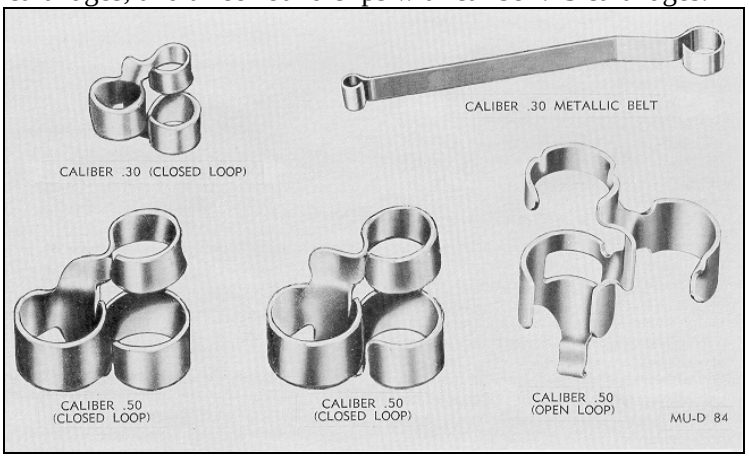


Figure 16. Links for caliber .30 and caliber .50 ammunition

Identification Markings. Each outer shipping container and all inner containers are fully marked to identify the ammunition. Wire- bound boxes are marked in black and ammunition boxes are painted olive drab, with markings in yellow. When linked ammunition is functionally packed, component lot numbers are replaced by a functional lot number. Typical packing and identification markings are illustrated in figures 17 through 19.

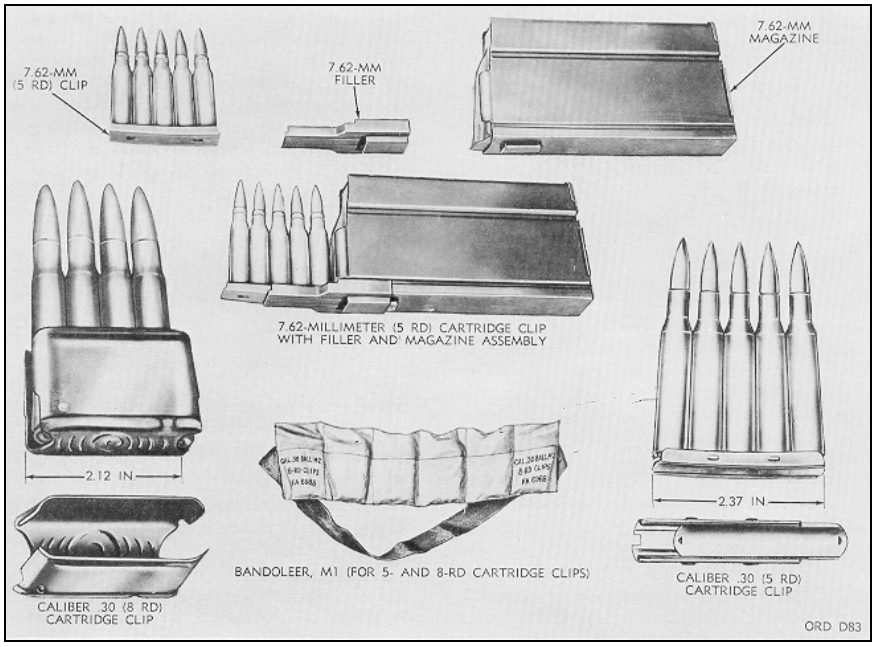


Figure 17. Cartridges, links, belt, cartons, bandoleers and ammunition box

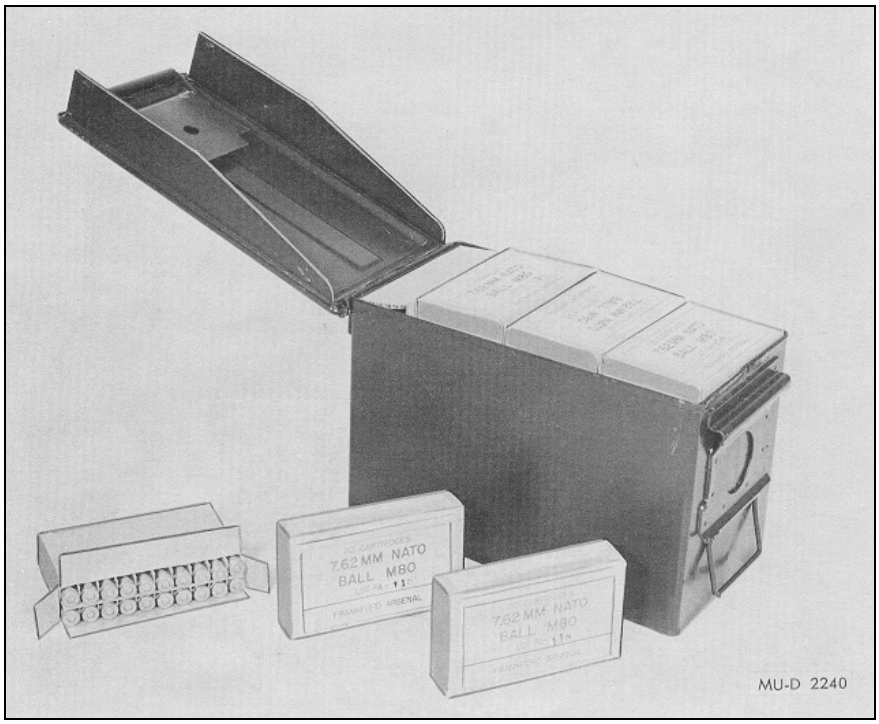


Figure 18. Cartridges, link belt, cartons, bandoleers and ammunition box

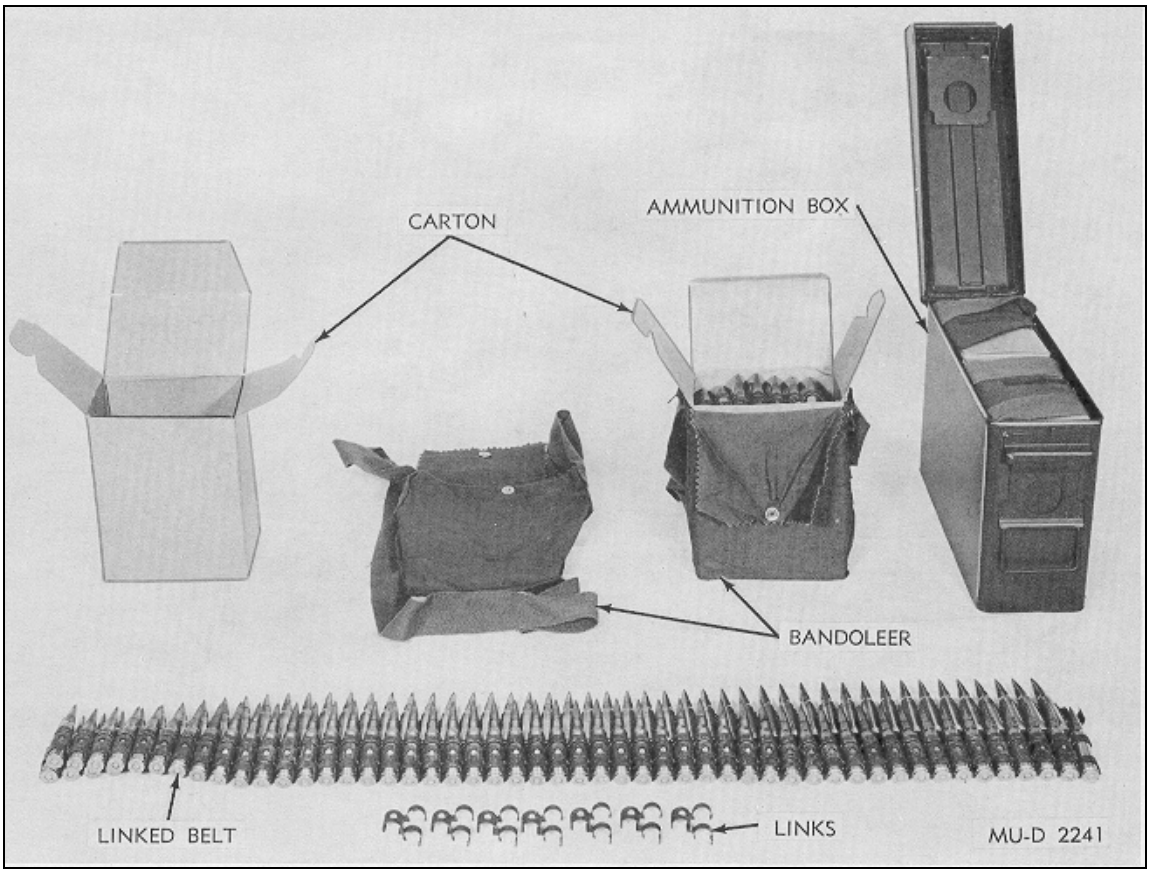


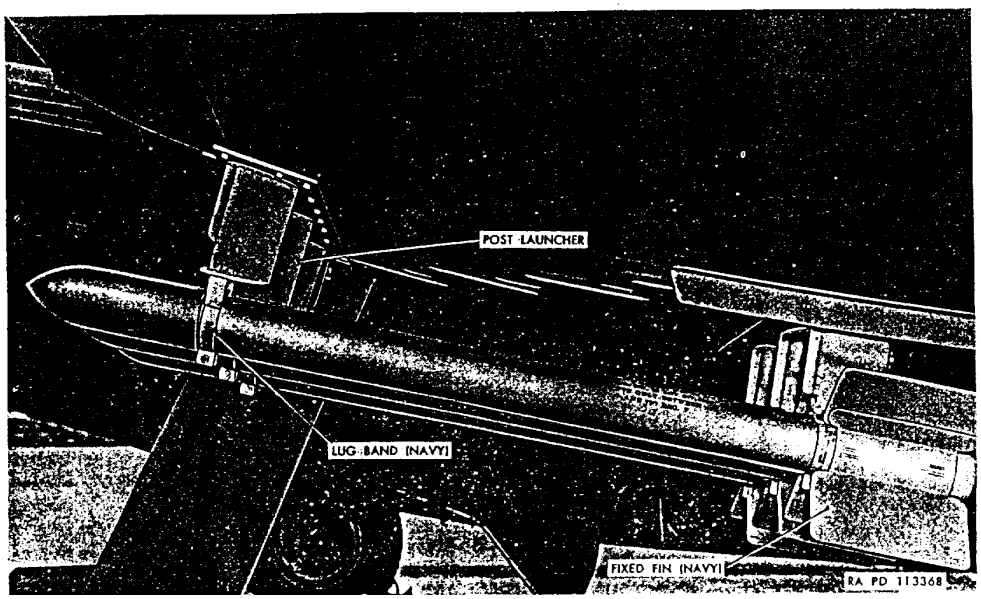
Figure 19. Cartridges, link belt, cartons, bandoleers and ammunition box

Care, Handling and Preservation

Small-arms ammunition is comparatively safe to handle. It is packed to withstand transportation, handling and storage conditions normally encountered in the field. However, consideration should be given to general handling precautions pertaining to ammunition and explosives.

Reference: This data is a reprint of Chapter 3, TM 9-1300-200, *Ammunition General*, October 1969

AIRCRAFT ROCKET, 3.5 INCH, Mk 4 SEMI-ARMOR PIERCING



3.5-inch aircraft rocket (3.5-inch head MK 8 Mod 1 and 3.25-inch motor MK 7

NO PICTURE AVAILABLE FOR THE 3.5-INCH Mk 4

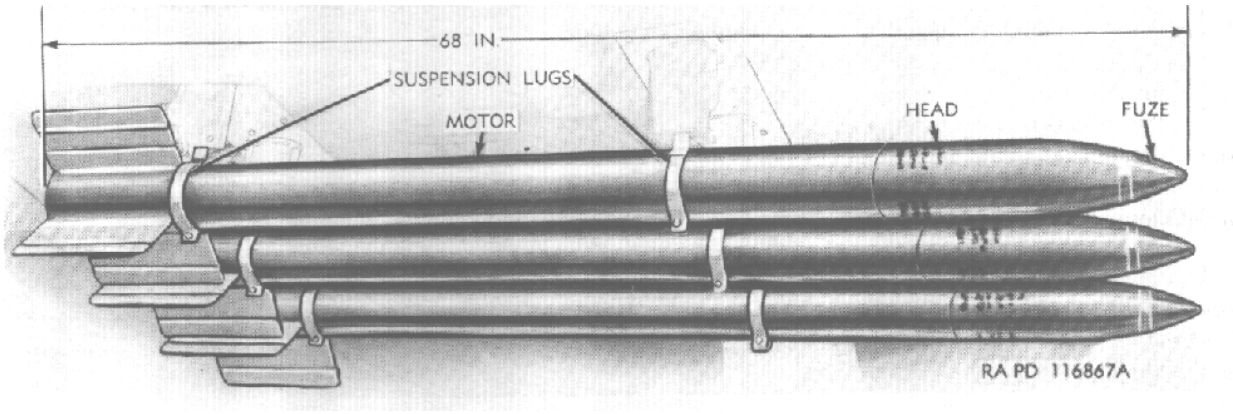
Use. The 3.5-inch rockets are designed for use against smaller targets, such as submarines and tanks. Due to the small amount of explosives the HE and AP head were not issued.

Description. The head has a semi-armor-piercing nose and is filled with 1-pound of high explosives. The High Explosive and Semi-Armor Piercing Heads were discontinued due to the small amount of explosives carried, and replaced with the 5.0-inch heads.

Head Length:.....13.4 inches
Head Weight:.....20.2 pounds
Filler:.....TNT
Filler Weight: .....1.0 pounds
Total Weight:.....53.9 pounds
Total Length:.....58.5 inches
Fuzing: .....Base fuze, Mk 146
Motor: .....3.25-inch Mk 7

References: NAVSEA OP 1664, *U.S. Explosive Ordnance Disposal*, May 1947; TM 9-1950, *Rockets*, July 1950

ROCKETS, 5 INCH (HVAR)



General. The 5.0-inch fin stabilized, high-velocity aircraft rocket is a Navy type used by the Air Force for forward firing from aircraft. The 5.0-inch rocket is fired from retractable jettisoning launcher using suspension bands. Electrical energy to fire the rocket is derived from the electrical system of the aircraft. The rocket consists of a fuzed head and a motor.

Rocket Heads. Listed below are the various HVAR heads, which are assembled with 5.0-inch rocket motors to form HAVR complete rounds. Complete round data and nomenclature are given in tables. The TNT loaded heads Mk 6 and Mods are shipped with permanently installed base fuze Mk 159 Mod 1 or Mk 164 and Mods and a shipping cap that is replaced by nose fuze Mk 149. The TNT-filled head Mk 6 Mod 4 is especially deep cavitized to receive a VT fuze. The head Mk 25 Mod 1 is a shaped charge type (having an internal copper cone) loaded with composition B. As shipped, the head Mk 25 Mod 1 has a nose shipping plug, which is replaced by nose fuze Mk 149, and a shipping cap to protect the base threads.
HEAD, HIGH EXPLOSIVE, 5.0-inch ROCKET: HVAR, Mk 6 Mod 0, 1, 2, and 3, TNT loaded, with fuze, rocket base AN-Mk 159 (Mk 159 Mod 1) or AN-Mk 164 (Mk 164) and Mods installed.

HEAD, HIGH EXPLOSIVE, 5.0-inch ROCKET: HVAR, Mk 6 Mod 4, TNT loaded, adapted for fuze, VT, M403, with fuze, rocket, base AN-Mk 159 (Mk 159 Mod 1) and Mods or AN-Mk 164 (Mk 164) and Mods installed.

HEAD, INERT, 5.0-inch ROCKET: Mk 6 and Mods.

Fuze. The 5.0-inch HVAR head Mk 6 Mods is permanently fuzed with base fuze Mk 159 Mod 1 or Mk 164 and Mods. The heads Mk 6 and Mods and Mk 25 Mod 1 receive nose fuze Mk 149 Mod 0 or 1 after removal of the nose-shipping cap. The Mk 6 Mod 4 receives VT fuze M403 or M403E2 (Mk 172 Mod 2).

Motor. Listed below are various similar 5.0-inch rocket motors, which are assembled with 5.0-inch HVAR heads to form complete rockets as, indicated in tables. The motor Mk 10 differs from the motor Mk 2 principally in having an Army igniter plug instead of a Navy (bayonet-type) plug. The 5.0-inch motor is externally threaded at the forward end to engage the head. It consists of the motor tube, front closure disk, igniter, propellant, nozzle plate, suspension lugs and fin assembly and suspension lugs.
MOTOR, 5.0-INCH ROCKET: Mk 2 Mod 3
MOTOR, 5.0-INCH ROCKET: Mk 2 Mod 3 (with bayonet-type connector plug)

MOTOR, 5.0-INCH ROCKET: Mk 10 Mods 4 and 5
MOTOR, 5.0-INCH ROCKET: Mk 10 Mods 4 and 5 (with electrical connector Mk 11 Mod 5 or M3)
MOTOR, 5.0-INCH ROCKET: Mk 10 Mod 7 (without fin)
MOTOR, 5.0-INCH ROCKET, EMPTY: Mk 2 Mod 3
MOTOR, 5.0-INCH ROCKET, INERT: Mk 2 Mod 3

Fin Assembly. The fin assembly, which is clamped to the rear end of the motor, is a sleeve with four equally spaced rectangular fins extending radially.

Propellant. The propellant is a single grain Mk 18 Mod 0 of ballistite.

Igniter. The igniter is a metal can containing 55 grains of black powder and an electric squib. Two lead wires from the squib extend from the igniter passing through the perforation in the propellant grain to the nozzle where they are connected to the electrical cable and igniter plug (connector).

Head			Motor			Fuze		Velocity (fps)	Use
Dia. (in)	Mark & Mod	Fillers	Dia. (in)	Mark & Mods	Propellant grain	Nose	Base		
5.0	Mk 6 Mods	TNT	5.0	Mk 10 Mods	Mk 18 Mod 0	Mk 149 Mod 0 or 1	Mk 164 Mod 0	1,325	Service
5.0	Mk 6 Mod 4	TNT	5.0	Mk 10 Mods	Mk 18 Mod 0	Mk 149 Mod 0	Mk 164 Mod 0	1,325	Service
5.0	Mk 6 Mod	Plaster	5.0	Mk 10 Mods	Mk 18 Mod 0	None	None	1,325	Practice
5.0	Mk 6 Mods	Plaster	5.0	Mk 2 Mod 3	None	None	None	None	Drill
5.0	Mk 25 Mod 1	Comp B	5.0	Mk 10 Mods	Mk 18 Mod 0	Mk 149 Mod 0	None	1,325	Service (AP)

Army Complete Round Nomenclature	Rocket, HE, 5.", HVAR	Rocket, HE, 5", HVAR	Rocket, HE, 5", HVAR, AT	Rocket, Practice, 5", HVAR	Rocket, Dummy, 5,", HVAR
Navy Complete Round Nomenclature	5" Rocket, Mk 4 Mod 0 (aircraft general purpose)	5" Rocket, Mk 28 Mod 4 (aircraft general purpose)	5" Rocket, Mk 32 Mod 1 (aircraft, HEAT)	5" Rocket, Mk 5 Mod 0 (aircraft practice)	5" Rocket, Mk 6 Mod 0 (aircraft dummy)
HEAD- Mark & Mod Length (in. Diameter (in.) Weight (lb.) Filler Weight (lb.)	Mk 6 Mod 4 16.73 5.0 45.5 7.5 TNT	Mk 6 Mods 16.73 5.0 45.5 7.5 TNT	Mk 25 Mod 1 ---------- ---------- ---------- 7.5 COMP B	Mk 6 Mods 16.73 5.0 45.5 7.5 Plaster	Mk 6 Mods 16.73 5.0 45.5 7.5 plaster
MOTOR-Mark & Mod Length (in.) Diameter (in.) Weight (lb.) Model of Propellant Propellant weight (lb.)	Mk 10 Mod 6 ---------- 5.0 ---------- Mk 18 Mod 0 23.9	Mk 10 Mod 6 52.0 5.0 89.3 Mk 18 Mod 0 23.9	Mk 10 Mods 52.0 5.0 89.3 Mk 18 Mod 0 23.9	Mk 10 Mod 6 52.0 5.0 89.3 Mk 18 Mod 0 23.9	Mk 10 Mod 6 52.0 5.0 89.3 Mk 18 Mod 0 23.9
FUZE-type, Mark and Mod	Nose: VT, M403 or M403E2 Base: Mk 164 Mods	Nose: Mk 149 Mod 0 or 1 Base: Mk 164 Mod 0	Nose: Mk 149 Mod 0 Base: None	None	None
ROCKET (assembled) Length (in.) Weight (lb.) Velocity (max((fps)	68.6 ---------- 1360	68.6 134.0 1,325	68.6 134.0 1,325	68.6 134.0 1,325	68.6 109.0

Reference: TM 9-1950 *Rockets*, July 1945

APPENDIX D

REPORTS / STUDIES

Section No. Report / Study

D-1 Corps of Engineers – Sacramento

1999 Inventory Project Report (INPR) for project No. J09CA1072, *Siskiyou Rocket and Bombing Range*, Macdoel, California, dated .16 September 1999

APPENDIX D-1

Corps of Engineers – Sacramento

Inventory Project Report (INPR) for project No. J09CA1072, Macdoel, *Siskiyou Rocket and Bombing Range*, Macdoel, California, dated 16 September 1999

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

REPLY TO
ATTENTION OF:

CEHNC-OE-DC

18 November 1999

MEMORANDUM FOR Commander, U.S. Army Engineer Division,
South Pacific, ATTN: CESPD-PM-R,
333 Market St., Room 923,
San Francisco, California 94105-2195

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

1. The enclosed INPR was submitted to us for action (enclosure 1). We have reviewed the INPR and recommend a phased EE/CA be scheduled for the following site:

DISTRICT	PROJECT NO.	RAC	SITE NAME
SPK	J09CA107201	4	Siskyou Bombing Range

2. Please note that photographs were referenced on Page 2 of the INPR but none were included in the packet.

3. An INPR Cost Model has been added as enclosure 2. Prior approval for this project has been given by SPD. No other approval is requested.

4. The point of contact is Ms. Carrie Douglas at 256-895-1465 or Mr. Jerry Thornton, Safety Specialist, at 256-895-1792.

FOR THE DIRECTOR OF ORDNANCE
AND EXPLOSIVES TEAM:

Carrie W. Douglas

2 Encls

CARRIE W. DOUGLAS
Inventory Project Report Manager
for Ordnance and Explosives Team

CEHNC-OE-DC 18 November 1999
SUBJECT: DERP-FUDS Inventory Project Report (INPR) Requiring an Ordnance and Explosives (OE) Engineering Evaluation and Cost Analysis (EE/CA)

CF:
Commander, U.S. Army Engineer District, Sacramento, ATTN: CESPK-PM-H, 1325 J Street, Sacramento, California 95814-2922
Commander, HQUSACE, ATTN: CEMP-RF, 20 Massachusetts Avenue, NW, Washington, DC 20314-1000

2

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
333 Market Street, Room 923
San Francisco, California 94105-2195

REPLY TO ATTENTION OF:

21 SEP 1999

CESPD-PM-R

MEMORANDUM FOR

Commander, U.S. Army Corps of Engineers, 20 Massachusetts Avenue, N. W., Washington, DC 20314-1000

Commander, U.S. Army Engineering Center, Huntsville, P.O. Box 1600, Huntsville, Alabama 35807-4301

SUBJECT: Defense Environmental Restoration Program For Formerly Used Defense Sites (DERP-FUDS), Inventory Project Report (INPR) for Siskyou Bombing Range, Siskyou County, CA, Site No. J09CA107200

1. References:

a. Memorandum CEMP-RF, 17 Jan 1997, subject: Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS) - Delegation of Preliminary Assessment of Eligibility /Inventory Project Report (PAE/INPR), Project Approvals to Division Commanders.

b. DERP-FUDS Program Manual, U. S. Army Corps of Engineers, Directorate of Military Programs, Division of Environmental Restoration, Washington, D.C., July 96.

c. Memorandum CEMP-RF, 16 Oct 96, subject: Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS) - Preliminary Assessment Funding.

2. The enclosed INPR for Siskyou Bombing Range is approved by SPD in accordance with Ref 1a, 1b, and 1c. The INPR is being forwarded to you for your information and appropriate action. The site has been determined to be a formerly used defense site and is eligible for DERP-FUDS. The proposed OE project is also eligible.

CESPD-PM-R
SUBJECT: Defense Environmental Restoration Program For Formerly Used Defense Sites (DERP-FUDS), Inventory Project Report (INPR) for Siskyou Bombing Range, Siskyou County, CA, Site No. J09CA107200

3. This memorandum authorizes the OE (J09CA107201) project. The OE project is referred to Huntsville Army Engineering Center as recommended in the Inventory Project Report.

Encl

FOR PETER T. MADSEN
COL(P),EN
Commanding

2

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

CESPK-PM-H (200-1c) 16 September 1999

MEMORANDUM FOR Commander, South Pacific Division,
ATTN: CESPD-PM-R (Vincent Del Greco)

SUBJECT: Inventory Project Report (INPR) for the Former Defense Property at the Siskiyou Bombing Range, California Property No.J09CA107200.

1. The enclosed Inventory Project Report (INPR) addresses our current evaluation of the subject property. This report was prepared following discussions with the state of California, which requested an additional investigation. This additional investigation found that an OE Project was needed. The enclosed report supersedes any previously submitted report of the property.

2. I recommend that you approve the attached INPR and the proposed Ordnance and Explosive (OE) Project and Provide a copy of the report to the Huntsville Army Engineering and Support Center for their records and review of the proposed OE project.

FOR THE COMMANDER:

for Mark C. Charlton
Chief, Programs and Project
Management Division

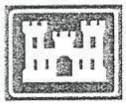
ENCL

FINAL
Inventory Project Report
Siskyou Bombing Range
Siskyou County, California
DERP/FUDS Site No. J09CA107200

Contract No. DACW05-95-D-0004
Task Order No. 0020

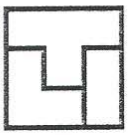
September 1999

Prepared For:



Department of the Army
Corps of Engineers
Sacramento District
1325 J Street
Sacramento, California 95814

Prepared By:



TechLaw, Inc.
300 Union Boulevard
Suite 600
Lakewood, Colorado 80228

SITE SURVEY SUMMARY SHEET
FOR
DERP-FUDS SITE NO. J09CA1072
SISKIYOU BOMBING RANGE
SISKIYOU COUNTY, CALIFORNIA

SITE NAME(S): The property is currently a part of the Goosenest Ranger District in the Klamath National Forest. It may have been known as the Macdoel Practice Gunnery Range.

LOCATION: The former bombing target is located in Township 47 North, Range 1 West, Section 30, approximately 290 miles north of Sacramento, 43 miles northwest from the town of Weed and just north of Highway 97 (Figure 1). The target consisted of approximately 160 acres and the approximate map coordinates are 41° 52' latitude and 122° 01 longitude. The site is within four miles of the town of Macdoel, population 600.

SITE HISTORY: The majority of the information regarding this target area was provided by Jim Stout, Resources Manager with the Klamath National Forest, Goosenest Ranger District and Jim Rock, Archeologist with the Klamath National Forest. Research at the San Bruno National Archives, the USACE, Sacramento District, the Siskiyou County Library, and the Klamath National Forest office yielded little information. An undated list of Gunnery Range and Target Areas Released since WWII by the Twelfth Naval District (the List) includes a Macdoel Practice Gunnery Range. The List indicates that the Macdoel range consisted of 7,040 acres presumed released in 1946, with statistics unknown (SB0099). For purposes of this report TechLaw only reviewed the target area referenced by Mr. Stout. This target area was probably considered to be part of the Macdoel range as it is located within four miles of the town of Macdoel.

Mr. Stout stated that the Federal Government bought the property from the Irrigation District in the mid-1940s and the property was part of the Soil Conservation Service from 1944 until 1950 when it was transferred to the Forest Service as part of the Land Utilization Project (Stout, June 1, 1999). In 1991 the target area became part of the Butte Valley Grasslands Project. Mr. Stout stated that the target area was not visible in aerial photographs taken in 1944 and that the target was probably constructed within months after the photograph was taken (Stout, May 13, 1999). The target area and approach patterns are visible in a 1948 aerial photograph (KN0004).

According to Mr. Stout, the target may also have been used as a gunnery range as local residents reportedly started visiting the area shortly after the war ended to retrieve brass shell casings (Stout, May 13, 1999).

Although there were several air fields in the area including, Kingsley Field in Klamath Falls, Klamath Falls

AFS, Montague, and what are now the Siskiyou County Airfield and the Devils Garden Airport, it is not known at this time which base used the target. Mr. Rock stated that the planes may have flown out of Kingsley Field or Klamath Falls; however, the local residents he had spoken with in the past were under the impression that the planes were not from any of the local air fields (Rock, May 13, 1999).

SITE VISIT: On June 10, 1999, Gene Barber and Cheryl Mahoney of TechLaw, and A.R. Smith, an ordnance expert with the USACE visited the site. The project team was allowed access to the property by Jim Stout, Resources Manager with the Klamath National Forest, Goosenest Ranger District. The main objectives of the site visit were to verify the reported evidence of DoD activity in the area and to document the current status of the site. The site visit yielded the following information:

The site visit began at the Goosenest Ranger District office on Highway 97. The project team met with Mr. Stout who provided information about the site and the various items which have been found there over the years. He provided copies of photographs of some of the ordnance which had been found at the site and removed to the Siskiyou County Museum, as well as a copy of a 1948 aerial photograph which depicts the target area and the lines of approach (KN0004). The photographs indicate that the flight paths had been cleared, probably for sighting purposes. The flight paths were not visible from the ground at the time of the site visit. Mr. Stout presented two additional aerial photographs depicting the outline of the target area which were taken on July 30, 1951 and July 22, 1986, Frame Nos.: 1-5 GS-PM and USDA-F 12 625050 1085 210, respectively. He stated that there was no evidence of a target in a 1944 DoD aerial photograph.

Photographs of items previously found at the site include: two non-explosive tips for air to surface rockets stamped "208 Lot No. 77 RM Co. 2.25 IN." and "46 2.25 BODY MK.3MOD"; Machine gun belt links; a 20 mm canon slug, solid-jacket, non-explosive warhead; and a fragment of a cast iron practice bomb (KN0001-KN0003). A rocket was discovered during a wildlife survey approximately 15 years ago and was removed by the DoD in Herlong.

Mr. Stout escorted the project team to the site which was reached by continuing on Highway 97 north from the ranger station, approximately 8.5 miles, then exiting left onto the Meis Lake/Sams Neck Road exit and continuing approximately 0.5 miles to an unmarked dirt road. Mr. Stout stopped, shortly after passing a closed but unlocked gate, and indicated that the target area was to the southeast of the road. The team then hiked across the dry lake bed to the target area. The property consisted of both naturally sodic and loamy mounds of soil covered with sage, juniper, and grease wood. According to Mr. Stout, the area floods in the winter and remains flooded during much of the spring due to the snow melt from the surrounding mountains. On the day of the site visit the ground was dry and cracked. A circular berm covered with sage defines the former target area and Mt. Shasta is visible in the background (Photographs 3 and 4). Approaching the site from the road, a large juniper tree visible to the southeast indicates the far edge of the target area (Photographs 1 and 2).

The target area was surrounded by a circular berm which was still in existence as of the date of the site visit. The target area included ordnance fragments and wooden remnants which were originally two by fours and one by sixes. Mr. Smith stated that, based on the ordnance and the wooden remnants in the area, the former targets probably consisted of cloth attached to wooden posts.

The target area was apparently used for both bombing and rocket practice as fragments of 500-pound practice bombs and portions of rockets were found in abundance in the target area. One MK5 miniature practice bomb was also found at the site. According to Mr. Smith, the large bomb fragments were Navy practice bombs, probably from an MK21, which was a 500-pound general purpose practice bomb, 61.8 inches long and 15 inches in diameter. He stated that this type of practice bomb was usually filled with water, wet sand, or occasionally anti-freeze. The MK5 miniature practice bombs usually had spotting charges which could prove hazardous if they had not exploded during the practice as intended. Mr. Smith also stated that the portions of rockets found were probably 3.5-inch rocket motors, possibly from an MK7. Mr. Stout stated that several rockets have been found along the approach to the target area.

A random visual and geophysical survey of the site was performed by Mr. Smith using a Schonstedt Model GA-52Cx Magnetic Locator. Although Mr. Smith discovered an anomaly at the south end of the berm, he stated that any buried ordnance would be difficult to find with the magnetic locator due to the high concentration of metal fragments on the surface. The area around the anomaly was left intact.

According to Mr. Stout, all items found at the site are taken to the Siskiyou County Museum to be cataloged and stored. Mr. Smith stated that he will compile a report of his findings and will follow-up with the museum to ensure that the ordnance stored there do not constitute a hazard.

CURRENT USE OF THE SITE: The former site is in the Klamath National Forest and has been a part of the National Grasslands Project since 1991. The property floods in the winter and is used for grazing cattle during the rest of the year. The property is fenced and not generally used by the public. Much of the nearby area is part of a wetlands reclamation project and has been flooded. Due to the historic nature of the site, there are currently no plans to make this site a part of the wetlands area.

CATEGORY OF HAZARD: OE

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

a. OE. The area was heavily used as a bombing target and rocket range and many fragments of ordnance remain.

AVAILABLE STUDIES AND REPORTS: Limited information was available from the various document repositories. A list of references is attached.

POC: Bill Mullery, U.S. Army Corps of Engineers, Sacramento District, (916) 555-6944.

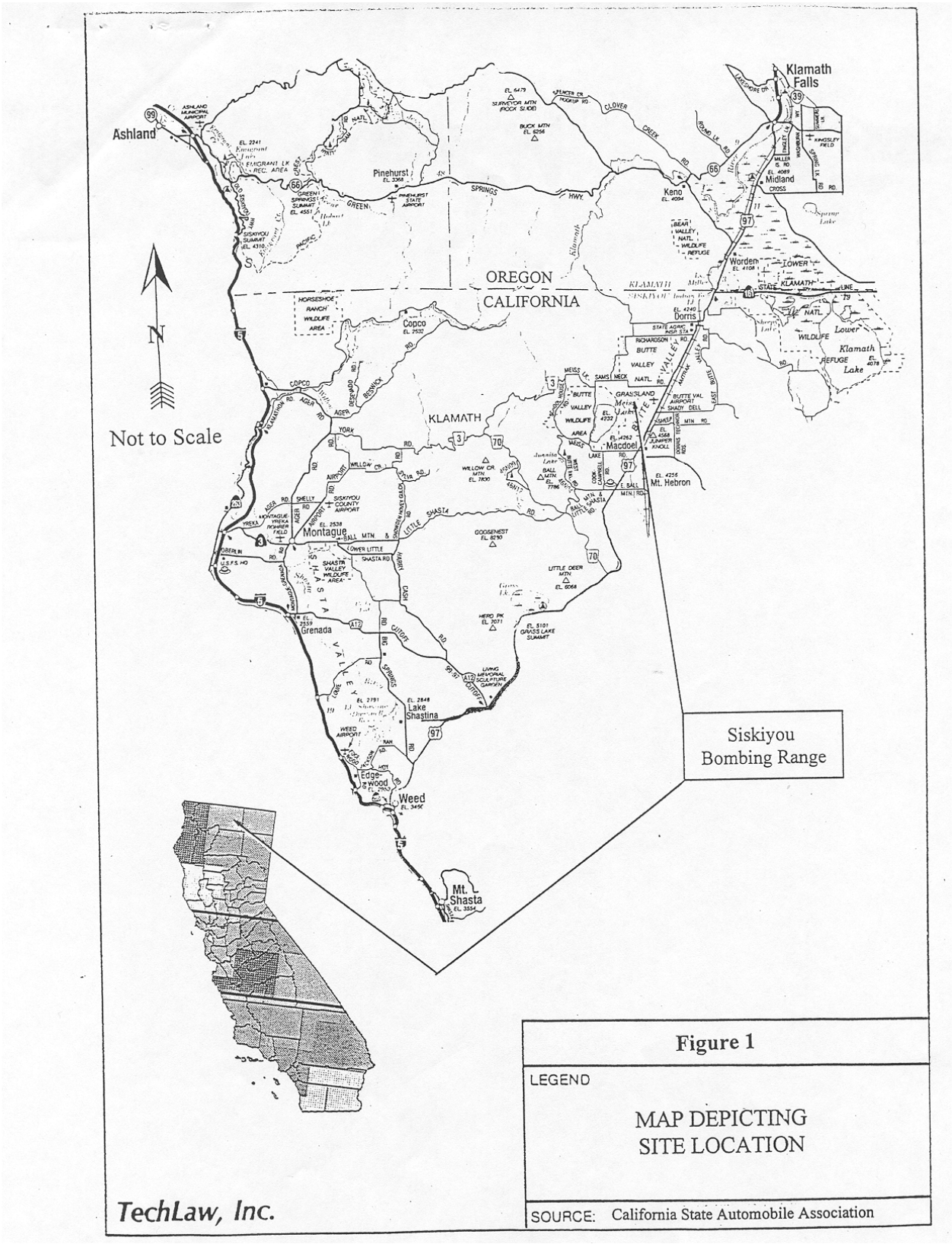


Figure 1

LEGEND

MAP DEPICTING SITE LOCATION

SOURCE: California State Automobile Association

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

SISKIYOU BOMBING RANGE
SISKIYOU COUNTY, CALIFORNIA
DERP-FUDS SITE NO. J09CA1072

FINDINGS OF FACT

1. No documentation has been located which would indicate the exact method or dates for DoD acquisition of an interest in the property which formed the Siskiyou Bombing Range. The property has been owned by the Federal Government since 1944 and the DoD may have acquired a permit or interagency agreement for use of the target. It is known that the target area was constructed during World War II, sometime after a 1944 aerial photograph was taken. The target area consisted of approximately 160 acres in Siskiyou County, California and may have been a part of the Macdoel Practice Gunnery Range which consisted of 7,040 acres.

2. DoD's use of the area is apparent from the target and extensive ordnance fragments found in the area which are of a type used by the Navy. It is known that the target area was constructed sometime after a 1944 aerial photograph was taken and before the end of World War II. Ordnance fragments found at the site indicate that the target was used as both a bombing and rocket range. The target may have also been used as a gunnery range as local residents reportedly went to the area and retrieved brass shell casings shortly after the war ended. No shells were found during the site visit.

3. Although it appears that the target's use ended along with World War II, no conclusive documentation was located. According to an undated list of Gunnery Range and Target Areas Released Since WWII by the Twelfth Naval District, the Macdoel Practice Gunnery Range was presumed to be released in 1946.

DETERMINATION

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

21 Sep 99
DATE

for PETER T. MADSEN
COLONEL (P), U.S. ARMY
COMMANDING

PROJECT SUMMARY SHEET
FOR
DERP-FUDS OE PROJECT NO. J09CA1072
SISKIYOU BOMBING RANGE
SISKIYOU COUNTY, CALIFORNIA

PROJECT DESCRIPTION: The Siskiyou Bombing Range was used for bombing and rocket training, and possibly as a gunnery range. The property is now part of the Klamath National Forest and used for grazing cattle.

PROJECT ELIGIBILITY: Based on photographic evidence, information from the Resources Manager of the Klamath National Forest and remaining ordnance, the site was used by DoD during World War II.

POLICY CONSIDERATIONS: There are no policy considerations for this site.

PROPOSED PROJECT: This site should be further evaluated for unexploded ordnance and should be referred to CEHND for recommendations on further action.

RAC FORM: Attached.

POC: Mr. Bill Mullery, U.S. Army Corps of Engineers, Sacramento District, (916) 557-6944.

ETL 1110-1-165

25 NOVEMBER 1997
Previous Editions Obsolete

APPENDIX B
RISK ASSESSMENT PROCEDURES FOR
ORDNANCE AND EXPLOSIVE (OE) SITES

Site Name Siskiyou Bombing Range
Site Location Siskiyou County, CA
DERP Project # J09CA1072
Date Completed July 1, 1999

Rater's Name Cheryl Mahoney
Phone No. (916) 557-7819
Organization TechLaw, Inc.
RAC Score 4

OE RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The RAC score will be used by CEHNC to prioritize the remedial action at Formerly Used Defense Sites. The UXO 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 OE hazards identified at the site. The risk assessment is composed of two factors, **hazard severity and hazard probability**. Personnel involved in visits to potential OE sites should view the CEHNC videotape entitled "A Life Threatening Encounter:OE."

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, Bursters	6
	Bombs, Practice (w/spotting charges)	(6)
	Grenades, Practice (w/spotting charges)	4
	Landmines, Practice (w/spotting charges)	4
	Small Arms, complete (.22 cal - .50 cal)	1

RAC Worksheet - Page 1

Small Arms, Expended	0
Practice ordnance (wo/spotting charges)	0
Conventional Ordnance and Ammunition (Select the largest single value)	10

What evidence do you have regarding conventional UXO? Ordnance found during the site visit include fragments of an MK21 500lb general purpose practice bomb, 3.5 inch rocket motors, and an MK5 miniature practice bomb. Ordnance previously found at the site include non-explosive tips, machine gun belt links, a 20mm. Canon slug from a solid-jacket, non-explosive warhead, and a fragment from a cast iron practice bomb.

B. Pyrotechnics (For munitions not described above.)

	VALUE
Munition (Container) Containing White Phosphorus or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
Munition Containing A Flame or Incendiary Material (i.e., Napalm, Triethlaluminum Metal Incendiaries)	6
Flares,Signals, Simulators	4
Pyrotechnics (Select the largest single value)	0

What evidence do you have regarding pyrotechnics? None.

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

	VALUE
Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8

Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)	3
High Explosives (Select the largest single value)	0

What evidence do you have regarding bulk explosives? None.

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

	VALUE
Solid or Liquid Propellants	6
Propellants	0

What evidence do you have regarding bulk propellants? None.

E. Chemical Warfare Material and Radiological Weapons

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

What evidence do you have of chemical/radiological OE? None.

==========

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.

ETL 1110-1-165

TABLE 1

HAZARD SEVERITY*

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

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

**If Hazard Severity Value is 0, you do not need to complete Part II. Proceed to Part III and use a RAC Score of 5 to determine your appropriate action.

Part II. Hazard Probability. The probability that a hazard has been or will be created due to the presence and other rated factors of unexploded ordnance or explosive materials on a formerly used DOD site.

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

A. Locations of OE 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)	5

RAC Worksheet - Page 4

ETL 1110-1-165

What evidence do you have regarding location of OE? Ordnance fragments were found during the site visit and AR Smith the USACE OE expert reported finding an anomaly in the area. Mr. Smith stated that practice bombs often landed several feet underground and could be uncovered by the erosion process.

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

	VALUE
Less than 1250 feet	5
1250 feet to 0.5 miles	4
0.5 miles to 1.0 mile	3
1.0 mile to 2.0 miles	2
Over 2 miles	(1)
Distance (Select the single largest value)	1

What are the nearest inhabited structures/buildings? The town of Mcdoel, population 600 is approximately 3 miles from the site. The town contains residential structures and stores.

C. Number of buildings within a 2 mile radius measured from the OE 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)	0

Narrative Although there are no buildings within 2 miles of the site, there is a local airstrip in close proximity.

RAC Worksheet - Page 5

ETL 1110-1-165

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

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

Types of Buildings (Select the largest single value) **0**

Describe types of buildings in the area. None.

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	0

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)

Accessibility (Select the single largest value) 3

Describe the site accessibility. The site is surrounded by a fence; however, the main gate is not locked. Public access to the site is possible, but appears to be minimal. The area is part of the National Forest and is used by ranchers for grazing cattle.

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 accessability.

	VALUE
Expected	5
None Anticipated	(0)

Site Dynamics (Select largest value) 0

Describe the site dynamics. The area floods during the winter and becomes parched and cracked during the summer..

TOTAL HAZARD PROBABILITY VALUE
(Sum of Largest Values for A through F--Maximum of 30) 9
Apply this value to Hazard Probability Table 2 to determine Hazard Probability Level.

ETL 1110-1-165

TABLE 2

HAZARD PROBABILITY

Description	Level	Hazard Probability Value
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	(D)	8 to 14
IMPROBABLE	E	less than 8

*** Apply Hazard Probability Level to Table 3.**

Part III. Risk Assessment. The risk assessment value for this site is determined using the following Table 3. Enter with the results of the hazard probability and hazard severity values.

TABLE 3

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

RAC Worksheet - Page 8

RISK ASSESSMENT CODE (RAC)

RAC 1 Expedite INPR, recommending further action by CEHNC - Call CEHNC-OE-S (commercial 256-895-1582/1598)

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

RAC 3 Complete INPR - Recommend further action by CEHNC.

(RAC 4) Complete INPR - Recommend further action by CEHNC.

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

==========

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

The area was used as a bombing and rocket range during WWII. Numerous bomb and rocket fragments as well as portions of targets were found during the site visit. Residents of the nearby communities have reportedly removed brass casings, as well as other ordnance, from the area. The surrounding area is sparsely populated. Macdoel, population 600, is the nearest town, and there are few visitors to the site. There have been no reported ordnance related incidents connected with this site.

The information provided and the assumptions made are based on the results of the site visit, and evaluations by A.R Smith, a USACE ordnance expert. The Resources Manager for the Klamath National Forest, Goosenest District stated that people have been taking ordnance from this site since World War II and there have been no reported explosions or injuries.

APPENDIX E

LETTERS / MEMORANDUMS/ MISCELLANEOUS ITEMS

Section No.	Letter / Memorandums / Miscellaneous Items
E-1	Bureau of Aeronautics
	1945 Lease Between the U.S. Navy and the Butte Valley Irrigation District, 17 May 1945, supplemented 1 June 1945, RG: 72, Entry 62B, Box 2858, Folder: N1-9/NA (150), NARA-College Park, MD.
E-2	Bureau of Aeronautics, Washington DC
	1945 Summary Report on Facilities Naval Aviation Shore Establishments, 3 April 1945, Naval Historical Center Library, Book: VG 93.A35 1944, US Navy Yard, Washington, DC.
E-3	Bureau of Yards and Docks Real Estate Division
	1945 Project No. 127-C Leasehold, 13 March 1945, RG 71, Entry 1001, Naval Property Case Files, Folder: Klamath Falls C5-90-KF,NARA-College Park, MD.
E-4	Commandant, 13th Naval District
	1945 Termination of Permit covering the use of 960 acres of land in Siskiyou County, California, For a Practice Target Range in connection with Natal Air Station, Klamath Falls, Oregon, 21 February 1946, RG: 71, Entry: 1037, Lease Files 1941-47, Box: 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.
E-5	Commandant, 13th Naval District
	1945 Memorandum of Understanding, 6 August 1945, RG: 71, Entry: 1037, Lease Files 1941-47, Box: 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.
E-6	Commander Naval Air Bases, 13th Naval District
	c.1946 Historical Narrative Commander Naval Air Bases, 13th Naval District For Period 1 September 1945 to 1 October 1946, c.October 1946, RG: 181, Entry: Wartime Histories of 13th Naval District, Box: 3, Folder: History of 13th Naval District, NARA-Seattle, WA.
E-7	Headquarters 13th Naval District, Seattle Washington
	1945 Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air station, Klamath Falls, Ore., 8 May 1945, RG: 71, Entry 1001: Naval Property Case Files, 1941-58, Box 62, NARA-College Park, MD.

E-8 Interdepartmental Air Traffic Control Board

1945 IATCB minutes, meeting #675, 8 October 1945, RG 237, Entry 37, Box 4, NARA-College Park, MD.

E-9 NAS Klamath Falls, Historical Officer

1944 History of US Naval Air Station Klamath Falls, Oregon and US Naval Auxiliary Air Facility Lakeview Oregon, 30 December 1944, Naval Aviation History Center, Box: Aviation Command 1941-52, Klamath Falls- Kodiak, Folder: Klamath Falls NAAS, US Navy Yard, Washington, DC.

E-10 NAS Klamath Falls and NAAS Lakeview Oregon

1945 History of U.S. Naval Air Station Klamath Falls, Oregon and U.S. Naval Auxiliary Air Facility Lakeview, Oregon, June, July and August 1945, circa September 1945, RG 181, Entry Wartime Histories 13th Naval District, Folder: NAAS Klamath Falls, NARA-Seattle, WA.

E-11 Navy Department, Washington DC

1945 Use of 7040 acres of land in Siskiyou County, California, for practice target range in connection with NAS, Klamath Falls, Oregon, 28 May 1945, RG: 72, Entry 62B General Correspondence 1943-45, Box 2858, Folder: N1-9/NA (150), NARA-College Park, MD.

E-12 Navy Department, Office of the Chief of Naval Operations, Washington DC

1945 Aviation Planning Directive 56-NN-45, 4 September 1945, RG 181, Entry Wartime Histories 13th Naval District, Box 3, Folder: History of 13th Naval District, NARA-Seattle, WA.

E-13 Navy Real Estate Division

1945 Termination of Leases NOy(R)-38137, NOy(R)-38137 Supp. #1, NOy(R)-37906 and memorandum of Understanding with Department of Agriculture, Soil Conservation Service dated 6 Aug 1945, covering Rocket Range, Siskiyou National Forest, California, 29 December 1945, RG: 71, Entry: 1037 Lease Files 1941-47, Box: 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI, NARA-College Park, MD.

E-14 Public Works Department, Klamath Falls

1945 Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air Station, Klamath Falls, Oregon, 5 June 1945, RG: 71, Entry: 1037 Lease Files 1941-47, Box: 4, L5-5-MO-L5-7-AL-5, Folder: L5-7-SI-1, NARA-College Park, MD.

E-15 Klamath National Forrest Goosenest Ranger District

1992 Artifacts found in WWII bombing pratice range, T.47N., R.1.W. Sec. 30, Exposure 15, Frame 14 & Exposure 5 Frame 4, dated 8 Jaunary 1992, archeologist files Klamath National Forrest Goosenest Ranger District.

E-16 13th Naval District

1945 Lease Between the U.S. Navy and J.C. Stevenson, 5 May 1945. G 71, Entry 1037 Lease Files 1941-47, Box 4, L5-5-MO to L5-7-AL-5, Folder: L5-7-SI, NARA-College Park, MD.

APPENDIX E-1

Bureau of Aeronautics, 1945

Lease Between the U.S. Navy and the Butte Valley Irrigation District, 17 May 1945, supplemented 1 June 1945

Approp: 175[illegible]02.3, Aviation Navy, 1945 1761502.3 Aviation Navy, 1946 (Bur & Fld)

All public bills for payment under this contract should include a reference to No. NOy(R)-38137

L E A S E

Reqn: Aero EN11-203619
PW-45
Aero EN11-2000-PW-46

THIS LEASE, made and entered into this 17th day of May, 1945, by and between the Butte Valley Irrigation District, whose principal office is located at Macdoel, California, for itself, its successors and assigns, hereinafter called the Lessor, and the United States of America, hereinafter called the Government

WITNESSETH: The parties hereto for the consideration hereinafter mentioned agree as follows:

1. The Lessor hereby leases to the Government for a bombing, strafing, target and training area, the following described premises located in the State of California, County of Siskiyou:

S½S½SE¼SE¼, Section 29, Township 47 North Range 1 West, Mt.D.M.

2. TO HAVE AND TO HOLD the said premises with their appurtenances for the term beginning May 1, 1945 and ending six months after the termination of the existing states of war.

3. The Government shall pay to the Lessor on the 30th day of June, 1945, the sum of One Dollar ($1.00) as rent for the premises.

4. The Government shall have the right to terminate said lease at any time upon thirty (30) days' written notice to the Lessor.

5. The Government shall have the right during the existence of this lease to erect structures or signs in or upon the said premises hereby leased, which structures so placed in or upon the said premises shall be and remain the property of the Government and may be removed therefrom by the Government at any time prior to the termination hereof.

6. No Member of Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit to arise therefrom. Nothing, however, herein contained shall be construed to extend to any incorporated company, if the lease be for the general benefit of such corporation or company.

IN WITNESS WHEREOF, the parties hereto have subscribed their names as of the date first above written.

In Presence of:

H. M. ANDREWS

BUTTE VALLEY IRRIGATION DISTRICT

By M. A. GILMER ?
Secretary (Title)

UNITED STATES OF AMERICA

PAYMENT TO BE MADE BY:
Central Navy Disb. Office,
13th ND

By Andrew J. Murphy, Jr.
By direction of the Chief of the Bureau of Yards and Docks;
Acting under direction of the Secretary of the Navy.

NAVY DEPARTMENT
WASHINGTON 25, D. C.

Approp: 1751502.3, Aviation Navy, 1945 - 1761502.3, Aviation Navy, 1946(Sur &Fld)

Reqn: Aero EN11-203619-PW-45
Aero EN11-2000-46-PW

All public bills for payment under this contract should include a reference to No. NOy(R)-38137, Sup. #1

L E A S E

THIS LEASE, made and entered into this 1st day of June, 1945, by and between the BUTTE VALLEY IRRIGATION DISTRICT, whose principal office is located at Macdoel, California, for itself, its successors and assigns, hereinafter called the Lessor, and the UNITED STATES OF AMERICA, hereinafter called the Government

WITNESSETH: The parties hereto for the consideration hereinafter mentioned agree as follows:

1. The Lessor hereby leases to the Government for a bombing, strafing, target and training area, the following-described premises located in the State of California, County of Siskiyou:

S½ of Section 24, NE¼ of Section 25, T. 47 N., R. 2 W., Mt.D.M.

All of Sections 29, 30 and 32; W½, NW¼NW¼ of Section 31, T. 47 N., R. 1 W., Mt.D.M.;

All of Section 5; E½ of Section 6, T. 46 N., R. 1 W., Mt.D.M.;

EXCEPT the following-described 10 acres:
S½S½SE¼SE¼ of Section 29, T. 47 N., R. 1 W., Mt. D.M.

2. TO HAVE AND TO HOLD THE said premises with their appurtenances for the term beginning May 27, 1945 and ending November 27, 1945; provided that upon the conveyance of the fee simple title of the above-described property to the Soil Conservation Service, U. S. Department of Agriculture, this lease shall be automatically terminated as of the date such conveyance is made.

3. The Government shall pay to the Lessor for the term above set forth, rental in the sum of Six Hundred and No/100 Dollars ($600.00), such rental to be paid at the rate of One Hundred and No/100 Dollars ($100.00) per month on the last day of each month, and in consideration for which the Government shall have the right to renew said lease semi-annually thereafter for the same rental and otherwise upon the terms and conditions herein specified, provided notice be given to the Lessor in writing thirty (30) days prior to the expiration date of any term during which said lease is effective; however, no renewal thereof shall extend the rights herein granted beyond 6 months after the termination of the present states of war. The Government shall have the right to terminate said lease at any time upon ten (10) days' written notice to the Lessor.

4. The Government shall have the right during the existence of this lease, or any renewal thereof, to erect structures or signs in or upon the said premises hereby leased, which structures so placed in or upon the said premises shall be and remain the property of the Government and may be removed therefrom by the Government at any time prior to the termination hereof.

5. No Member of Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit to arise therefrom. Nothing, however, herein contained shall be construed to extend to any incorporated company, if the lease be for the general benefit of such corporation or company.

WASHINGTON 25, D.C. , 1945

IN WITNESS WHEREOF, the parties hereto have subscribed their names as of the date first above written.

In Presence Of:

H. M. ANDREWS

BUTTE VALLEY IRRIGATION DISTRICT

By M. A. GILMER ?
Secretary (Title)

PAYMENT TO BE MADE BY

Central Navy Disb. Office,
13th ND

UNITED STATES OF AMERICA

By Andrew J. Murphy, Jr.
By direction of the Chief of the Bureau of Yards and Docks; Acting under direction of the Secretary of the Navy.

APPENDIX E-2

Bureau of Aeronautics, Washington DC, 1945

Summary Report on Facilities Naval Aviation Shore Establishments, 3 April 1945

NAVY DEPARTMENT
BUREAU OF AERONAUTICS
Washington, D. C.

Summary Report on Facilities
Naval Aviation Shore Establishments

The Summary Report on Facilities supercedes the Bi-Monthly Report on Facilities and is presented in loose-leaf fashion for ease in adding new activities and inserting corrected reports. Subsequent reports will be forwarded periodically as changes occur so that the old report can be discarded and the latest one inserted in its place. The frequency of the distribution of corrected reports will depend upon (1) whether or not there are changes in facilities for some or all of the Naval Aviation Shore Establishments, and (2) the frequency with which these changes occur. It is expected that a distribution will be made once a month and with each distribution will be a revised and dated index containing the names of the stations, Commanding Officers and the latest date of each report. Unless a station report is superceded by a new one, it must be assumed that the present report represents the latest information from that activity.

The headings and sub-headings on this summary form follow the same numeric and alphabetic categories as outlined on the Station Report of Aviation Facilities (NAVAER 1792). However, since only certain summary information is taken from the detailed report, all numeric and alphabetic categories do not appear on this Summary Report on Facilities.

A current location map for the Naval Aviation Shore Establishments will be issued at a later date.

AIR STATIONS BRANCH – SHORE ESTABLISHMENTS GROUP – MAINTENANCE DIVISION

SUMMARY REPORT ON FACILITIES
NAVAL AVIATION SHORE ESTABLISHMENTS

NAS KLAMATH FALLS, ORE.

NAVAL AIR BASES
THIRTEENTH NAVAL DISTRICT

I GENERAL DATA

DATE OF THIS REPORT: REV 3 APR 1945

A NAME OF ACTIVITY: NAS KLAMATH FALLS OREGON

LOCATION LAT N42 10 45 LONG W121 44 45

ELEVATION OF AIRFIELD: 4087 FT ABOVE MSL

ADMINISTRATIVE SENIOR: NAB SEATTLE WASH

BEARING & DISTANCE IN NAUTICAL MILES FROM ADMINISTRATIVE SENIOR: 176 333

B REAL ESTATE SUMMARY

NAVY OWNED AREA	44	ACRES
CAA NAVY STANDARD LEASE	784 4	ACRES
TEMPORARY USE LEASE PERMIT ETC.	92 4	ACRES
TOTAL AREA OF STATION	884 8	ACRES

AERIAL GUNNERY RANGES & SITES

BOMB	STRAFING	TORPEDO	ROCKET	AIR TO AIR	OTHER
8	4	NONE	NONE	2	NONE

OUTLYING FIELDS: 1 NUMBER

Ia CNO CAPACITY REQUIREMENTS 31 MARCH 1945

MISSION: FLEET CVG TRAINING FERRY STOP

	LANDPLANES					SEAPLANES		LTA
	CV	VPB	VB	VJ	VN	OTHER	VPB	OTHER	
TOTAL	200	NO	NO	5	NO	35	NO	NO	NO

	OFFICERS	CADETS	ENLISTED	CIVILIANS
TOTAL	458	NONE	2552	250

II PERSONNEL FACILITIES

A ENLISTED QUARTERS

	TOTAL DESIGN CAPACITY	TOTAL OVRLOAD CAPACITY	TOTAL SQ. FT. FLOOR AREA
TOTAL MALE ENLISTED WHITE	1476	2161	68506
TOTAL MALE ENLISTED COLORED	34	49	1556
TOTAL CADET	NONE	NONE	NONE
TOTAL FEMALE ENLISTED	116	164	6552
TOTAL ENLISTED & CADET	1626	2374	
INCLUDED BUT UNDER CONSTRUCT	NONE	NONE	

B OFFICERS QUARTERS

TOTAL BOQ	336	400	36190
TOTAL WOQ & NURSES	8	8	1550
TOTAL OFFICERS	344	408	
INCLUDED BUT UNDER CONSTRUCT	NONE	NONE	

D OTHER QUARTERS

MARRIED ENLISTED MENS QUARTERS: 62 UNITS

MARRIED OFFICERS QUARTERS: 2 UNITS

E PHYSICAL TRAINING & RECREATION FACILITIES

NO.	SEATS EACH	LENGTH	WIDTH	
1	600	84 6	54	GYM &/OR DRILL HALLS WITH CAPACITY WHEN USED AS AUDITORIUM

AUDITORIUMS WITH FIXED SEATS: NO

F PERSONNEL SERVICE FACILITIES

SHIPS SERVICE FACILITIES	4320	SQ. FT.
SHIPS STORE ASHORE	NONE	SQ. FT.
COMMISSARY	NONE	SQ. FT.
G BRIG	6	MEN
H CHAPEL	NONE	MEN
I BAKERY RATED CAPACITY 1500 MEN PER HRS.	1024	SQ. FT.
J LAUNDRY RATED CAPACITY 1200 MEN PER 24 HRS.	4536	SQ. FT.

III ADMINISTRATIVE & TRAINING FACILITIES

	NUMBER	SQ. FT.	TYPE CONST
A ADMINISTRATION BLDGS. OFFICE SPACE		2645	CHWSH
B SQUADRON OFFICES	7	11720	TOTAL
C INSTRUCTION BLDGS.	3 SP	3452	TOTAL
TRAINING DEVICES BLDGS.	1	11726	TOTAL

D SWIMMING TRAINING POOLS

	LENGTH	WIDTH	MAX. DEPTH	ENCLOSED	LOCKERS SHOWERS	HEATED WATER
NONE						

G DISPENSARY

	TOTAL BEDS DESIGN CAPACITY	EMERGENCY CAPACITY	TYPE CONST
CAPACITY	50	58	CHWSH

NEAREST NAVAL HOSPITAL: NAVAL HOSPITAL SEATTLE — DISTANCE IN MILES: 383

IV OPERATIONS FACILITIES

	SQ. FT.	TYPE CONST
TOTAL SPACE	4419	CHWSH
OFFICE SPACE ONLY	1694	CHWSH

VI STORAGE FACILITIES

RECEIVING & SHIPPING SPACE TOTAL	3456	SQ. FT.
SUPPLY DEPARTMENT OFFICE SPACE TOTAL	4753	SQ. FT.
A GENERAL STORES CLASSES 5 TO 75 TOTAL GROSS AREA	13207	SQ. FT.
B AVIATION STORES CLASSES 80 TO 93 TOTAL GROSS AREA	13989	SQ. FT.
C INFLAMMABLE STORES PAINT & OIL TOTAL GROSS AREA	1434	SQ. FT.
G COLD STORAGE TOTAL GROSS REFRIG. SPACE	11882	CU. FT.
K GASOLINE BULK STORAGE AVIATION 275000 GALS. TOTAL CAPACITY		
AUTOMOTIVE 2550 GALS. TOTAL CAPACITY		
L LUBRICATING OIL BULK STORAGE TOTAL CAPACITY	NONE	GALS.

VII AIRCRAFT REPAIR FACILITIES

TOTAL AREA: 106516 CLASS C SQ. FT.

ALL OTHER AIRCRAFT REPAIR FACILS SHOWN UNDER IX C BELOW (UTILITY SHOPS)

IX LANDPLANE FACILITIES

A HANGARS EXCLUSIVE OF LEAN TOS

NO.	DOOR OPENING CLEARANCES HEIGHT	DOOR OPENING CLEARANCES WIDTH	HANGARS SPAN	HANGARS LENGTH	SPRINKLER SYSTEM	TYPE CONSTR.
1	28 3	99	1200	211 11	NO	CHCMH
2	31 11	120	2126	229 9	NO	CHCSH

C UTILITY SHOPS NOT SHOWN UNDER AIRCRAFT REPAIR FACILS TOTAL: NONE SQ. FT.

D LANDPLANE PARKING AREA

GROSS AREA IN SQUARE YARDS	NET AREA DEDUCTING ACCESS LANES	TYPE OF SURFACE	MAXIMUM WEIGHT OF PLANE ACCOMMODATED
126833	46416	CONCRETE	60000

G RUNWAYS

NUMBER	1	2	3	4	5	6
TYPE OF SURFACE	ASPH	ASPH	ASPH			
MAGNETIC BEARING	070 250	138 318	004 184			
LENGTH	5258	7134	5164			
WIDTH	150	200	200			
MAXIMUM WEIGHT OF PLANE ACCOMMODATED	60M	60M	60M			

X LTA FACILITIES

A LANDING MATS

MAXIMUM WEIGHT OF PLANE (MTAI) ACCOMMODATED	TYPE SURFACE	AREA IN SQUARE YARDS	SIZE

B MOORING OUT CIRCLES

NO.	DIAMETER	TYPE OF SURFACE

C LTA HANGARS

CLEARANCE OF DOOR HEIGHT	CLEARANCE OF DOOR WIDTH	CLEAR HEIGHT IN HANGAR	LENGTH & WIDTH	TYPE CONSTR.

XI SEAPLANE FACILITIES

A HANGARS EXCLUSIVE OF LEAN TOS

NO.	DOOR OPENING CLEARANCES HEIGHT	DOOR OPENING CLEARANCES WIDTH	HANGARS SPAN	HANGARS LENGTH	SPRINKLER SYSTEM	TYPE CONSTR.

C SEAPLANE RAMPS

NO.	SIZE	SLOPE	TYPE CONST.	WATER DEPTH AT END	MAXIMUM WT. PLANE ACCOMM.

D SEAPLANE PARKING AREA

GROSS AREA IN SQUARE YARDS	NET AREA DEDUCTING ACCESS LANES	TYPE OF SURFACE	MAXIMUM WEIGHT OF PLANE ACCOMMODATED

E SEAPLANE OPERATING CHANNELS OR AREAS

NO.	DIRECTION	WIDTH IN FEET	LENGTH IN FEET	DEPTH IN FEET BELOW MLW
1				
2				
3				
4				
5				

XIV ORDNANCE FACILITIES

A SHOPS

AVIATION ORDNANCE SHOPS	TOTAL	2240	SQ. FT.
B AMMUNITION STORAGE STRUCTURES			
HIGH EXPLOSIVE MAGAZINES	TOTAL	NONE	SQ. FT.
TORPEDO STORAGE MAGAZINES	TOTAL	NONE	SQ. FT.
SMALL ARMS MAGAZINES	TOTAL	17285	CU. FT.
PYROTECHNIC MAGAZINES	TOTAL	1383	CU. FT.
FUSE & DETONATOR MAGAZINES	TOTAL	NONE	CU. FT.
READY MAGAZINES	TOTAL	NONE	CU. FT.
READY AMMUNITION LOCKERS	TOTAL	NONE	SQ. FT.
SMOKE DRUM STORAGE	TOTAL	NONE	SQ. FT.
INERT STORAGE	TOTAL	2000	SQ. FT.

ACTIVITY: NAS KLAMATH FALLS ORE

CONFIDENTIAL

AIR STATIONS BR MAINT DIV BUAER

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SUMMARY REPORT ON FACILITIES
NAVAL AVIATION SHORE ESTABLISHMENTS

NAAF LAKEVIEW, ORE.

NAVAL AIR BASES
THIRTEENTH NAVAL DISTRICT

I GENERAL DATA
DATE OF THIS REPORT: REV 3 APR 1945
A NAME OF ACTIVITY: NAAF LAKEVIEW OREGON
LOCATION LAT N42 09 30 LONG W120 23 30
ELEVATION OF AIRFIELD: 4728 FT ABOVE MSL
ADMINISTRATIVE SENIOR: NAS KLAMATH FALLS OREGON
BEARING & DISTANCE IN NAUTICAL MILES FROM ADMINISTRATIVE SENIOR: 89 63
B REAL ESTATE SUMMARY

NAVY OWNED AREA	NONE	ACRES
CAA NAVY STANDARD LEASE	960	ACRES
TEMPORARY USE LEASE PERMIT ETC.	NONE	ACRES
TOTAL AREA OF STATION	960	ACRES

AERIAL GUNNERY RANGES & SITES

BOMB	STRAFING	TORPEDO	ROCKET	AIR TO AIR	OTHER
NONE	NONE	NONE	NONE	NONE	NONE

OUTLYING FIELDS: NONE NUMBER

Ia CNO CAPACITY REQUIREMENTS
MISSION: 31 MARCH 1945 REFUELING & REARMING FOR GUNNERY

	LANDPLANES					SEAPLANES		LTA
	CV	VPB	VR	VJ	VN	OTHER	VPB	OTHER	
TOTAL									

	OFFICERS	CADETS	ENLISTED	CIVILIANS
TOTAL	SEE NAS KLAMATH FALLS			3

II PERSONNEL FACILITIES
A ENLISTED QUARTERS

	TOTAL DESIGN CAPACITY	TOTAL OVRLOAD CAPACITY	TOTAL SQ. FT. FLOOR AREA
TOTAL MALE ENLISTED WHITE	60	72	1600
TOTAL MALE ENLISTED COLORED	NONE	NONE	NONE
TOTAL CADET	NONE	NONE	NONE
TOTAL FEMALE ENLISTED	NONE	NONE	NONE
TOTAL ENLISTED & CADET	60	72	
INCLUDED BUT UNDER CONSTRUCT	NONE	NONE	

B OFFICERS QUARTERS

TOTAL BOQ	20	30	3740
TOTAL WOQ & NURSES	NONE	NONE	NONE
TOTAL OFFICERS	20	30	
INCLUDED BUT UNDER CONSTRUCT	NONE	NONE	

D OTHER QUARTERS
MARRIED ENLISTED MENS QUARTERS: NONE UNITS
MARRIED OFFICERS QUARTERS: NONE UNITS

E PHYSICAL TRAINING & RECREATION FACILITIES

NO.	SEATS EACH	LENGTH	WIDTH	
1	NONE	60	20	GYM &/OR DRILL HALLS WITH CAPACITY WHEN USED AS AUDITORIUM
NO				AUDITORIUMS WITH FIXED SEATS

F PERSONNEL SERVICE FACILITIES
SHIPS SERVICE FACILITIES: 380 SQ. FT.
SHIPS STORE ASHORE: NONE SQ. FT.
COMMISSARY: NONE SQ. FT.
G BRIG: NONE MEN
H CHAPEL: NONE MEN
I BAKERY RATED CAPACITY: NONE MEN PER HRS. — NONE SQ. FT.
J LAUNDRY RATED CAPACITY: NONE MEN PER HRS. — NONE SQ. FT.

III ADMINISTRATIVE & TRAINING FACILITIES

	NUMBER	SQ. FT.	TYPE CONST
A ADMINISTRATION BLDGS. OFFICE SPACE		1 SP 112	WWWSH
B SQUADRON OFFICES	NONE		TOTAL
C INSTRUCTION BLDGS.	NONE		TOTAL
TRAINING DEVICES BLDGS.	NONE		TOTAL

D SWIMMING TRAINING POOLS

	LENGTH	WIDTH	MAX DEPTH	ENCLOSED	LOCKERS SHOWERS	HEATED WATER
NONE						

G DISPENSARY

	TOTAL BEDS DESIGN CAPACITY	EMERGENCY CAPACITY	TYPE CONST
CAPACITY	3	4	WWWSH

NEAREST NAVAL HOSPITAL: NAVAL HOSPITAL SEATTLE — DISTANCE IN MILES: 383

IV OPERATIONS FACILITIES

	SQ. FT.	TYPE CONST
TOTAL SPACE	1 SP 36	WWWSH
OFFICE SPACE ONLY	NONE	NONE

VI STORAGE FACILITIES
RECEIVING & SHIPPING SPACE TOTAL: NONE SQ. FT.
SUPPLY DEPARTMENT OFFICE SPACE TOTAL: NONE SQ. FT.
A GENERAL STORES CLASSES 5 TO 75 TOTAL GROSS AREA: NONE SQ. FT.
B AVIATION STORES CLASSES 80 TO 93 TOTAL GROSS AREA: NONE SQ. FT.
C INFLAMMABLE STORES PAINT & OIL TOTAL GROSS AREA: NONE SQ. FT.
G COLD STORAGE TOTAL GROSS REFRIG. SPACE: 840 CU. FT.
K GASOLINE BULK STORAGE
AVIATION 250000 GALS. TOTAL CAPACITY
AUTOMOTIVE NONE GALS. TOTAL CAPACITY
L LUBRICATING OIL BULK STORAGE TOTAL CAPACITY: NONE GALS.

VII AIRCRAFT REPAIR FACILITIES CLASS D
TOTAL AREA SQ. FT.
ALL OTHER AIRCRAFT REPAIR FACILS SHOWN UNDER IX C BELOW (UTILITY SHOPS)

IX LANDPLANE FACILITIES
A HANGARS EXCLUSIVE OF LEAN TOS

NO.	DOOR OPENING CLEARANCES HEIGHT	DOOR OPENING CLEARANCES WIDTH	HANGARS SPAN	HANGARS LENGTH	SPRINKLER SYSTEM	TYPE CONSTR.
1	20	50	50	100	NO	CHCSH

C UTILITY SHOPS NOT SHOWN UNDER AIRCRAFT REPAIR FACILS
TOTAL NONE SQ. FT.
D LANDPLANE PARKING AREA

GROSS AREA IN SQUARE YARDS	NET AREA DEDUCTING ACCESS LANES	TYPE OF SURFACE	MAXIMUM WEIGHT OF PLANE ACCOMMODATED
14967	11579	CONCRETE	30000

G RUNWAYS

NUMBER	1	2	3	4	5	6
TYPE OF SURFACE	ASPH	ASPH				
MAGNETIC BEARING	339 159	019 199				
LENGTH	5300	5300				
WIDTH	150	150				
MAXIMUM WEIGHT OF PLANE ACCOMMODATED	30M	30M				

X LTA FACILITIES
A LANDING MATS

MAXIMUM WEIGHT OF PLANE (MTAI) ACCOMMODATED	TYPE SURFACE	AREA IN SQUARE YARDS	SIZE

B MOORING OUT CIRCLES

NO.	DIAMETER	TYPE OF SURFACE

C LTA HANGARS

CLEARANCE OF DOOR HEIGHT	CLEARANCE OF DOOR WIDTH	CLEAR HEIGHT IN HANGAR	LENGTH & WIDTH	TYPE CONSTR.

XI SEAPLANE FACILITIES
A HANGARS EXCLUSIVE OF LEAN TOS

NO.	DOOR OPENING CLEARANCES HEIGHT	DOOR OPENING CLEARANCES WIDTH	HANGARS SPAN	HANGARS LENGTH	SPRINKLER SYSTEM	TYPE CONSTR.

C SEAPLANE RAMPS

NO.	SIZE	SLOPE	TYPE CONST.	WATER DEPTH AT END	MAXIMUM WT. PLANE ACCOMM.

D SEAPLANE PARKING AREA

GROSS AREA IN SQUARE YARDS	NET AREA DEDUCTING ACCESS LANES	TYPE OF SURFACE	MAXIMUM WEIGHT OF PLANE ACCOMMODATED

E SEAPLANE OPERATING CHANNELS OR AREAS

NO.	DIRECTION	WIDTH IN FEET	LENGTH IN FEET	DEPTH IN FEET BELOW MLW
1				
2				
3				
4				
5				

XIV ORDNANCE FACILITIES
A SHOPS
AVIATION ORDNANCE SHOPS TOTAL NONE SQ. FT.
B AMMUNITION STORAGE STRUCTURES

HIGH EXPLOSIVE MAGAZINES	TOTAL	NONE	SQ. FT.
TORPEDO STORAGE MAGAZINES	TOTAL	NONE	SQ. FT.
SMALL ARMS MAGAZINES	TOTAL	13828	CU. FT.
PYROTECHNIC MAGAZINES	TOTAL	1383	CU. FT.
FUSE & DETONATOR MAGAZINES	TOTAL	NONE	CU. FT.
READY MAGAZINES	TOTAL	NONE	CU. FT.
READY AMMUNITION LOCKERS	TOTAL	NONE	SQ. FT.
SMOKE DRUM STORAGE	TOTAL	NONE	SQ. FT.
INERT STORAGE	TOTAL	2000	SQ. FT.

ACTIVITY NAAF LAKEVIEW ORE

AIR STATIONS BR MAINT DIV BUAER

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APPENDIX E-3

Bureau of Yards and Docks Real Estate Division, 1945

Project No. 127-C Leasehold, 13 March 1945

Submitted by: NAVY DEPARTMENT
Bureau of Yards and Docks
Real Estate Division

PROJECT NO. 127-C

LEASEHOLD

C O N F I D E N T I A L

1. The Bureau of Aeronautics proposes to acquire either by direct negotiation or through the institution of condemnation proceedings under authority of the Second War Powers Act, the leasehold estate in 7040 acres, more or less, of land located in Siskiyou County, California to be used as a practice rocket range in connection with the Naval Air Station, Klamath Falls, Oregon.

2. It is stated that no other lands now leased or owned by the U. S. Government for the use of the Navy Department are available for rocket practice since the operations of this type of tactical warfare training eliminates the joint use of an area for strafing and dive bombing and makes necessary the acquisition of this separate area for rocket practice.

3. The obtainable history of the land indicates that it has proven a failure for cultivation and most of the land has reverted to its natural sage-brush covered condition. There are no inhabitants in the requested area. At present a portion of the land is used for grazing and is subject to irrigation in the future but the contemplated use of the property by the Navy is not likely to interfere with any post war development.

4. It is indicated that 2040 acres are owned by J. C. Stevenson, 3280 acres are owned by Butte Valley Irrigation District, 960 acres held by the United States Government and 760 acres are owned by the State of California. The assessment for taxes is based upon one-third of its actual value. The value of the parcel owned by J. C. Stevenson is $9996 and that owned by Butte Valley Irrigation District is $22,309.41. No value is indicated for the public domain lands. It is believed that the privately owned property can be rented for approximately $1500 per annum and it is assumed that the U. S. Government lands and the State of California lands can be obtained for $1.00 per year.

5. The approval of the Committee is respectfully requested.

6826692

APPROVED BY:
Senate MAR 7 1945
House MAR 13 1945

APPENDIX E-4

Commandant, 13th Naval District, 1945

Termination of Permit covering the use of 960 acres of land in Siskiyou County, California, For a Practice Target Range in connection with Natal Air Station, Klamath Falls, Oregon, 21 February 1946

ADDRESS REPLY TO
COMMANDANT
PUBLIC WORKS DEPT.
AND REFER TO:
ND13/N1-13(286)(Y-2)
Y-D3:P1
Serial 476991

HEADQUARTERS
THIRTEENTH NAVAL DISTRICT
SEATTLE, 14, WASHINGTON

N1013/N1-13
7-5
A
JR 3.

27 March 1946

From: Commandant, Thirteenth Naval District
To: Chief of the Bureau of Yards and Docks (F-5)

Subj: Termination of Permit covering use of 960 acres of land in Siskiyou County, California, for Practice Target Range in connection with Naval Air Station, Klamath Falls, Ore.

Ref: (a) BuDocks ltr to Com13 dtd 6 Feb. 1946, L5-7-Si-1, ND13/N1-13, F-5-5/JCH/ec.

1. By reference (a) the Bureau requested that the Commandant take necessary action to terminate the Memorandum of Understanding with the Department of Agriculture covering certain land in Siskiyou County, California used in connection with the Naval Air Station, Klamath Falls.

2. Transmitted herewith as Enclosure (1) is a copy of the notice of termination of subject Memorandum of Understanding accomplished in compliance with reference (a).

RANDALL JACOBS

G. A. DUNCAN
Captain, (CEC), USN
District Public Works Officer
By direction

Encl. (HW)
1. One copy notice of termination Dept. of Agr. Memorandum of Understanding.

L5-7-Si-1

012939

APR 18 41
REAL ESTATE DIVISION
RECEIVED

NAVY DEPT.

ND13/N1-13(286)(Y-2)
Serial 476617

AAS/Pl

FEB 21 1946

Mr. John S. Barnes, State Conservationist
Soil Conservation Service
Berkeley, California

Subject: Termination of Permit covering the use of 960 acres of land in Siskiyou County, California, for a Practice Target Range in connection with Naval Air Station, Klamath Falls, Oregon.

Dear Sir:

On August 6, 1945, a Memorandum of Understanding was entered into wherein the Navy Department was given permission to use certain land in Siskiyou County, California, under the jurisdiction of the Department of Agriculture for a Practice Rocket Target Range in connection with the U. S. Naval Air Station, Klamath Falls, Oregon; said land being described as follows:

> S½ of Section 19, Township 47 North, Range 1 West, Mt.D.M.;
> S½, NE¼, SE¼-NW¼ of Section 20, Township 47 North, Range 1 West, Mt.D.M.;
> SE¼-SE¼ of Section 17, Township 47 North, Range 1 West, Mt.D.M.

The Navy Department no longer requires this land for its use and hereby returns said land to the Department of Agriculture and releases and abandons all rights granted to it under said Memorandum of Understanding. The Navy Department also abandons the three shed-type observation buildings located on the premises for use by the Department of Agriculture in the event that Department exercises its option now held in the above-described premises.

Will you kindly acknowledge the receipt of this letter by signing and returning the enclosed carbon copies to the Commandant.

/s/ Randall Jacobs
RANDALL JACOBS
Rear Admiral, USN
Commandant, Thirteenth Naval District

RECEIVED

The Department of Agriculture herewith acknowledges the termination of the above-mentioned Memorandum of Understanding with the Navy Department and accepts the return of the land involved and the three shed-type observation buildings located thereon. The Navy Department is hereby released from any liability in connection with the use of the above-described property.

MAR 18 1946
SOIL CONSERVATION SERVICE

DEPARTMENT OF AGRICULTURE,
SOIL CONSERVATION SERVICE

March 13, 1946
(Date)

By [signature]
Walter E. Sykes
Acting Regional Conservator
(Name &

APPENDIX E-5

Commandant, 13th Naval District, 1945

Memorandum of Understanding, 6 August 1945

COPY

286

MEMORANDUM OF UNDERSTANDING

WHEREAS, the Navy Department, hereinafter called the Navy, has requested permission to utilize the hereinafter described land, under the jurisdiction of the Department of Agriculture, for a Practice Rocket Target Range in connection with the U. S. Naval Air Station, Klamath Falls, Oregon; and

WHEREAS, this area is to be used for the training of Naval personnel attached to the Thirteenth Naval District and will be subject to such use throughout the duration of the war at such times as may be designated by the Navy; and

WHEREAS, the Department of Agriculture, Soil Conservation Service, through its State Conservationist, Berkeley, California, desires to cooperate with the Navy in this endeavor;

NOW, THEREFORE, in consideration of the mutual promises herein contained, it is agreed that the following described lands located in Siskiyou County, California, may be occupied and used by the Navy in connection with military training:

S½ of Section 19, Township 47 North, Range 1 West, M.D.M.
S½, NE¼, SE¼-NW¼ of Section 20, Township 47 North, Range 1 West, M.D.M.
SE¼-SE¼ of Section 17, Township 47 North, Range 1 West, M. D. M.

subject to the following conditions:

1. The use of these areas has already commenced and may be continued at the option of the Navy, but not beyond six (6) months after the termination of the unlimited national emergency as declared by the President of the United States in Proclamation 2487 dated May 27, 1941.

2. The area will be used by the Navy for a practice rocket target range.

3. The Navy will discontinue use of the area if at any time there is danger that the authorized operations will result in the setting of forest fires.

4. The Navy will be responsible for extinguishing forest fires which are started within the practice rocket target range as a result of Naval operations. The Navy will furnish the Department of Agriculture, Soil Conservation Service, with a list of fire fighting equipment on hand at the Naval Air Station, Klamath Falls, Oregon. Such of this equipment as may be taken from the Air Station will be made available for the fighting of forest fires that are set by Naval operations. The Navy will also furnish such personnel as may, in the opinion of the Commanding Officer, be spared from the Klamath Falls Naval Air Station.

5. This agreement contemplates that all civilians, including Department of Agriculture, Soil Conservation Service, employees, will be excluded from the area during times when rocket target practice is being

conducted. Complete responsibility for making this exclusion effective rests with the Navy and the Navy will post, or otherwise mark, all roads and trails leading into the area. However, the Navy will cooperate with the Department of Agriculture, Soil Conservation Service, in arranging for short periods of time during which Department of Agriculture, Soil Conservation Service, employees may enter the area to conduct such administrative duties as are essential to the protection and administration of the above-described land.

6. In the event of damage to or total destruction of Department of Agriculture, Soil Conservation Service, improvements or facilities as a result of the Navy's operations, the Navy will restore such improvements or facilities to a condition equally satisfactory as that existing at the time of entering into this agreement.

7. Use and occupancy by the Navy of the lands covered by this agreement are subject to all valid claims.

8. The Navy shall designate a representative who will be readily available at the Klamath Falls Naval Air Station who shall act as liaison officer between the Navy and local representatives of the Department of Agriculture, Soil Conservation Service.

9. The terms of this agreement may be changed in writing by mutual agreement of the parties concerned.

_____ (s) R. M. Griffin
Date R. M. GRIFFIN
Rear Admiral, USN
Commandant, Thirteenth Naval District

DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

August 6, 1945	Fred W. Herbert	Acting State Conservationist
Date	Name	Title

APPENDIX E-6

Commander Naval Air Bases, 13th Naval District, c.1946

Historical Narrative Commander Naval Air Bases, 13th Naval District For Period 1 September 1945 to 1 October 1946, c.October 1946

HISTORICAL NARRATIVE
COMMANDER NAVAL AIR BASES, THIRTEENTH NAVAL DISTRICT
For Period
1 September 1945 to 1 October 1946

The following items of historical interest have transpired since the submission of the termination of history of this command on 2 September 1945:

Commodore C. T. Simard, U.S.N. was relieved by Captain J. F. Wegforth, U.S.N. on 28 December 1945, as Commander, Naval Air Bases, THIRTEENTH Naval District, Seattle, Washington. On 15 January 1946 Captain J. F. Wegforth, U.S.N. was promoted to the rank of Commodore.

Commodore J. F. Wegforth, U.S.N. was detached on 15 September 1946. Captain A. O. Rule, U.S.N., Commanding Officer Naval Air Station, Whidbey Island, assumed the additional duty of Commander, Naval Air Bases, THIRTEENTH Naval District.

On 28 September 1946 Captain A. O. Rule, U.S.N. reported as Commander, Naval Air Bases, THIRTEENTH Naval District with additional duties as Commanding Officer, Naval Air Station, Seattle, vice Captain J. C. Cronin, U.S.N.

- 1 -

The following is a summary of the status of all Naval Air Stations, Naval Auxiliary Air Stations, and Outlying Fields under this command.

Naval Air Station, Seattle, Washington - reduced operations 1 June 1946, by authority of Chief of Naval Operations despatch 026136 of May 1946.

Naval Air Station, Whidbey Island, Washington - reduced operations, 1 June 1946 by authority of Chief of Naval Operations despatch 026136 of May 1946.

Naval Air Station, (LTA) Tillamook, Oregon - maintenance status, plane storage, 15 September 1946, by authority of Chief of Naval Operations Aviation Planning Directive 49-NN-45 dated 27 August 1945.

Naval Air Station, Klamath Falls, Oregon - caretaker status, 10 October 1945, by authority of Chief of Naval Operations Aviation Planning Directive 49-NN-45 dated 27 August 1945. Declared surplus, 1 November 1945; disestablished, 1 January 1946 Declared to War Assets Administration on 11 April 1946.

Naval Air Station, Pasco, Washington - Inactivated status, 1 July 1946 by authority of Buer despatch 132032 of June 1946

Naval Air Station, Astoria, Oregon - Declared surplus 1 June 1946 by authority of Chief of Naval Operations ltr 5 June 1946. Interim permit being negotiated. Tongue Point, the seaplane base for Naval Air Station, Astoria, Oregon was established as Naval Station Tongue Point, on 29 November 1945. Authority SecNav ltr Op24-rd of 24 November 1945.

- 4 -

Chief of Naval Operations ltr to Bureau of Yards and Docks, serial 884P515 of 7 June 1946. Revocable permit signed by Mason County 4 September 1946.

Naval Auxiliary Air Field, Lakeview, Oregon - caretaker status, 1 October 1945, by authority of Chief of Naval Operations Aviation Planning Directive 56-WW-45. Declared surplus 1 November 1945. Disestablishment, 1 January 1946. Revocable permit executed to city of Lakeview 26 June 1946. Declared to War Assets Administration 12 February 1946. Town of Lakeview operating airport on Revocable permit.

Outlying Field, Coupeville, Oregon - field closed to all aircraft Opened on 24 hours notice.

Outlying Field, Clallam, Washington - declared surplus 15 October 1945. Authorized by CNO ltr 7P515 of 7 January 1946. Private flying authorized by BuDocks despatch 072232 of March to Clallam County Commissioners 7 March 1946. Revocable permit executed 28 May 1946. Declared to War Assets Administration 11 June 1946.

Outlying Field, Port Orford, Oregon - declared surplus 1 October 1945 - authorized by CNO ltr 7P515 of 7 January 1946. Declared to War Assets Administration 26 March 1946.

Outlying Field, Mt. Vernon, Washington - field closed to all aircraft. Authorized by CNO ltr 7P515 of 7 January 1946. To be opened on 24 hours notice. Declared surplus. To be taken over by War Assets Administration at a later date.

- 6 -

APPENDIX E-7

Headquarters 13th Naval District, Seattle
Washington, 1945

Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air station, Klamath Falls, Ore., 8 May 1945

ADDRESS REPLY TO
COMMANDANT
PUBLIC WORKS DEPT.
AND REFER TO:
N1-13/NA(Klamath)(Y)
Conf. Serial 472052

HEADQUARTERS
THIRTEENTH NAVAL DISTRICT
SEATTLE, 14, WASHINGTON

RJC/Pl

8 May 1945

C O N F I D E N T I A L

From: Commandant, Thirteenth Naval District
To: Chief of the Bureau of Yards and Docks (F-5)

Subj: Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air Station, Klamath Falls, Ore.

Ref: (a) Budocks conf. ltr to Coml3, ND13/N1-13 F-5-5/FJL-am, Serial YD 8736, dtd 18 April 1945.

1. By reference (a) the Commandant was directed to negotiate leases covering the subject area with the owners thereof for the balance of the fiscal year 1945 and for the fiscal year 1946. Pursuant to such direction, a District representative has recently contacted the persons and organizations listed in reference (a) as the purported owners of property in the subject area. It was found that because of recent transactions the list of owners and descriptions of the land owned by each, together with the map enclosed with reference (a), were incorrect in some respects. The present owners' names and the descriptions of the property owned by each are as follows:

J. C. Stevenson, Box 84, Macdoel, California ..... 2,160 acres
SW¼ of Section 25 and
All of Section 36, T. 47 N., R. 2 W., Mt.D.M.
All of Section 1, T. 46 N., R. 2 W., Mt.D.M.
W½ of Section 6, T. 46 N., R. 1 W., Mt.D.M.
SW¼, SW¼, NW¼, Section 31, T. 47 N., R. 1 W., Mt.D.M.

Butte Valley Irrigation District, Macdoel, California ..... 3,920 acres
S½ of Section 24 and
NW¼ of Section 25, T. 47 N., R. 2 W., Mt.D.M.
All of Sections 29, 30, and 32; E½ and NW¼NW¼ of Section 31, T. 47 N., R. 1 W., Mt.D.M.
All of Section 5, E½ of Section 6, T. 46 N., R. 1 W., Mt.D.M.

United States of America ..... 960 acres
S½ of Section 19, T. 47 N., R. 1 W., Mt.D.M.
S½, NE¼, SE¼NW¼, Section 20, T. 47 N., R. 1 W., Mt.D.M.
SE¼SE¼, Section 17, T. 47 N., R. 1 W., Mt.D.M.

CONFIDENTIAL

N1-13(NA(Klamath)(Y-2) - 2 - RJC/P1
Conf. Serial 472052
8 May 1945
C O N F I D E N T I A L

Subj: Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air Station, Klamath Falls, Ore.

2. A lease, in triplicate, executed by J. C. Stevenson, covering the above-described 2,160 acres and setting forth an annual rental of $1,000 constitutes Enclosure (1) hereof. While this property is valued for tax purposes by the County Assessor at approximately $7.00 per acre, investigation disclosed that it was good pasture and grazing land. The owner at present runs 400 head of cattle over said property and its value is somewhat enhanced by the fact that there is a well on same which supplies the cattle with adequate water. Mr. Stevenson contended that this property would support 400 head of cattle from the present date until well into November, and that the well would supply them with adequate water after a small reservoir on the adjoining property dried up this summer. In view of the above facts, it is believed that the value given the land for tax purposes is a little low, and it is estimated that $10.00 per acre is a reasonable value for the fee simple interest in said land. The rental set forth in the enclosed lease is a little less than 5 percent of such fee simple value, and such percentage is considered a reasonable rental for this type of property. Accordingly, it is recommended that Enclosure (1) be accepted and executed on the part of the Government, and copies returned to the Commandant for distribution.

3. The Manager of the Butte Valley Irrigation District advised that all of said District's land in the rocket target area, with the exception of 10 acres, is at present covered by an option contract to the Soil Conservation Service, U. S. Department of Agriculture, said transaction being described by project symbol CF-LU-22, Option Contract No. 35. The 10 acres excepted from said option are the $S\frac{1}{2}S\frac{1}{2}SE\frac{1}{4}SE\frac{1}{4}$, Section 29, T. 47 N., R. 1 W., Mt.D.M. The Manager of the Irrigation District further advised that upon the next meeting of the Board of Directors of said District, a lease for an annual consideration of $1.00 covering all of the District's property in the rocket target area would be executed and forwarded to the Commandant in order that the District's present interest in the property may be properly covered by a lease agreement. It is understood that a meeting of the Board of Directors is to be convened on 8 May 1945, and the executed lease agreement is expected shortly thereafter. Such agreement will be in the same form as Enclosure (1) hereof, and it will be forwarded to the Bureau upon receipt. It is requested that the Bureau take the necessary action to acquire from the Department of Agriculture the use of the land above-described as owned by the Butte Valley Irrigation District.

ND13/N1-13

N1-13/NA(Klamath)(Y) - 3 - RJC/P1 F-3
Conf. Serial 472052
8 May 1945
C O N F I D E N T I A L

Subj: Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air Station, Klamath Falls, Ore.

- -

4. Inasmuch as the rocket target facility to be established on the subject property is needed at present in the training program of the Naval Air Station, Klamath Falls, it is requested that this matter be expeditiously handled and that authority be granted by dispatch to take possession of the premises.

R. M. GRIFFIN

G. A. DUNCAN
Captain, (CEC), USN
District Public Works Officer
By direction

Encl.
1. (HW) J. C. Stevenson Lease, in tripl.

CC: Comdr., NAB, 13ND
CO, NAS, Klamath Falls, Ore.

CHANGE TO UNCLASSIFIED

CONFIDENTIAL

CHANGE TO UNCLASSIFIED

CONFIDENTIAL

APPENDIX E-8

Interdepartmental Air Traffic Control Board, 1945

IATCB minutes, meeting #675, 8 October 1945

~~RESTRICTED~~

INTERNATIONAL
AIR TRAFFIC CONTROL BOARD
ROOM 1021, ARMY AIR FORCES ANNEX #1
GRAVELLY POINT, WASHINGTON 25, D.C.

Meeting #675 — 8 October 1945

Place: IATCB Room, Army Air Forces Annex #1

Time: 2:00 P.M. to 4:00 P.M.

Members and Alternate Members Present:

H. A. Cole, CAA, Department of Commerce, Presiding
J. S. Marriott, Colonel, Air Corps, War Department
L. E. Nivling, Commander, USNR, Navy Department
D. E. Postle, Civil Aeronautics Board
D. Farren, Major, Air Corps, War Department

Secretariat: J. B. Hartranft, Jr., Lt. Colonel, Air Corps (Secretary IATCB)
D. A. Mitchell, Captain, Air Corps (Assistant Secretary IATCB)

SUBJECTS:

* * *

1. AIR CARRIER OPERATIONS:

ST. LOUIS, MISSOURI – DETROIT, MICHIGAN – AIR CARRIER ROUTE

Discussion:

The Secretary of the Board presented a request from the Civil Aeronautics Administration on behalf of Transcontinental & Western Air Inc., received through the Department of Commerce Member, for approval of a route between St. Louis, Missouri and Detroit, Michigan.

Finding:

A portion of the proposed route lies over a training area for Naval Air Station, Grosse Ile, Indiana.

~~RESTRICTED~~

RESTRICTED
- 4 -

Meeting #675 8 October 1945

3. DANGER AREAS:

RECISION OF APPROVAL OF NAVY GUNNERY AND TARGET AREAS IN WASHINGTON AND OREGON

Discussion:

The Secretary of the Board presented report of the Seattle Regional Committee on a request from Naval Air Bases, 13th Naval District, Seattle, Washington for recision of approval of Gunnery and Target Areas in Washington and Oregon.

Finding:

In letter dated 25 September 1945 the Seattle Regional Committee recommended recision of approval of the Gunnery and Target Areas described in the recommendation below.

RECOMMENDATION:

That approval of following described Gunnery and Target Areas in meetings indicated be rescinded and the Danger and Caution Areas be removed from aeronautical charts, notices to airmen and publications of aids to air navigation:

	DESCRIPTION OF AREA	MEETING APPROVED	CHART
(a)	Area approved for gunnery operations by Fleet Air, Seattle, Washington, described as follows: Straight lines connecting the following points:	Established 343 Corrected 362 & 372	Klamath Falls Mt. Shasta
	Latitude 42° 11', Longitude 121° 13' Latitude 42° 16', Longitude 120° 46' Latitude 41° 44', Longitude 120° 27' Latitude 41° 41', Longitude 120° 51'		
(b)	Air-To-Air Gunnery Range near Lakeview, Oregon for use by Fleet Air, Seattle, Washington described as follows:	Established 343 Corrected 372 & 416	Boise Elko
	Beginning at Latitude 42° 19', Longitude 119° 35' 45"; thence north to Latitude 42° 32' 1.", Longitude 119° 35' 45"; thence northeast to Latitude 42° 36' 30", Longitude 119° 31'; thence east to Latitude 42° 36' 30", Longitude 118° 58' 30"; thence south to Latitude 42° 33' 00", Longitude 118° 58' 30", thence southeast to Latitude 42° 27', Longitude 118° 54'; thence south to Latitude 41° 52' 30", Longitude 118° 53'; thence southwest to Latitude 41° 48' 15", Longitude 119° 05'; thence west to Latitude 41° 49', Longitude 119° 30"; thence north to Latitude 42° 19', Longitude 119° 30'; thence west to the point of beginning.		
(c)	Caution Area in the vicinity of Klamath Falls approved for Navy operations:	462	Klamath Falls
	Gerber's Reservoir (Strafing and Dive, Glide and Skip Bombing). A circular area having a radius of 1½ miles centered at Latitude 42° 12' 10", Longitude 121° 05'		

RESTRICTED
- 5 -

Meeting #675 — 8 October 1945

(d)	Caution Area in the vicinity of Klamath Falls approved for Navy operations: Willow Valley Reservoir (Dive Bombing) a circular area having a radius of 1½ miles centered at Latitude 42° 01' 40", Longitude 121° 07'.	462	Klamath Falls
(e)	Caution Area in the vicinity of Klamath Falls approved for Navy operations: Drew Reservoir (Dive and Glide Bombing) all of Drew Reservoir, Oregon located approximately 13 miles West of Lakeview, Oregon.	462	Klamath Falls
(f)	Dive Bombing and Strafing Area for Naval Air Station, Klamath Falls, Oregon described as Clear Lake Reservoir, California (approximate center Latitude 41° 53', Longitude 121° 08') exclusive of that portion lying within confines of Amber Airway #9, Riverside, California-The Dalles, Oregon.	476	Mt. Shasta
(g)	Circular area, having three mile radius, centered at Latitude 41° 53', Longitude 122° 02', in the vicinity of Butte Reservoir, California approved for use by Naval Air Station, Klamath Falls, Oregon for air-to-ground firing, high and low level bombing and strafing.	618	Mt. Shasta
(h)	Following described target sites approved for use by Naval Air Station Klamath Falls, Oregon: A mobile dive bombing target within an area bounded by straight lines connecting the following points: Latitude 41°51'45", Longitude 121°35'04" Latitude 41° 54'25", Longitude 121°37'25" A stationary target within an area bounded by straight lines connecting the following points: Latitude 41°43'55", Longitude 121°00'15" Latitude 41°44'46", Longitude 121°01'30"	648	Mt. Shasta
(i)	Caution Area described as follows: Dog Lake - a circular area having a radius of 1½ miles centered at Latitude 42° 05', Longitude 120° 42'.	462	Klamath Falls
(j)	Areas in Goose Lake, Oregon approved for Navy strafing and low level dive bombing operations Northern Site The area within a circle having a radius of 3 miles and centered at Latitude 42° 05', Longitude 120° 24' Southern Site The area within a circle having a radius of 3 miles and centered at Latitude 41° 52', Longitude 120° 25'	458	Mt. Shasta Klamath Falls

Reproduction

C6-2934, AF

Meeting #675 — 8 October 1945

(k)	Area approved for Navy Dive and Glide Bombing operations from Naval Air Station Klamath Falls, Oregon: A circular area having a radius of three miles centered at Latitude 42° 11', Longitude 121° 29'	493	Klamath Falls
(l)	Bombing and Strafing Target Sites approved for Naval Air Center, Seattle, Washington: Sea Lion Rock – Latitude 47° 27' 09", Longitude 124° 24' 10"; North Rock – Latitude 47° 45', Longitude 124° 28' 30"; Rock (Giants' Graveyard) Latitude 47° 51', Longitude 124° 34' 10"	446	Seattle
(m)	Target sites approved for use by Naval Auxiliary Air Station North Bend, Oregon: Suislaw, Oregon – Dive Bombing Target – Latitude 43° 54' 25", Longitude 124° 08' 59" Five Mile Point, Oregon – Masthead Level Bombing Target – Latitude 43° 13' 15", Longitude 124° 23' 45"	409	Klamath Falls
(n)	Air-to-ground gunnery, high and low level bombing, and strafing area approved for use by Naval Auxiliary Air Station, Quillayute, Washington: A circular area having a radius of three miles centered at Latitude 47° 51', Longitude 124° 26'	616	Seattle
(o)	Air-to-ground gunnery, high and low level bombing and strafing area approved for use by Naval Auxiliary Air Station, North Bend, Oregon: A circular area having a radius of two miles centered at Latitude 43° 36' 15", Longitude 124° 13'	616	Klamath Falls

* * *

4. MEMORANDA FOR THE RECORD:

A. CHANGES AND ASSIGNMENTS OF ARMY AIR FORCES INSTALLATIONS

Following information concerning changes at Army Air Forces Installations has been received from Headquarters Army Air Forces Air Installations Division, AC/AS-4:

a. Gardner Field, Taft, California has been transferred from the Air Technical Service Command to the jurisdiction of the Reconstruction Finance Corporation, effective 30 September 1945. This field is being used for the storage of tactical aircraft.

b. Lockbourne Army Air Base, Columbus, Ohio, is being transferred from the Army Air Forces Training Command to the jurisdiction of the Air Technical Service Command, effective not later than 10 October 1945.

c. Walker Army Air Field, Victoria, Kansas is being transferred from the Continental Air Forces, Second Air Force, to the Air Technical Service Command, effective not later than 30 September 1945. This field will be used for the storage of aircraft.

APPENDIX E-9

NAS Klamath Falls, Historical Officer, 1944

History of US Naval Air Station Klamath Falls, Oregon and US Naval Auxiliary Air Facility Lakeview Oregon, 30 December 1944

80 MODOC

DECLASSIFIED

ADDRESS REPLY TO
COMMANDING OFFICER

U. S. NAVAL AIR STATION
KLAMATH FALLS, OREGON

AND REFER TO:
NA(13-1)/A12-1

~~CONFIDENTIAL~~

30 December 1944

From: The Historical Officer
To: Chief of Naval Operations
Attn: History Unit, OP-33-J-6, Office of Editorial Research.
Via: Commanding Officer

Subj: Station History - Submission of.

Ref: (a) Aviation Circ. Ltr. No. 74-44, dated 25 July 1944.

1. In compliance with reference (a), enclosure 1 is hereby submitted.

J. C. Coleman
J. C. COLEMAN
Lieutenant, USNR

Encl. 1 (HW)
Station History

NA(13-1)/A12-1
Serial C-95

U.S. Naval Air Station
Klamath Falls, Oregon

End-1

30 December 1944

To: Chief of Naval Operations
Attn: History Unit, OP-33-J-6, Office of Editorial Research.

1. Approved and forwarded.

R. R. Darron
R. R. DARRON
Commander, USN
Commanding

RECEIVED S-C FILES
33 Room 2055
ROUTE TO: 7 JAN 1945
Op File No. (SC) A12-1/NA13
2183

DECLASSIFIED 30 YR NAVY SCHEDULE

HISTORY
of
U. S. NAVAL AIR STATION
KLAMATH FALLS, OREGON
and
U. S. NAVAL AUXILIARY AIR FACILITY
LAKEVIEW OREGON

*
Narrative
Appendices
*

CONFIDENTIAL

Formally commissioned on 12 February 1944, the U. S. Naval Air Station, Klamath Falls, Oregon, was established under the Naval Air Center, Seattle, Washington, to augment the rapidly expanded aviation facilities of the Thirteenth Naval District.

THE NEED

Training and operational flights from coastal bases of the district had been curtailed during the previous winter months because of fog, frequent squalls, and other adverse weather conditions common to the northwest coast in winter. This projected an urgent need of inland facilities; winter bases for squadron anxious to complete their operational training without prolonged interruption.

SELECTING A SITE

During the winter and early spring of 1943, the former manager of the Klamath Airport, Lieutenant Commander William Randall, ferried several naval aircraft from California bases to Seattle by an inland route, including Klamath Falls Airport as a refueling stop. These flights attracted Navy attention. A study of records of the U. S. Weather Bureau showed that Klamath Falls leads most Oregon weather station in the number of days of good flying weather during the year. Furthermore, Klamath Falls already had an airport with landing facilities developed over a number of years by the Civil Aeronautics Administration. The reasonably long runways would give the Navy a running start in the construction of a station of ample size to fill the need so apparent.

Contacts were made with the Klamath County Chamber of Commerce and the City Airport Commission which supplied the Navy with information concerning the field and nearby areas. Lieutenant Commander Walter Newton flew down from Seattle for an on-the-spot inspection and met with Chamber of Commerce representatives and

members of the Airport Commission.

These informal negotiations proceeded rapidly, and by mid-summer plans for a Naval Auxiliary Air Station had crystallized and details of necessary construction were being worked out.

LOCATION

The city of Klamath Falls attracted a peace time population of 20,000. Its lumber industries, procuring timber from the surrounding national forests, are the main source of its income, although the agriculture of the surrounding country produces bountiful crops of potatoes. A high yield of top quality grain is obtained from rich lands reclaimed from swamps and shallow lakes. Certain remote areas not suited to agriculture or habitation have been set aside as national wild-life refuges. These attract great flocks of ducks, geese and other wild-fowl. Thus, during the hunting season, a full bag is almost assured. Large and numerous deer and elk make the surrounding forest adventuresome to the hunter, while nearby lakes yield to the angler.

The city of Klamath Falls is set in the sheltered valley of the Klamath River within the high country that extends to the east of the Cascade Range. The airfield lying within the same level valley is seven miles south south-east from the heart of the city, easily accessible by road.

KLAMATH FALLS AIRPORT

The Klamath Falls Municipal Airport had been developed in joint venture by CAA and Army Engineers over a period of years. The major part of surfacing was accomplished during the summers of 1942 and 1943, and was therefore in good repair. Three runways, hard surfaced with macadam, each 150 feet in width and of adequate

length (the largest being 7134 feet) had been laid out on nearly level land offering no natural obstructions. Runways lay on the bearings of the seasonal prevailing winds. Connecting taxiways joined at the concrete apron on the north border of the airfield. One small hangar of standard corregated steel construction adjoining the concrete apron served to house offices of the Weather Bureau and Airport Administration Office, as well as aircraft. Peripheral lighting, but no runway or taxiway lights comprised facilities for night flights. High hills surrounding the valley were the undesirable feature of the facility, inasmuch as these offered a major obstacle for any instrument approach or let-down. These hills were not so close as to interfere with normal daytime takeoff or landing approaches. At night, however, they constitute a mental hazard.

It was, therefore, a potentially desirable location for the needed added air facilities and since the need was urgent, plans were submitted by the Naval Air Center and approved without delay. Agreement with the cognizant city officials and the Airport Commission secured authorization to proceed immediately. The tentative, verbal agreement gave the Navy the full use of the airfield and the use of adjacent lands to construct any facilities which might be required. It was recognized that although this station would be a valuable asset to Naval Aviation during the present war, its location and other features would not permit full utilization in post-war military flying. Therefore, the agreement contained the promise to return the field, together with improvements, to the city after the war and national emergency was terminated. A more formal written lease was not executed until some months after the commissioning.

PLANS AND CONSTRUCTION

The Austin Co. was advised by the Navy Department on 25 October, that an architectural-engineering contract had been authorized covering the preparation and

development of plans and specifications required for the construction of additional facilities at the Klamath Falls Airport. The Morrison-Knudson Co., of Boise, Idaho, and the Ford J. Twaites Co., of Los Angeles, were notified 23 October that these two firms operating in joint venture had been authorized by the Navy Department to proceed with construction operations.

On 25 October, a meeting was held in the office of the District Public Works Officer for the purpose of outlining procedure in connection with this proposed work, and the following day, representatives of the construction contractors, together with representatives of the Austin Company, Officers of the Naval Air Center, and the Officer-in-Charge of Construction visited the site at Klamath Falls and outlined the procedures for engineering and construction operations.

The Austin Company proceeded immediately with the development of preliminary plans and specifications, all of which were submitted to the Naval Air Center, Seattle, for approval before submission to the Officer-in-Charge. This work was carried out as quickly as possible and more detailed plans and specifications were drawn up at the earliest possible date in order to facilitate the start of construction. The first drawings were delivered to the contractor on 6 November 1943 at Klamath Falls, Oregon. (Additional detail plans and specifications were furnished as rapidly as practical in order that all possible speed could be accomplished.)

On 1 November 1943, the first dirt flew. Principal items on the contract list of 25 projects included grading of 45 acres requiring the moving of 240,000 cubic yards of earth; pouring a concrete warm-up apron 1800 feet long by 400 feet wide, requiring 17,000 yards of concrete; building two runway shoulders of crushed rock; construction of a hangar, control tower, administration building, 14 barracks, 3 bachelor officers quarters, a mess hall, laundry, auditorium and rec-

reation building, fire station, ship's service building, dispensary, warehouse, as well as a sewage disposal plant, water lines, power and other necessary utilities.

Speed in construction was essential and a tentative date of 15 December was set for completion of the main runways and a few barracks with heat and utilities. Many difficulties were encountered. The Steel Hangar, which is the second largest building in Klamath County, had been first set up at an Alaskan Army Air Base. When it was no longer needed there, it was dismantled and shipped to California, where the Navy acquired it and brought it to Klamath Falls. Somewhere along the line some of the large pieces of steel were misplaced or commandeered for other purposes, and replacing these missing pieces was one of the minor headaches for the constructing contractors. Material shortages, a scarcity of labor, and inclement weather brought unforeseen delays, but sufficient progress was made to make the field available for very limited use at the time specified.

FIRST ARRIVALS

The first officers reporting in connection with the operation of the yet undeveloped facility obtained quarters and established offices in nearby Klamath Falls. Lt. L.E. Messenger, USNR, was Officer in Charge of this detachment.

The first air station buildings to be completed were crew's barracks; these were pressed into service as combined offices, warehouse, and bunk rooms for the 6 men comprising the first draft.

Messing facilities were not available on the station, and so arrangements were made with the contractors to furnish meals for officers and men along with construction crews. This was handled on a contract basis and the nearby Summers School House became the gathering place for all at mealtime.

The first large draft of men from various stations of the Thirteenth Naval District arrived in Klamath Falls on 19 December, and participated in an impromptu parade followed by a welcoming ceremony from the townspeople.

The city of Klamath Falls, which went through two years of the war without a military installation of any kind, was most receptive to the Naval personnel. A program of hospitality, including a downtown service men's center, an Officer's Club established by the Elks Club, service men's dances sponsored by the Commandos, a local women's organization, and invitations to private homes made pleasant the liberty hours of officers and men.

The prospective Commanding Officer, Commander L. H. McPherson, came aboard 28 December 1943, and proceeded with the numerous details of procurement and organization.

The first operating squadron, VC-82, arrived on 21 January 1944 and without delay, began their mission of training.

Additional personnel continued to arrive. Overcrowding of temporary buildings and urgent need for speed in effecting full operation forced the occupancy of the Tower and other buildings before they were fully constructed. A compact working arrangement developed in connection with the Control Tower. A two-story building with the control tower projecting above it served to house the Aerology Offices, Communications Offices, and the CAA Radio and Teletype facilities on the second deck, while Air Traffic and Operations Offices occupied the lower deck. Thus, all of the units required for the handling and control of flight operations were in the same building, easily and quickly accessible to one another.

The smaller hangar, a part of the original CAA installation, was used at first

for housing and repair of aircraft, and as temporary operations offices, but on the completion of the Navy-installed hangar, this structure became the garage and repair facility for motor equipment.

ADDITIONAL FACILITIES

Original plans and authorization for Klamath Falls were for a Naval Auxiliary Air Station to be operated as a facility of the Naval Air Station, Seattle, Washington. But the need for more complete facilities as well as the difficulties associated with its remote and isolated location influenced the decision to prepare and commission this unit as a Naval Air Station.

Accordingly, on 24 January 1944, the Secretary of the Navy, in a letter to all ships and stations, established the facilities at Klamath Falls as the U. S. Naval Air Station, Klamath Falls, Oregon, and as an activity under the Naval Air Center, Seattle, Washington.

In fulfilling the mission of a Naval Air Station, the need for more construction to accommodate the necessarily larger complement and increased facilities became apparent. Consequently, plans were submitted and on 15 April, a supplemental agreement to Contract NOy-8042 was approved. This provided for: a senior officer's quarters and mess, two additional BOQs, nine barracks, enlargement of laundry, mess hall, dispensary, and the utilities plants, an additional hangar, enlargement of the concrete parking areas and construction of gasoline stowage.

By arrangement with CAA, funds of that organization were transferred to the Navy towards construction of a N-S taxiway adjacent to the warm-up apron and widening of runways. This was included in the supplemental agreement.

A twenty-five foot extension to each side of the existing 150 foot wide runways

had been contemplated, but the installation of permanent flush type runway marker lights on the east west runway was complete and any widening of that runway would have required expensive and time consuming alterations. But the project was approved for the two other runways. Such widening required the use of heavy equipment on the sides of these strips. By careful coordination this work was accomplished without interrupting the flight operations of the airfield. Collision with the equipment occurred on two instances when aircraft swerved out of control. However, no injuries resulted.

COMMISSIONING

At appropriate ceremonies attended by approximately five thousand citizens of Klamath Falls, Captain C. T. Simard, USN, Commandant of the Naval Air Center, Seattle, formally commissioned the Naval Air Station, Klamath Falls, on 12 February 1944. In a brief address, he outlined the purpose of the station and turned the command over to Commander L. H. McPherson, USNR.

Rear Admiral Ralph Wood, Commander Fleet Air, Seattle, was present for the ceremonies and one of the principal speakers. In his address, he emphasized the importance of combat training of fleet squadrons which was to be conducted at this station.

The Mayor of Klamath Falls and the President of the Chamber of Commerce welcomed the Navy on behalf of the City. Music for the occasion was provided by the Klamath Union High School Band.

Flag raising ceremonies started the program and at the conclusion, a brief air show by VC-82 was followed by a luncheon in the Mess Hall. Free access to all non-restricted parts of the station was given the visitors.

In addition to the station officers and men and the distinguished guest speakers, present were Commander John J. Bergen, Chief Staff Officer for the Naval Air Center and Commander B. B. Smith, at that time Commanding Officer of NAS, Pasco. Members of the Fleet Air Staff and NAC staff accompanied their commanders to the occasion.

SQUADRONS

The first fleet units brought to the station were Composite Squadrons (VC) operating at normal strength 18 fighters (VM-2) and 9 torpedo bombers (TBF). After five of these squadrons had completed training here, they were replaced by a CVE air group composed of one fighter squadron of 18 planes (F6F) and one bombing squadron of 12 planes (TBF). All of these were newly formed and the majority of pilots drawn from operational training; only a few of the senior pilots had had previous fleet and combat experience. Thus, the syllabus at this station included comprehensive training in aerial fixed and free gunnery, bombing, strafing, and all other phases of aerial tactics as well as ground training in numerous subjects.

CASU

To assist squadrons with engineering problems, a detachment of Seattle's CASU 7 accompanied the first fleet units aboard and took custody of the newly completed hangar and the Class C overhaul equipment. Working together with squadron personnel they set up and organized the facilities to accommodate the numerous minor overhaul and repair jobs incident to the operating of aircraft.

On 2 June 1944, CASU 7E returned to Seattle having been relieved by "A" detachment of CASU 50, with headquarters at Pasco. Lieutenant John Stirling, USNR, as Officer-in-Charge continued the development of shops and increase of general equipment. At first, the relatively small CASU unit was composed principally of

specialists and technicians. Their mission was to man the shops and render technical assistance and advice to squadrons. Each composite squadron's complement included a large engineering crew which accomplished their own minor checks and repair. However, in streamlining VC-98 and VC-99 for sea billets, excess personnel were transferred to CASU and by this increase CASU was able to handle nearly all local engineering and repair.

TARGETS AND GUNNERY AREAS

The training program of the fleet squadrons required gunnery and bombing practice. This of course necessitated suitable targets and gunnery areas and these could not be provided over sea or waste areas.

Air-to-ground gunnery presented a definite hazard to nearby forest reserves because of the probability of bombs and projectiles starting forest fires. A number of lakes and reservoirs were surveyed and in cooperation with agencies of the Department of Agriculture, some of these were selected and approved for target areas. Rafts were constructed as targets and anchored in the water areas of nearby Clear Lake, Goose Lake, Gerber's Reservoir, Drew's Reservoir, and Willow Valley Reservoir. To meet the problem of areas for air-to-air gunnery practice, two gunnery areas were established.

Area No. I

The gunnery Area Number I comprised an area of approximately 700 square miles and conveniently, 30 miles east of the air station. This area was used as grazing land and was valuable as a source of timber. Therefore, the area was used only from 1 November until 1 April, and was closed to all firing during the remainder of the year to permit logging operations and the grazing of cattle. During the season when firing was prohibited, the number one area was available for camera

gunnery and other acrobatic maneuvers.

Area No. II

Area Number II was a larger gunnery range covering an area of about 1300 miles, but not so convenient in that it is 100 miles distant from the Naval Air Station. This area was also valuable as grazing land, but to permit year-around firing this area was sub-divided into zones. When cattle roundup, fence repairing, or other tasks required the presence of persons within a part of the area, that zone was closed, and firing was then continued in unoccupied zones. Cattle were continually within the area, but firing at towed sleeves does not frequently result in injury to livestock. So long as no human life is endangered, the expense to the government involved in firing over cattle is less than that required to lease and completely clear the area. An officer was detailed to act as liaison with the numerous land owners and federal agents in these areas to coordinate use of various areas in firing, and to adjust claims due to damage incident to these operations.

GROUND TRAINING AND RECREATION

Ground-training facilities for squadrons were developed under the cognizance of the Ordnance Department. A training building, was planned to house link trainers and other synthetic training devices for the benefit of both pilots and aircrewmen. Classrooms and projection equipment were provided to aid instruction in recognition, survival technique, and other ground studies.

During warm months, volley ball, badminton, softball, other outdoor sports contribute to the fitness of squadrons as well as station personnel. A "combat conditioning" building was available for athletics during working hours, but this structure also served as movie theatre, dance hall, auditorium and as a chapel on Sunday. Church services were held in the Mess Hall until completion of this

building which was first opened Easter Sunday with appropriate services. A piano was contributed by civilian employees when Navy funds were not available.

RESCUE AND SALVAGE

Due to the mountainous terrain, the heavy timber land and condition of roads, even minor aircraft accidents or forced landings were potentially very hazardous both from the standpoint of effecting a safe descent, or of a prompt rescue. The station was responsible for initiating search and rescue and to this end maintained an ambulance plane, amphibious "weasel" jeeps, a radio equipped ambulance and rescue truck together with suitable rescue gear and trained crews. The cooperation of forest services, other government agencies, and the civilian landowners in reporting crashes and assisting rescue was most helpful in several instances.

OTHER SERVICES PERFORMED

Whereas the primary mission of the Air Station was to provide facilities for Fleet Squadrons, in addition Klamath Falls was designated by the Chief of Naval Operations as an authorized Ferry Stop for the Naval Ferry Command, and as such received and serviced numerous planes stopping en route. The facilities were also extended to an increasing number of Army aircraft.

The Naval Air Transport Service first commenced using the field and facilities of the station on Christmas Day 1943 when the Commanding Officer of Seattle's VR-5 flew in to survey the establishment. Since the station is the only Naval facility lying about midway on the Seattle-Oakland route, it was potentially a desirable stop for refueling or for an alternate in doubtful weather. Therefore, whenever weather permitted, the southbound and occasionally the northbound transport arrived and the freight and passenger facilities aided the early growth of this station.

Unfortunately, it soon developed that because of the high altitude, a reduction of 1,000 pounds in the pay-load of these transports was required for safe take-off. The saving in gas load was only about 600 pounds. The net loss of 400 pounds discouraged the use of this station, and regular runs were discontinued and transports stopped only to discharge or to take aboard priority cargo or priority passengers.

LIMITATIONS IN OPERATIONS

The extreme altitude of Klamath Falls (4085 feet above sea level) was one of the undesirable and limiting factors in operation. Planes taking off with a ground speed at sea-level of 70 knots required an additional 6 knots to avoid serious stalling at Klamath Falls. The effect of this was to require more distance for the landing and take-off runs. Further, any accident involving collision on landing or taking off resulted in greatly increased impact. Certain types of aircraft designed for low altitude operation were unable to obtain sufficient altitude to avoid the obstacles of high terrain. Almost all types of acrobatic maneuver requiring a safe altitude demanded that the pilot have oxygen. An additional undesirable effect was the limitation on loading which was often compensated by lessening the gas load and therefore the range.

The desirability of utilizing a standard instrument let-down and approach to this field during intervals of low ceiling or reduced visibility was quite doubtful considering the high hills and mountains near the range channels. These natural barriers, extending several thousand feet higher than the field plus the unreliability of the radio range common to all mountainous locations were sufficient to require a minimum ceiling of 2500 feet for all instrument procedures.

EFFECT OF WEATHER ON OPERATIONS

Occasional low cloudiness and light precipitation somewhat reduced the number of operating hours during the first months of late winter. However, the period from mid March until November proved remarkable in that nearly perfect flying weather both night and day permitted unrestricted operations within the local and operating areas, although cross-country flights were often delayed by weather of other terminals. Throughout this entire period aircraft were grounded less than ten days because of weather. None of the early morning cloudiness or fog that restricted coastal routes and stations affected this area and, as a result, squadrons kept well ahead of schedule.

During the good flying weather of the summer and when four Composite Squadrons were operating, the weekly airport traffic averaged more than twelve hundred landings and take-offs. The high point was reached during the first week of September when 2182 landings and take-offs were recorded. The last week of November marked contrast showing little flying. The combination of bad weather and lack of operating squadrons (only one small partially formed air group was aboard) reduced the total traffic to a 209, a reduction of almost 90%.

CHANGE OF COMMAND

On 7 April 1944, Commander McPherson who had been the Prospective Commanding Officer and, after the commissioning, the Commanding Officer was relieved by Commander B. B. Smith, USNR. Commander Smith had been sent on temporary duty from NAS Pasco to relieve Commander McPherson for other duties. On 20 April 1944, Commander Smith was relieved of these additional duties by Commander R. R. Darron, USN.

NAAF LAKEVIEW

The principal and only year-round gunnery area (#2) lay 100 miles from this

station--a distance that seriously limited its use by fighter and other short-range aircraft. The prospect of returning to Klamath Falls short of fuel was no more desirable than the long flight back to rearm. In order to overcome this handicap, a rearming-refueling base was necessary and the existing airfield near Lakeview, Oregon, was ideally located for this purpose. After some preliminary investigation, the Navy started lease proceedings with the city, and entered into a joint agreement for its use. It was agreed to permit the Navy exclusive use of this field pending drawing up of final papers. Part of this agreement was to return the airfield to the city six months after the end of the present war.

The airfield at Lakeview had been developed in 1942 by Army engineers as an emergency landing field for Army aircraft using the several gunnery areas to the north and west. The facilities, as they existed when acquired by the Navy, consisted of two connecting runways each 5300 feet long and 150 feet wide, hard surfaced with asphalt. These runways, in the outline of a V, were joined by a taxiway to form a triangle. A concrete parking apron 200 feet by 300 feet joined this taxiway near the center. No buildings or other facilities were present excepting peripheral lighting that had been installed under CAA supervision.

To successfully operate this Lakeview facility, line crews, tower and other personnel were required; housing, messing and other facilities necessary. Therefore, as a part of the original contract for the construction of facilities at NAS Klamath Falls, certain items for improvement of Lakeview were included. Among these were two barracks, a mess hall, and an administration building. Work commenced early in January and by the first of March these buildings were domplete. The number one gunnery area was available and in use until 1 April, therefore Lakeview was not needed until that later date. During the last week of March, a

detachment of 28 men in the charge of Lt. (jg) Jenkins was sent to organize the facility and to prepare for its opening.

The needed rearming-refueling base was ready to receive and service aircraft at the time of closing Gunnery Area #1.

Although operating as a Naval Auxiliary Air Facility, the Ensign was not hoisted until appropriate ceremonies were held including the residents of nearby Lakeview.

That community had shown great interest in the fine airport development that could not otherwise have been achieved without heavy debt burden. Besides offering the city the added advantage of convenient air transportation facilities for peace-time use, it gave the otherwise isolated community close direct contact with the war effort. Unofficially the residents named the Airport "Sult Field" in honor of Dr. Michael Sult, former Lakeview dentist and aviation enthusiast, who is now a prisoner of the Japanese, having been captured in the invasion of the Philippines.

The inclement weather of April delayed the formal "flag raising" because it was believed that many of the residents would desire to attend. Yet no one was prepared for the crowd which arrived to witness and participate in the ceremonies on Sunday, 21 May 1944. The total population of the city was less than 2400, but 4000 attended, some having travelled for many miles from nearby farms and communities. A few came on horseback, some on bicycles, and one arrived on crutches.

Hundreds of early arrivals had to wait outside the gate until preparations were complete; traffic jammed the roads for miles. Lakeview Boy Scouts took charge of parking the overwhelming number of vehicles (1001 by actual count). A parking area for 300 had been cleared but this soon overflowed onto the sagebrush .

Visitors were given free access to all parts of the station, with the exception of closed areas and a part of the ramp used in servicing aircraft. Much interest was shown in the station aircraft lined up for inspection.

On the improvised speakers platform Mr. Rod Waters, Mayor of Lakeview, outlined the history of the Airfield. Mr. Elmo Angele, Exalted Ruler of B.P.O.E., conducted the dedication and the KUHS band played the National Anthem as the Flag was raised. Commander R. R. Darron, the Commanding Officer, made the opening address and turned the facility over to the Officer-in-Charge, Lt. (jg) J. E. Jenkins.

The visitors crowded into the mess hall for coffee and doughnuts at the end of the ceremony which had concluded in a spectacular air show by Squadrons 97 and 98.

Developments of Lakeview facilities continued. The runways were widened by thirty-foot shoulder extensions. Ammunition stowage and other facilities were developed. The control tower, which will replace the portable tower now in use, was being constructed above the hangar. On 25 November Lt. Jenkins was relieved as Officer-in-Charge, NAAF, Lakeview, by Lt. F. J. Faha, USNR.

C-O-N-C-L-U-S-I-O-N

The completion of facilities authorized on 15 April were delayed both by shortage of labor and by the difficulties in procuring necessary materials. As a result of this delay, full facilities were not available by 1 January 1945. The parking areas readily accommodated 200 planes and as many could be serviced. But lack of hangar space limited repair facilities and the number of completed barracks restricted the size and types of units that could be maintained.

The station operated eleven station aircraft for general utility, search and

rescue work. Some of these were stationed at NAAF Lakeview. This readily available air transportation for personnel and priority equipment between air station and facility obviated the need for a more numerous personnel at Lakeview.

The authorized station complement was 526 enlisted and 51 officer personnel. This included NAAF Lakeview, which has status as a department of the Naval Air Station. At the close of 1944 there were 525 enlisted personnel, including 78 Waves, aboard, and 59 officers. In addition, an increasing number of civilians were being employed for appropriate jobs in Public Works, Ship's Service, and in certain types of secretarial duties.

The Commissioned Officers' mess was officially opened by a New Year's Eve party 31 December. This marked the completion and first occupancy of the senior BOQ quarters. At the close of 1944 the Station anticipated early completion of other construction then underway, which would enable it to accommodate its planned capacity.

APPENDIX E-10

NAS Klamath Falls and NAAS Lakeview Oregon, 1945

History of U.S. Naval Air Station Klamath Falls, Oregon and U.S. Naval Auxiliary Air Facility Lakeview, Oregon, June, July and August 1945, circa September 1945

~~CONFIDENTIAL~~

HISTORY
OF
U. S. NAVAL AIR STATION
KLAMATH FALLS, OREGON
and
U. S. NAVAL AUXILIARY AIR FACILITY
LAKEVIEW, OREGON

JUNE, JULY and AUGUST 1945

COMMANDER P.L. HAYNES, U.S. NAVY
COMMANDING

~~CONFIDENTIAL~~

During the months of June, July and August 1945, activity at the Naval Air Station, Klamath Falls, Oregon, continued on the upgrade.

Contract work on the construction of the new hangar proceeded very slowly during the past three months, as did all other construction work under contract.

In keeping with the continued expansion of the Naval Air Station to provide more complete training facilities for the Fleet Units based here, a rocket range has been recently completed. Besides the forward firing rocket facilities the Station now is able to provide areas and facilities for aerial gunnery, dive bombing, strafing, radar bombing, and all phases of ground training, all of which are designed to implement and speed to perfection the training our Navy fliers receive before entering active combat.

Construction was started some time ago on the rocket range located five miles south west of Dorris, California. All the latest features have been incorporated in this project to make it one of the most complete devices of its kind. The target area is constructed on a four-foot raised platform approximately one hundred feet in diameter. This is covered with a white cloth in order to make it visible and conspicuous. Radiating for a distance of approximately a mile from the center of the target in two directions is a straight line marked on the ground to assist the pilots in making a straight run on the target. Adjacent to the target is a device that is used to measure the angle of dive for pilots and is equipped with radio device for transmitting to pilots the actual dive angle while approaching the target. Also located at right angles to the target are two buildings that are used to house personnel to measure the

accuracy of the hits on the target. The target area itself is completely surrounded by adequate fire breaks in compliance with fire protection and prevention measures deemed necessary for this type of installation.

Rockets used in training programs, which differ from combat rockets only in that the head is removed, are of many different sizes, but all are designed essentially the same. The head, which contains the destructive element, is loaded with a charge of explosive which explodes on contact. The body containing the motor for the forward motion of the rocket is filled with a material called ballistite, which supplies the energy for forward motion of the rocket. The fins at the rear of the rocket are only for the purpost of controlling flight. Ignition is through an electrical contact controlled within the pilot's compartment.

Assembling and arming are done on the runway just prior to the takeoff. This is necessary as a safety precaution, as an accidental discharge of a rocket creates a danger area both in front and to the rear of the discharged rocket. The backward force of a discharged rocket is equivalent to the forward motion, which is at the rate of a large calibre rifle. This propulsive force, together with the forward motion of airplane at the time of launching, creates a tremendous force, which is one of the reasons the rockets are so effective.

Rockets used in this training will be of the type known as SCAR. These are primarily for training purposes and are similar in every detail to those used in actual combat. It is expected that as the training program progresses actual combat type rockets will

be used on this target. The SCARs are a type of rocket approximately equivalent to the size of a two-inch bore rifle. It has been proved that rockets mounted on planes can carry the fire power of one of our modern battleships, and it is felt that the training which will be offered at this Station in forward firing rockets will contribute materially to the utter defeat of a potential enemy.

To augment the training facilities at the Naval Air Station an additional bombing target was completed on 24 July 1945. This target represents a considerable deviation from the other type targets in that it is constructed roughly to represent a ship, presenting a two-dimension view. All previous targets have been built as rafts on water, being visible only from a vertical position. This Radar target was erected from pre-fabricated material on a small island near the South end of Goose Lake in Modoc County, California. It is about 65 miles Southeast of the Klamath Falls Naval Air Station and about 25 miles South of the Naval Auxiliary Air Facility, Lakeview, Oregon. Resemblance to a ship is obtained from an overall length of 145 feet and 30 foot mast on top. The entire structure is covered with 2" mesh chicken wire. The wire mesh is used as the attractive agent for the Radar gear. Experiments are to be conducted in Radar bombing in which visual observation of the target is not necessary. The structure is built to withstand hits by all types of practice bombs. Cross-bracing and reinforcing will prevent complete destruction of the target except that continued heavy hits may destroy a sufficient number of essential braces to cause a slight list. Results from bombing runs made on the target have indicated that it is satisfactory in all respects to the demands of the Fleet Units for the type of training required.

On 6 July 1945, Admiral R.E. Ingersoll, U.S. Navy, Commander Western Sea Frontier, visited the Station and made an informal inspection.

APPENDIX E-11

Navy Department, Washington DC, 1945

Use of 7040 acres of land in Siskiyou County, California, for practice target range in connection with NAS, Klamath Falls, Oregon, 28 May 1945

ADDRESS REPLY TO
THE BUREAU OF YARDS AND DOCKS
AND REFER TO

NAVY DEPARTMENT
WASHINGTON 25, D. C.

FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

ND12/N1-13
C5-90-KF
F-5-3/RAG:mr

May 28, 1945

AIR MAIL

To: ComThirteen

Subj: Use of 7,040 acres of land in Siskiyou County, California, for practice target range in connection with NAS, Klamath Falls, Oregon.

Ref: (a) Conf. Ltr. 2nd-1 of Com13, NA(Klamath)/N1-13, ND13/N1-13(286)(Y-2) Conf.Ser.472018 (on Comdr, NABs,13ND,NAB13/F41010/L4-3(70:ms) Ser.C-72, dated 7 Feb 1945, to BuAer) dated 10 Feb 1945

1. By reference (a) the Commandant recommended that a transfer of temporary jurisdiction be effected upon that portion of subject lands which are federally owned.

2. Enclosure (1) grants permission to use 960 acres of land under jurisdiction of the War Food Administration of the Department of Agriculture.

3. It is requested that a Memorandum of Understanding between the Commandant, or some subordinate officer, and the representative of the Department of Agriculture be entered into as requested in enclosure(1). A copy of the Memorandum of Understanding should be forwarded to the Bureau.

By direction of Chief, BuDocks:

ANDREW J. MURPHY, JR.

Encl. (HW)
1. 2 copies of ltr from War Food Admn. to SecNav, 15 May 1945.

CC: (With encl.)
Comdr,NABs,13ND
BuAer
CO,NAS,Klamath Falls,Oregon

51500928

N1-9/NA (152)

APPENDIX E-12

Navy Department, Office of the Chief of Naval Operations, Washington DC, 1945

Aviation Planning Directive 56-NN-45,
4 September 1945

NAVY DEPARTMENT
Office of the Chief of Naval Operation
WASHINGTON 25, D. C.

Op-03-3B-WEB/msd
(SC)A4-2/NA
Serial 054003

~~CONFIDENTIAL~~

4 Sept 1945

AVIATION PLANNING DIRECTIVE 56-NN-45

From: CNO
To: Chief, BuAer
ComFairWestCoast
ComNAB THIRTEEN

Subj: NAS Klamath Falls, NAS Astoria, and NAAF Lakeview, Oregon; reduction in status of.

1. Effective 1 Oct 1945, subject stations will be reduced to caretaker status, i.e. a non-operating condition requiring a minimum strength personnel unit, the mission of which is to maintain physical U. S. possession of the property involved, and to guard such property against deterioration, damage, looting and theft.

2. There will be no aircraft regularly attached to or operated from these stations, and effective 1 Oct 1945 their aircraft complements will be cancelled.

3. Insofar as practicable, civilian personnel shall be used to maintain the stations in caretaker status, and any Naval personnel required shall be quartered and subsisted off station.

4. ComNAB THIRTEEN is requested to submit to CNO (Op-32) revised officer and enlisted allowances and revised per annum and per diem civilian ceilings for subject activities.

5. Cognizant bureaus, commands and offices are requested to take the action necessary to implement this directive.

/S/ J. H. Cassady

J. H. CASSADY
By direction

C O P Y

Appendix A
Item 7

~~CONFIDENTIAL~~

It is the only Seaplane training base within this command. All Torpedo Squadrons in this area receive their torpedo training at NAS Whidbey Island. Aerial torpedos are proof-tested there for the Naval Torpedo Station, Keyport.

It maintains and operates facilities and furnishes services for operational training in carrier type of aircraft and multi-engine planes.

5. Naval Air Station, Tillamook

The Naval Air Station, Tillamook, Oregon, located about 3 miles southeast of Tillamook, Oregon, was commissioned 1 December 1942 for the training of Lighter-than-Air squadrons. It also provides facilities for Heavier-than-Air squadrons and for storage of excess aircraft.

6. Naval Air Station, Klamath Falls

The Naval Air Station, Klamath Falls, Oregon, located about 7 miles southeast of Klamath Falls, Oregon, was commissioned 12 February 1944. Its original purpose was to provide aerial gunnery ranges east of the Cascade Mountains from 1 November to 31 March each year, in view of the inclement weather on the Pacific Coast during the winter months. Subsequently, however, it was decided to operate the station on an all year basis for the operational training of Fleet Air squadrons. Gunnery Area

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Number I is located about 3.0 miles east of the air station. The splendid gunnery ranges in the vicinity of Klamath Falls have contributed to the growth and development of the station.

COAST GUARD AIR STATION

Coast Guard Air Station, Port Angeles

The Coast Guard Air Station, Port Angeles, Washington, commissioned in August 1935, is located on Ediz Hook, a level sand spit extending from the mainland northward and eastward into the Straits of Juan de Fuca.

It functions as the Headquarters of the Air-Sea Rescue Task Unit.

Patrols over the Straits, rescue flights, utility missions and search flights are conducted by aircraft based at the station.

The station operates under the Commander, Western Sea Frontier, being directly answerable to that command for the execution of all military missions. It is an activity under the Commandant, Thirteenth Naval District.

It is a part of the organization of the Commander, Naval Air

APPENDIX E-13

Navy Real Estate Division, 1945

Termination of Leases NOy(R)-38137, NOy(R) 38137 Supp. #1, NOy(R)-37906 and memorandum of Understanding with Department of Agriculture, Soil Conservation Service dated 6 Aug 1945, covering Rocket Range, Siskiyou National Forest, California, 29 December 1945

L5-7-Si-1
ND13/N1-13
F-5-5/JOH/ec

29 December 1945

To: The Commandant, THIRTEENTH Naval District.

Subj: Termination of Leases NOy(R)-38137, NOy(R)-38137, Supp. #1, NOy(R)-37906 and Memorandum of Understanding with Department of Agriculture, Soil Conservation Service dated 6 Aug 1945, covering Rocket Range, Siskiyou National Forest, California.

Refs: (a) Coml3 ltr ND13/N1-13(286)(Y-2) Ser 479547 RJW/Pl to BuDocks dtd 24 Oct 45.
(b) Coml3 ltr ND13/N1-13(286)(Y-2) Ser 476437 RJW/bb to BuDocks dtd 5 Nov 45.
(c) BuDocks ltr L5-7-Si-1 ND13/N1-13 F-5-5/JOH/ec to Coml3 dtd 26 Nov 45.

1. By reference (a) this Bureau was requested to take action to cancel the subject leases and Memorandum of Understanding. By reference (b) this Bureau was advised of the request by the Department of Agriculture for three small buildings located on property covered by the Memorandum of Understanding.

2. By reference (c) this Bureau advised the Commandant that interest to the three small buildings could not be transferred to the Department of Agriculture due to the fact that said Department is not the fee owner of the property but is interested only through an option which it holds. By reference (c) the Commandant was requested to forward to this Bureau information relative to these improvements. Reference (c) also requested that the Commandant forward a copy of the Memorandum of Understanding dated August 6, 1945 for the files of this Bureau. No action has been taken to terminate this Memorandum of Understanding by this Bureau inasmuch as a copy is not contained in our files and a check with the Department of Agriculture indicated that it also does not have a copy in its possession.

3. Cancellation notices terminating all three of the subject leases as of January 21, 1946 have been delivered by this Bureau. It is requested that the Commandant secure executed releases in duplicate for each lease and forward same to this Bureau.

By direction of the Chief, BuDocks:

EUGENE P. McCAHILL
Commander, USNR
Acting Head, Real Estate Division

APPENDIX E-14

Public Works Department, Klamath Falls, 1945

Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air Station, Klamath Falls, Oregon, 5 June 1945

ADDRESS REPLY TO
COMMANDANT
PUBLIC WORKS DEPT.
AND REFER TO:
N1-13/NA(Klamath)(Y)
Conf. Serial 472063

HEADQUARTERS
THIRTEENTH NAVAL DISTRICT
SEATTLE, 14, WASHINGTON

RJC/Sl

5 June 1945

C O N F I D E N T I A L

From: Commandant, Thirteenth Naval District
To: Chief of the Bureau of Yards and Docks (F-5)

Subj: Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air Station, Klamath Falls, Oregon.

Ref: (a) Com13 conf. ltr to Budocks, dtd 14 May 1945, Conf. Serial 472055.

1. By reference (a) the Bureau was advised that the Butte Valley Irrigation District owned 3,920 acres of land in the proposed rocket target area, and that such land, with the exception of 10 acres, is at present under option contract to the Soil Conservation Service. Reference (a) further advised that the Board of Directors of the District had refused to execute a lease to the Government because it was considered that such action might jeopardize the aforementioned option. In order that the Navy might be entitled to possession of the premises at an early date, the Acting Chief, Regional Land Management Division, Soil Conservation Service at Portland, Oregon, was requested to issue a special use permit covering the property involved in said option contract. Said permit has been issued and 2 executed copies of same constitutes Enclosure (1) hereof.

2. Upon being advised of the action of the Soil Conservation Service, the officials of the Butte Valley Irrigation District reconsidered the District's position in this matter and have offered to lease 3,910 acres of land covered by the option contract at a rental of $100.00 per month until title of said land is conveyed to the Department of Agriculture. Accordingly, the officials of the Irrigation District have executed a form of lease agreement prepared by the Commandant, and the original and 2 executed copies of such instrument constitute Enclosure (2) hereof. The rental is considered to be reasonable and it is recommended that such lease be approved and executed on the part of the Government and copies returned for distribution. To prevent delay in the Navy's use of the rocket target site, the Irrigation District has heretofore granted a Right of Entry.

3. Reference (a) advised that 10 acres of land in Section 29, T. 47 N., R. 1 W., Mt.D.M. were not covered by the aforementioned option contract. The Butte Valley Irrigation District has executed a lease covering this 10 acres for a term beginning 1 May 1945 and ending 6 months after the termination of the existing states of war for the nominal consideration of $1.00.

CONFIDENTIAL

ND13/N1-13
P3

N1-13/NA(Klamath)(Y) -2- RJC/S1
Conf. Serial 472063
5 June 1945

Subj: Acquisition of leasehold estate in 7,040 acres of land, more or less, in Siskiyou County, California, for use in connection with Naval Air Station, Klamath Falls, Oregon.

Three executed copies of said lease constitute Enclosure (3) hereof and it is recommended that same be approved and executed on the part of the Government.

R. M. GRIFFIN

G. R. DUNCAN
Captain, (CEC), USN
District Public Works Officer
By direction

Enclosures (HW)
1. 2 copies of special use permit.
2. Orig. & 2 copies of form of lease agreement.
3. 3 copies of lease covering 10 acres of land in Section 29, T.47 N., R. 1 W., Mt.D.M.

Reclassified
E5-9c-KF

CONFIDENTIAL

APPENDIX E-15

Klamath National Forrest Goosenest Ranger District, 1992

Artifacts found in WWII bombing pratice range, T.47N., R.1.W. Sec. 30, Exposure 15, Frame 14 & Exposure 5 Frame 4, dated 8 Jaunary 1992

Exposure 15; Frame 14.
20 mm. canon slug. Solid-jacket, non-explosive warhead. Collected - catalog # 05-05-57-IA-144. Found in WWII bombing practice range, T.47 N., R.1 W., Sec.30. Photo taken 8 January 1992 at 1325 hours. Field # 5H.

ROLL #GN-91-18
ARR #05-05-1160
ISOLATED FINDS

Exposure 5; Frame 4.
Artifacts from WWII bombing range. Upper two artifacts are non-explosive tips for surace to air rockets. One is stamped "208 LOT NO. 77 RM CO. 2.25 IN." and the other is "46 2.25 BODY MK.3MOD.". Bottom row, left to right - three 50 cal. machine gun belt links , one, approximately 40 cal. shell, and one 50. cal. cartridge. All were found within the vicinity of WWII bombing range on the National Grasslands. T.47 N., R.1 W., sec. 30. Collected - catalog #'s 05-05-57-

APPENDIX E-16

13th Naval District, 1945

Lease Between the U.S. Navy and J.C. Stevenson,
5 May 1945

.3, Aviation Navy, 194; & 1761502.3, Aviation Navy, 1946
(Bur & Fld)

All pub bills for payment under this contract should include a reference to Navy (R)-37906

Reqn: EN11-203619-PW-45
Reqn: EN11-2000-PW-46

MACDOEL, Box 84

LEASE

THIS LEASE, made and entered into this 5 day of May 1945, by and between J. C. STEVENSON, residing at ~~Tulelake~~, California, for himself, his heirs, executors, administrators and assigns, hereinafter called the Lessor, and the UNITED STATES OF AMERICA, hereinafter called the Government:

WITNESSETH: The parties hereto for the consideration hereinafter mentioned agree as follows:

1. The Lessor hereby leases to the Government for a bombing, strafing, target and training area, the following described premises located in the State of California, County of Siskiyou:

SW¼ of Sec. 25; All of Sec 36, T47N, R2W., M.D.M.
All of Sec 1, T.46N, R2W, M.D.M.
W½ of Sec. 6, T46N, R1W, M.D.M.
SW¼ of Sec 31; SW½NW¼ of Sec 31, T47N, R1W., M.D.M.

2. TO HAVE AND TO HOLD the said premises with their appurtenances for the term beginning May 1, 1945 and ending June 30, 1946.

3. The Government shall pay to the Lessor on the 1st day of July, 1946, the sum of — $1166.66 — Dollars as rent for the premises, and in consideration for which the Government shall have the right to renew said lease annually thereafter upon notice to the Lessor in writing thirty (30) days prior to June 30 of any year during which said lease is effective; provided that no renewal thereof shall extend the rights herein granted beyond six (6) months after the termination of the present states of war. The Government shall pay to the Lessor an annual rental of — $1000.00 — Dollars for any annual period that said lease is renewed, provided the Government shall have the right to terminate said lease upon thirty (30) days written notice.

4. The Government shall have the right during the existence of this lease, or any renewal thereof, to erect structures or signs in or upon the said premises hereby leased, which structures so placed in or upon the said premises shall be and remain the property of the Government and may be removed therefrom by the Government at any time prior to the termination hereof.

5. No Member of Congress or Resident Commissioner shall be admitted to any share or part of this agreement or to any benefit to arise therefrom. Nothing, however, herein contained shall be construed to extend to any incorporated company, if the lease be for the general benefit of such corporation or company.

IN WITNESS WHEREOF, the parties hereto have subscribed their names as of the date first above written.

In Presence of:

J. C. Stevenson

UNITED STATES OF AMERICA
Lt. Comdr. Eugene P. McCahill, USN
Room 3828

By Eugene P. McCahill
By direction of the Chief of the Bureau of Yards and Docks Acting under direction of the Secretary of the Navy.

PAYMENT TO BE MADE BY:
Central Navy Disb. Office,
13th ND

Encumbered
5/31/45 CSR

S P E C I A L R E L E A S E - Under Lease NOy(R)-37906

KNOW ALL MEN BY THESE PRESENTS, that:

WHEREAS, by lease dated May 5, 1945, and bearing number NOy(R)-37906, J. C. STEVENSON, whose address is Box 84, Macdoel, California, as Lessor, leased to THE UNITED STATES OF AMERICA, as Lessee, premises:

SW¼ of Section 25; all of Section 36, T. 47 N., R. 2 W., Mt.D.M.;
All of Section 1, T. 46 N., R. 2 W., Mt.D.M.;
W½ of Section 6, T. 46 N., R. 1 W., Mt.D.M.;
SW¼ of Section 31; SW¼NW¼ of Section 31, T. 47 N., R. 1 W., Mt.D.M.; all in Siskiyou County, California

more particularly described in said lease, and

WHEREAS, the United States of America, no longer requiring the use of said premises, has surrendered possession thereof to the Lessor on the 21st day of January, 1946, and the Lessor has accepted such surrender,

The undersigned, the Lessor under said lease, for and in consideration of the surrender of said premises, the return of which in good condition is hereby acknowledged, has remised, released and forever discharged, and by these presents does for itself, its successors, and assigns, remise, release and forever discharge the United States of America, its officers, agents and employees, of and from all manner of actions, claims or demands which against the United States of America, its officers, agents and employees, the undersigned ever had, now has, or ever will have upon, or by reason of any matter, cause or thing whatsoever arising out of said lease or the occupancy by the United States of America of said premises or the use of any personal property thereon.

IN WITNESS WHEREOF, the undersigned has signed and sealed these presents or caused these presents to be executed by its duly authorized officers and its seal to be affixed hereto this 4th day of February, 1946.

WITNESS:

Elmer Kaffer
Mrs. V. Gilmer

J. C. Stevenson
J. C. Stevenson

L5-7-8i

APPENDIX F

REAL ESTATE DOCUMENTS

NOT USED
(Citations included in Appendix E and K)

APPENDIX G

NEWSPAPER / JOURNALS

NOT USED

APPENDIX H

INTERVIEWS / POINTS OF CONTACT (POC)

INTERVIEWS/ POINTS OF CONTACT (POC)

The archive search team contacted the following individuals in preparation of this ASR. Conversation with these people yielded information of three general sorts:

- background data contained in written documents
- negative information (i.e. no pertinent knowledge of the site)
- coordination of efforts for various interested parties

While valuable, conversations with these individuals did not yield information cited in this report and hence Telephone Conversation Records have not been included. (See additional Points of Contact under section 4.2 Records Review):

Individual	Telephone Number	Position
Sgt Walker	650 603 8301/8302	787th Ordnance Co (EOD) Moffitt Field
Jim Stout	530-398-4391	Resource Officer (grasslands), Klamath National Forest, Goosenest Ranger District

U.S. ARMY CORPS OF ENGINEERS POINT OF CONTACTS (POC)

The following individuals prepared the Archive Search Report or are involved in the process:

U.S. Army Corps of Engineers
St. Louis District
Engineering Division - Ordnance and Technical Services Branch (CEMVS-ED-P)
1222 Spruce Street
St. Louis, MO 63103-2833

Individual	**Telephone Number**	**Position**
Alix Borrok	314-331-8043	ED-P, Historian
Bryan Colegate	314-331-8744	ED-S, CADD Specialist
Randal Curtis	**314-331-8786**	**ED-P, Civil Engineer/ASR Project Manager**
Michael Dace	314-331-8036	ED-P, Chief of Ordnance and Technical Service Branch
Ida Morris	314-331-8040	ED-P, Project Assistant
George Sloan	314-331-8796	ED-P, Historian and Safety Specialist

U.S. Army Engineering and Support Center Huntsville
Center of Expertise and Design Center of Ordnance and Explosives
CEHNC-ED-SY-O
P. O. Box 1600
Huntsville, AL 35807-4301

Individual	Telephone Number	Position
Danny Mardis	256-895-1797	ASR Project Manager

U. S. Army Corps of Engineers
SACRAMENTO
Program Management Branch
CESPK-PM-H
1325 J St., 12th Floor
Sacramento, CA 95814-2922

Individual	Telephone Number	Position
Gerald (Jerry) Vincent	916-557-7452	DERP FUDS Program Manager

APPENDIX I

PRESENT SITE PHOTOGRAPHS

TABLE OF CONTENTS

Photo #1 – Siskiyou Rocket and Bombing Range – 27-31 August 2001
Scrap from around the Siskiyou target.

Photo #2 - Siskiyou Rocket and Bombing Range – 27-31 August 2001
OE Debris 100-lb. Practice Bomb – nose and filling plug portion of Navy MK VII or XV.

Photo #3 Siskiyou Rocket and Bombing Range – 27-31 August 2001
OE Debris 2.25 inch SCAR (Sub-Caliber Aerial Rocket) – mangled expended rocket motor and fins.

Photo #4 Siskiyou Rocket and Bombing Range – 27-31 August 2001
OE Debris 100-lb. Practice Bombs – nearly complete bodies and tailfins from Navy MK VII or XV.

Photo #5 Siskiyou Rocket and Bombing Range – 27-31 August 2001
OE Debris Practice Bomb and Rocket – nearly complete body from 100-lb. Practice Bombs Navy MK VII or XV and mangled expanded rocket motor from 2.25 inch SCAR (Sub-Caliber Aerial Rocket); Mount Shasta in background.

Photo #6 Siskiyou Rocket and Bombing Range – 27-31 August 2001
OE Debris Miniature Practice Bomb – body from AN-MK 23 iron miniature practice bomb.

Photo #7 Siskiyou Rocket and Bombing Range 27-31 August 2001
OE Debris Small Arms - link for a .50 caliber machine gun.

Photo #8 Siskiyou Rocket and Bombing Range – 27-31 August 2001
OE Debris 2.25 inch SCAR (Sub-Caliber Aerial Rocket) – rocket motor and nose cap from a 2.25 inch Rocket Body MK 3 Mod 2 Lot 51.

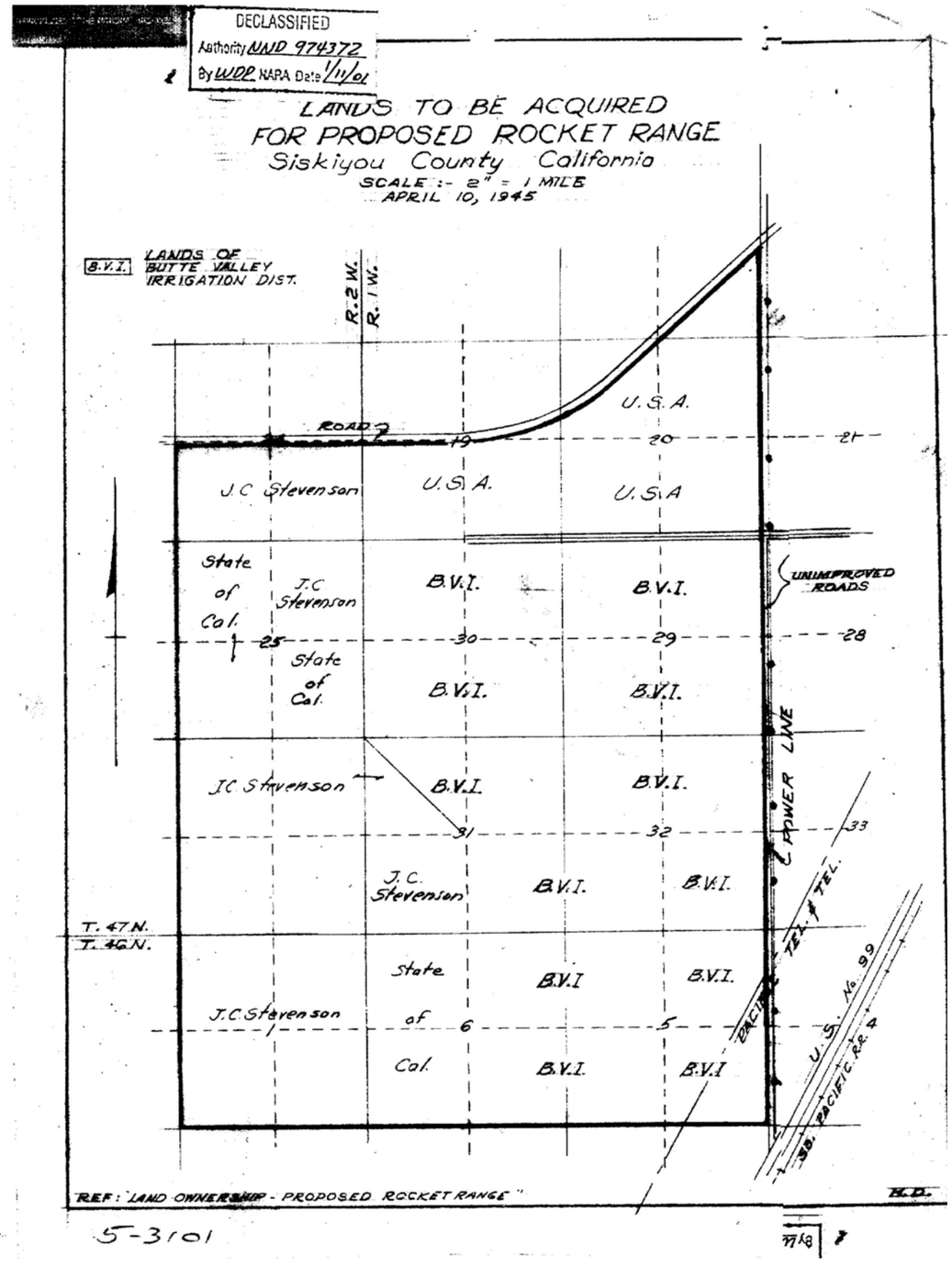
APPENDIX J
HISTORICAL PHOTOGRAPHS

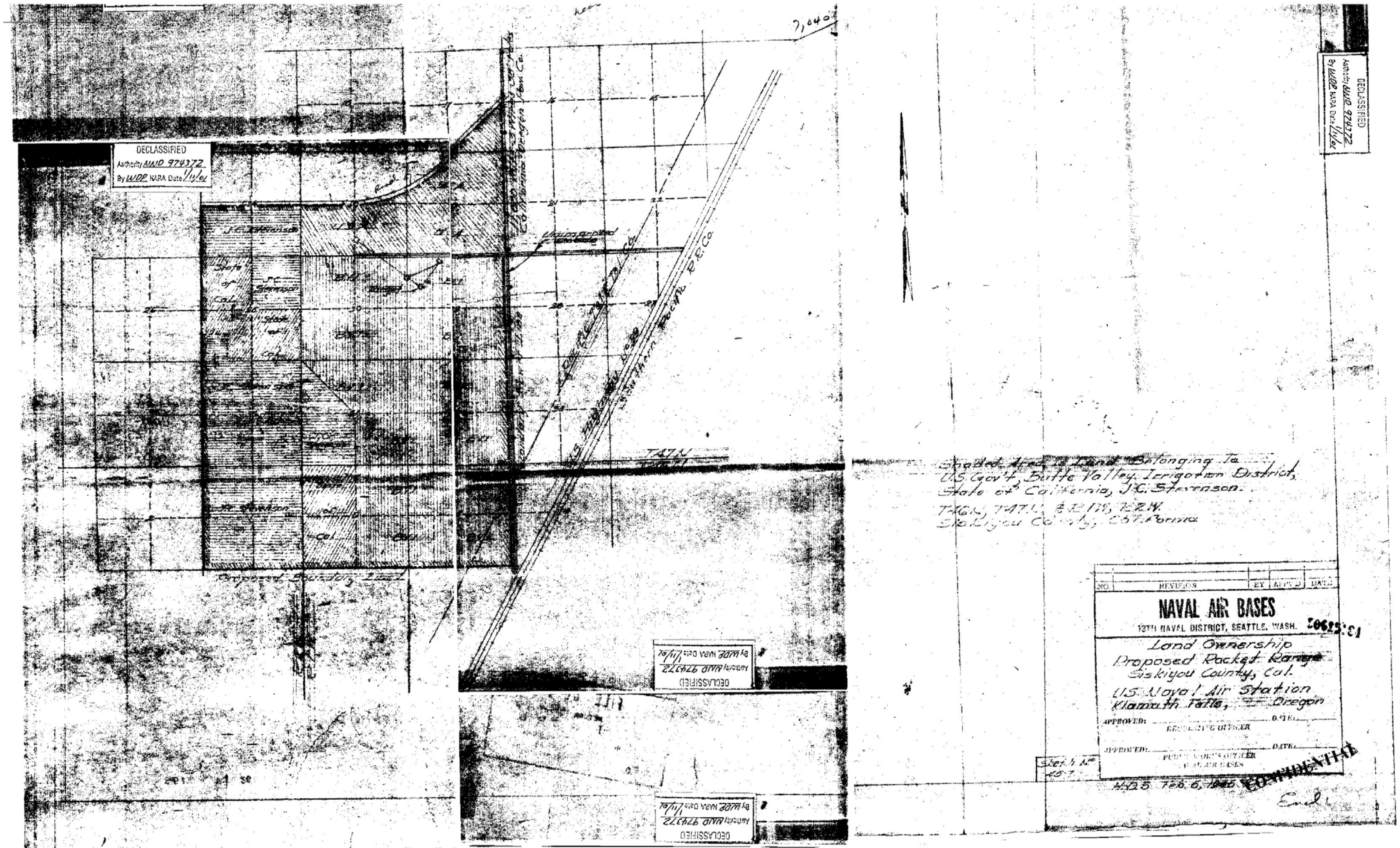
NOT USED

APPENDIX K

HISTORICAL MAPS / DRAWINGS

Map No.	Historical Maps / Drawings
K-1	Naval Air Station Klamath Falls
	1945 Lands to Be Acquired for Proposed Rocket Range, Siskiyou County California, 10 April 1945, RG: 71, Entry: 1001 Naval Property Case Files, Box: 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.
K-2	Public Works Officer, Naval Air Bases
	1945 Land Ownership Proposed Rocket Range Siskiyou County, California, U.S. Naval Air Station Klamath Falls Oregon, 6 February 1945, RG: 71, Entry: 1001 Naval Property Case Files, Box: 62, Folder: Klamath Falls C5-90-KF, NARA-College Park, MD.


DECLASSIFIED
Authority NND 974372
By WDR NARA Date 1/11/01
LANDS TO BE ACQUIRED
FOR PROPOSED ROCKET RANGE
Siskiyou County California
SCALE :- 2" = 1 MILE
APRIL 10, 1945
B.V.I.
LANDS OF
BUTTE VALLEY
IRRIGATION DIST.
R.2 W.
R. 1 W.
ROAD 7
U. S. A.
J.C Stevenson
U. S. A.
U. S. A
State of Col.
J.C Stevenson
B.V.I.
B.V.I.
UNIMPROVED ROADS
J.C Stevenson
B.V.I.
B.V.I.
J.C. Stevenson
B.V.I.
B.V.I.
T. 47 N.
T. 46 N.
State of Col.
B.V.I
B.V.I.
J.C Stevenson
B.V.I
B.V.I
POWER LINE
TEL. & TEL.
U. S. No. 99
SO. PACIFIC R.R.
REF: "LAND OWNERSHIP - PROPOSED ROCKET RANGE"
H.D.
5-3101


DECLASSIFIED
Authority NND 974372
By WDP NARA Date 1/11/01
Shaded Area Is Land Belonging To
U.S. Gov't, Butte Valley Irrigation District,
State of California, J.C. Stevenson.
NAVAL AIR BASES
13TH NAVAL DISTRICT, SEATTLE, WASH.
Land Ownership
Proposed Rocket Range
Siskiyou County, Cal.
U.S. Naval Air Station
Klamath Falls, Oregon
APPROVED:
DATE:
PUBLIC WORKS OFFICER
CONFIDENTIAL
Proposed Boundary Line
Southern Pacific RR Co.

APPENDIX L

SITE SAFETY AND HEALTH PLAN / SITE INSPECTION REPORT

SITE SAFETY AND HEALTH PLAN / SITE INSPECTION REPORT

Section No.	Plan / Report
L-1	Site Safety and Health Plan – Siskiyou Rocket and Bombing Range
L-2	Site Inspection Report – Siskiyou Rocket and Bombing Range

APPENDIX L-1

Site Safety and Health Plan - Siskiyou Rocket and Bombing Range

SITE SAFETY AND HEALTH PLAN (SSHP)
Siskiyou Rocket and Bombing Range
Macdoel, CA
SITE # 01

The purpose of this site visit is to reconnoiter, document, and photograph areas on Siskiyou Rocket and Bombing Range, Macdoel, California suspected to be contaminated with unexploded ordnance and/or toxic chemical munitions.

PREPARED BY:	George Sloan
OFFICE	USACE, CEMVS-ED-P
ADDRESS	1222 Spruce St. St. Louis, MO
PHONE	314-331-8796
DATE PREPARED	11 August 1999

REVIEWED/APPROVED BY: _____
SSHO

NOTE: This SSHP is to be used only for non-intrusive site visits and must be approved by safety prior to the start of the field visit. All team members must read and comply with the SSHP, and attend the safety briefings. The Site Safety and Health Officer (SSHO) shall ensure that the Safety Briefing Checklist and the SSHP acceptance form (Appendix C) are filled out prior to the start of the site visit.

A. SITE DESCRIPTION AND PREVIOUS INVESTIGATIONS

1. Site Description

a. Size: 7040 acres

b. Present Usage: (check all that apply)

[ ] Military	[ ] Recreational	[ ] Other (specify)
[X] Residential	[ ] Commercial	
[ ] Natural Area	[X] Industrial	
[X] Agricultural	[ ] Landfill	

[ ] Secured	[ ] Active	[X] Unknown
[ ] Unsecured	[ ] Inactive	

2. Past Uses: The Klamath Falls Naval Air Station used the former Siskiyou Rocket and Bombing Range as a practice-bombing target from 1945-46.

3. Surrounding Population (check all that apply)

[X] Rural	[X] Residential	[ ] Other (specify)
[X] Urban	[X] Industrial	
[ ] Commercial		

4. Ordnance/Explosives (OE) Potential: practice bombs and rockets.

B. DESCRIPTION OF ON-SITE ACTIVITIES (check all that apply)

[X] Walk-through	[ ] Drive-through	[ ] Other (specify)
[ ] On-Path	[X] On-road	
[ ] Off-Path	[ ] Off-road	

C. SITE PERSONNEL AND RESPONSIBILITIES

1. Responsibilities

a. Project Manager: The Corps of Engineers Project Manager (PM) is overall responsible for the site visit. He will assign a Team Leader, (in most situations this will be the PM). The PM will ensure that the SSHP is completed along with coordinating and executing the site visit.

b. Site Safety and Health Officer: The SSHO is designated to conduct safety, enforce the SSHP, conduct safety briefings and ensure that the team leader can safely fulfill his objectives. The SSHO will maintain the safety gear

and monitor on-site operations. The SSHO is responsible for identifying, marking and reporting any unexploded ordnance and explosives.

2. Team Members

Name	Position	Address	Phone
Randal Curtis	PM	CEMVS-ED-P	314-331-8786
George Sloan	SSHO	CEMVS-ED-P	314-331-8796
Alix Borrok	Historian	CEMVS-ED-P	314-331-8043

D. OVERALL HAZARD EVALUATION (check one)

[ ] High [ ] Moderate [X] Low [ ] Unknown

This assessment was developed using the Site Investigation Hazard Analysis and Risk Assessment Code Matrix.

E. GENERAL PRECAUTIONS: Prior to the on-site visit, all team members are required to read this SSHP and sign the form acknowledging that they have read and will comply with it. In addition, the SSHO shall hold a brief tailgate meeting in which site specific topics regarding the day's activities will be discussed. If unanticipated hazardous conditions arise, team members are to stop work, leave the immediate area and notify the SSHO. The buddy system will be enforced at all times.

F. STANDARD OPERATION SAFETY PROCEDURES, ENGINEERING CONTROLS AND WORK PRACTICES

1. Site Rules/Prohibitions: At any sign of unanticipated hazardous conditions, stop tasks, leave the immediate area and notify the SSHO. Smoking, eating and drinking allowed in designated areas only.

2. Material Handling Procedures: Do not handle.

3. Drum Handling Procedures: Do not handle.

4. Confined Space Entry: An area identified as a Permit Required Confined space will not be entered. All confined spaces shall be considered permit required confined spaces until the pre-entry procedures demonstrate otherwise. Confined spaces may be entered without a written permit or attendant provided the space is determined not to be a permit required confined space as specified in 29 CFR 1910.146.

5. Electrical Protection: Overhead power lines, downed electrical wires and buried cables pose a danger of shock and electrocution. In addition, buildings may

contain exposed wiring that may hold a potential load. Workers should avoid contact with any and all exposed wire and cables

6. Spill Containment: N/A

7. Excavation Safety: Do not enter trenches/excavations.

8. Illumination: Site visits will be conducted during daylight hours only.

9. Sanitation: Use existing sanitary facilities.

10. Buddy System: Individuals will maintain constant contact with other personnel at all times. No one will work alone at any time during the site visit.

11. Engineering Controls: N/A

12. Insects: Wearing light colored clothing and tucking in the pant legs can reduce contact. In severely infested area it may be necessary to tape all openings. Apply repellents to both clothing and bare skin. Diethyltoluamide (DEET) is an active ingredient in many repellents, which are effective against ticks and other insects. Repellents containing DEET can be applied on exposed areas of skin and clothing. However, repellents containing permethrin should be used on only clothing. For more information on insect bites, refer to Appendix B.

13. Poisonous Vegetation: Recognition and avoidance is the best protection. Cover all exposed skin. If it is known or suspected that an individual has been exposed, wash the effected area with soapy water.

14. Inclement Weather: When there are warnings or indications of impending severe weather (heavy rains, strong winds, lightning, tornadoes, etc.), weather conditions shall be monitored and appropriate precautions taken to protect personnel and property from the effects of the severe weather.

15. Hot Weather: In hot environments, cool drinking water shall be made available and workers shall be encouraged to frequently drink small amounts, e.g., one cup every 15 - 20 minutes; the water shall be kept reasonably cool. In those situations where heat stress may impact worker safety and health, work regimens shall be established. Environmental monitoring of the Wet Bulb Globe Temperature Index shall be conducted and workloads and work regimens categorized as specified in the American Conference of Governmental Industrial Hygienist (ACGIH) publication "Threshold Limit Values and Biological Exposure Indices". For more information on Heat Stress refer to Appendix A of this SSHP.

16. Cold Weather: Cold injury (frostbite and hypothermia) and impaired ability to work are dangers at low temperatures and when the wind-chill factor is low. To

guard against them; wear appropriate clothing; have warm shelter readily available; carefully schedule work and rest periods, and monitor workers' physical conditions.

17. Off-Road Driving: Ensure all emergency equipment is available with the vehicle i.e. tire changing equipment. Drivers shall familiarize themselves with the procedures for engaging four-wheel drive systems before the need for added traction arises. Vehicles will not be driven into an environment that is unknown, such as deep water, or an unstable surface. Vehicles will not be driven into a suspected ordnance impact area.

18. Ordnance

a. General Information

(1) The cardinal principle to be observed involving explosives, ammunition, severe fire hazards or toxic materials is to limit the exposure to a minimum number of personnel, for the minimum amount of time, to a minimum amount of hazardous material consistent with a safe and efficient operation.

(2) The age or condition of an ordnance item does not decrease the effectiveness. Ordnance that has been exposed to the elements for extended periods of time may become more sensitive to shock, movement, and friction, because the stability agent in the explosives may be degraded.

(3) When chemical agents may be present, further precautions are necessary. If the munition has green markings leave the area immediately, since it may contain a chemical filler.

(4) Consider ordnance that has been exposed to fire as extremely hazardous. Chemical and physical changes may have occurred to the contents, which render it more sensitive than it was in its original state.

b. On-Site Instructions

(1) DO NOT TOUCH or MOVE any ordnance items regardless of the markings or apparent condition.

(2) DO NOT conduct a site visit during an electrical storm or an approaching electrical storm. If a storm approaches during the site visit leave the site immediately and seek shelter.

(3) DO NOT use a radio or cellular phone in the vicinity of a suspect ordnance item.

(4) DO NOT walk across an area where the ground cannot be seen.

(5) DO NOT drive a vehicle into a suspected OE area; use clearly marked lanes.

(6) DO NOT carry matches, cigarettes, lighters or other flame producing devices into an OE site.

(7) DO NOT rely on color code for positive identification of ordnance items or their contents.

(8) Approach ordnance items from the side; avoid approaching from the front or rear.

(9) Always assume ordnance items contain a live charge until it can be determined otherwise.

(10) Dead vegetation and animals may indicate potential chemical contamination. If a suspect area is encountered, personnel should leave the immediate area and evaluate the situation before continuing the site visit.

c. Specific Action Upon Locating Ordnance

(1) DO NOT touch, move or jar any ordnance item, regardless of its apparent condition.

(2) DO NOT be misled by markings on the ordnance item stating "practice", "dummy" or "inert". Practice munitions may contain an explosive charge used for spotting the point of impact. The item may also be mislabeled.

(3) DO NOT roll the item over or scrape the item to read the markings.

(4) The location of any ordnance items found during site investigations should be clearly marked so it can be easily located and avoided.

(5) Reporting will be conducted in accordance with CELMS-PM-M, Standard Operating procedure for Reporting Ordnance and Unexploded Ordnance (UXO), dated 19 January 1995.

19. Other (specify)

G. SITE CONTROL AND COMMUNICATIONS

1. Site Map: Any maps will be maintained by the PM or Safety Officer.

2. Site Work Zones: N/A

3. Buddy System: Individuals will maintain constant contact with other personnel at all times. No one will work alone at any time during the site visit.

4. Communications

a. On-Site: Verbal communications will be used among team members.

b. Off-Site: Communications shall be established on every site. Communications may be established by using a cellular, public or private phone, which may be readily accessible. (specify below)

[X] Cellular phone

[X] Public/private phone

[ ] Other

c. Emergency Signals: In the case of small groups, a verbal signal for emergencies will suffice. An emergency signal for large groups (i.e. air horn, whistle) should be incorporated at the discretion of the SSHO. (specify below)

[X] Verbal

[X] Nonverbal - whistle

H. EMERGENCY RESPONSE: Team members are to be alert to the dangers associated with the site at all times. If an unanticipated hazardous condition arises, stop work, evacuate the immediate area and notify the SSHO. A First Aid Kit and emergency eyewash (if applicable) will be located in the field vehicle. If qualified persons (i.e. fire department, medical facility or physician) are not accessible within five minutes of the site, at least two team members shall be qualified to administer first aid and CPR.

1. Emergency/Important Telephone Numbers

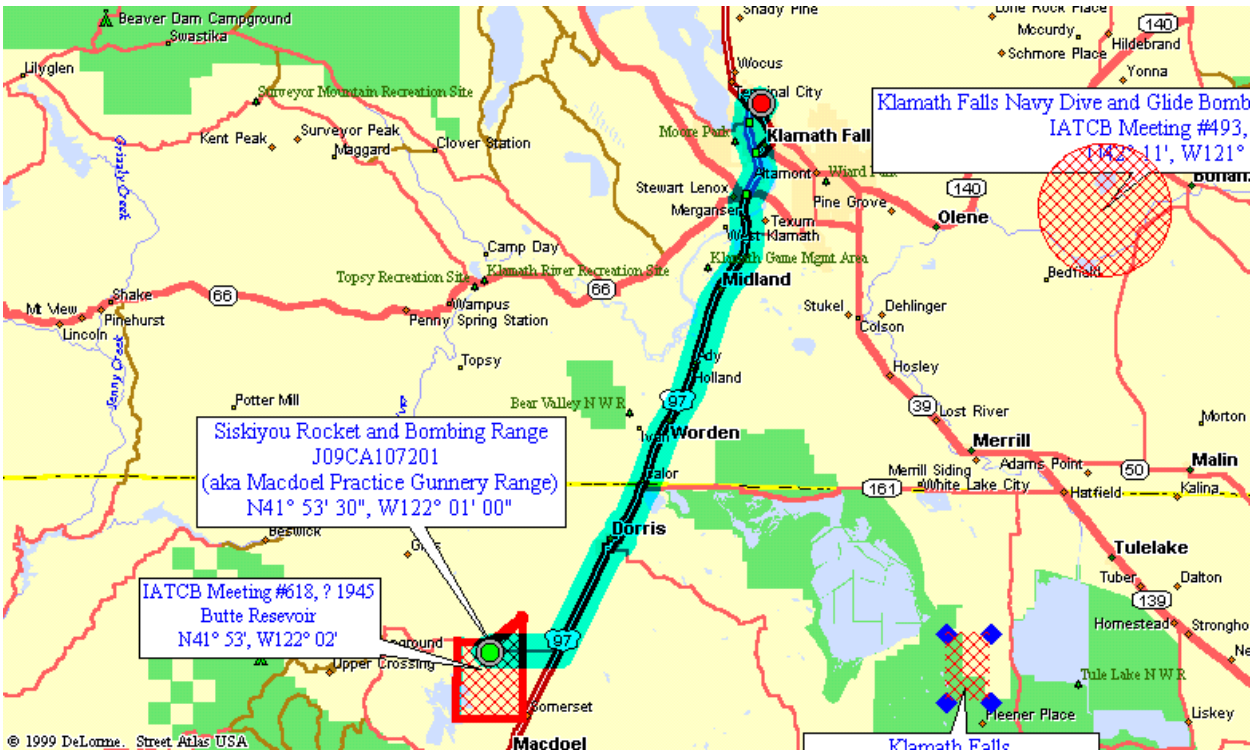
Siskiyou County Sheriff.....530-926-2552
3d Ordnance Bn (EOD) Ft. Lewis 253-967-1972/3090
787th Ordnance Co (EOD) Moffitt Field 650-603-8301/8302
Huntsville Safety Office .....(205) 895-1598/1596
Huntsville Safety (after hours).....(205) 895-1180
St Louis Corps of Engineers .....(314) 331-8036

2. Hospital/Medical Facility Information

Name: Merle West Medical Center
Address: 2865 Daggett Ave, Klamath Falls, OR
Phone: 541-882-6311

Distance to hospital: approximately 31 miles

Route to Hospital: refer to the site map included with this SSHP.



I. MONITORING EQUIPMENT AND PROCEDURES

1. Exposure Monitoring: For non-intrusive on-site activities such as site visits, air monitoring is typically not required. However, if the site situation dictates the need for monitoring, complete the following information on a separate page and attach the page to the SSHP.

a. Monitoring Equipment To Be Utilized: N/A

b. Equipment Calibration Results: N/A

c. Action Levels: N/A

2. Heat/ Cold Stress Monitoring

a. Heat Stress monitoring criteria published in Chapter 8 of the NIOSH/OSHA/USCG/EPA "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities" shall be followed.

b. Cold Stress monitoring shall be conducted in accordance with the most current published American Conference of Governmental Industrial Hygienists (ACGIH) cold stress standard.

J. PERSONAL PROTECTIVE EQUIPMENT: Typically, for non-intrusive site visits, Level D is required. If a higher level of protection is to be used initially or as contingency, a brief discussion will be attached. At a minimum personnel shall wear clothing suitable for the weather and work condition. The minimum for fieldwork shall be short sleeve shirt, long trousers, and leather or other protective work shoes or boots. If a higher level of protection is to be used initially or as contingency, a brief discussion will be attached.

1. Footwear: Footwear providing protection against puncture shall meet the applicable requirements as stated in EM 385-1-1, paragraph 05.A.08. All activities which personnel are potentially exposed to foot hazards will be identified and documented in a hazard analysis. As an exception to wearing steel-toed boots, GSA-approved protective-soled boots are authorized.

2. Hand Protection: Persons involved in activities, which subject the hands to injury (e.g., cuts, abrasions, punctures, burns, etc.), shall use leather gloves.

3. Head Protection: Hardhats shall be worn when personnel are subject to potential head injury. The identification and analysis of head hazards will be documented in a hazard analysis.

4. Eye Protection: Personnel will wear eye protection when activities present potential injuries to the eyes. All eye protection equipment shall meet the requirements as stated in EM 385-1-1, paragraph 05.B.

K. DECONTAMINATION PROCEDURES: Decontamination procedures are not anticipated for this site investigation. Team members are cautioned not to walk, kneel or sit on any surface with potential leaks, spills or contamination.

L. TRAINING: All site personnel shall have completed the training required by Engineer Manual (EM) 385-1-1 and Title 29, Code of Federal Regulations (29 CFR, Part 1910.120 (e)). The U.S. Army Corps of Engineer (USACE) Project Manager shall ensure, and the SSHO shall verify, that all on-site personnel have completed appropriate training. Additionally, the SSHO shall inform personnel before entering of any potential site-specific hazards and procedures.

M. MEDICAL SURVEILLANCE PROGRAM: The USACE Project Manager shall ensure, and the SSHO shall verify, that all on-site personnel meet the requirements of 29 CFR 1910.120. This includes enrollment in a Medical Surveillance Program, and complying with the standards of ANSI Z-88.2, as appropriate, depending on the personnel protective equipment (PPE) and site-specific tasks.

	HAZWOPER		MEDICAL
NAME	DATE	PROVIDER	DATE
Randal Curtis	20 Nov. 00	Corps of Engineers	8 Aug 2001
George Sloan	10 Oct. 00	Corps of Engineers	June 2001
Alix Borrok	4 Jun 01	Corps of Engineers	14 Jun 01

N. LOGS, REPORTS AND RECORD KEEPING: Site logs are maintained by the Project Manager and SSHO. This is to include historical data, personnel authorized to visit the site, all records, standard operating procedures, air monitoring logs and the SSHP.

O. GENERAL: The number of personnel visiting the site shall be a limited to a minimum of two, maximum of eight. The more personnel on-site, the greater potential there is for an accident. The SSHO may modify this SSHP if site conditions warrant it and without risking the safety and health of the team members. This modification will be coordinated with the team members. The SSHO shall notify Corps of Engineers Safety Office in Huntsville, AL. of the change as the situation allows.

APPENDIX A

HEAT- RELATED INJURIES

Once the signals of a heat-related illness begin to appear, the victim's condition can quickly get worse. A heat related illness could result in death. If you see any of the signals of sudden illness, and the victim has been exposed to extremes of heat, suspect a heat-related illness.

People at risk for heat-related illness include those who work or exercise outdoors, elderly people, young children, and people with health problems. Also at risk are those who have had a heat-related illness in the past, those with medical conditions that cause poor blood circulation, and those who take medications to get rid of water from the body (diuretics).

People usually try to get out of extreme heat before they begin to feel ill. However, some people do not or can not. Those that work outdoors often keep working even after they begin to feel ill. Many times, they might not even recognize that they are in danger of becoming ill.

Heat cramps, heat exhaustion, and heat stroke are conditions caused by overexposure to heat. You can help prevent heat-stress emergencies by recognizing and properly treating symptoms. Below is a quick reference guide to heat-related emergencies:

HEAT CRAMPS: Heat cramps are the least severe, and often are the first signals that the body is having trouble with the heat. *Symptoms* include: muscle twitching; painful spasms in the legs, arms or abdomen.

WHAT TO DO:

Have the individual rest in a cool place.
Give cool water or a commercial sports drink.
Lightly stretch the muscle and gently massage the area.

HEAT EXHAUSTION: Heat exhaustion is a more severe condition than heat cramps. *Symptoms* include: cool, moist, pale, or flushed skin, headache, nausea, dizziness, weakness, and exhaustion.

HEAT STROKE: Heat stroke is the least common but most severe heat emergency. It most often occurs when people ignore the signals of heat exhaustion. Heat stroke develops when the body systems are overwhelmed by heat and begin to stop functioning. **Heat stroke is a serious medical emergency.** *Symptoms* include: red, hot, dry skin; changes in consciousness; rapid, weak pulse; and rapid, shallow breathing.

WHAT TO DO: When you recognize a heat-related illness in its early stages, you can usually reverse it.

Get the victim out of the heat.
Loosen any tight clothing and apply cool, wet cloths, such as towels or sheets.
If the victim is conscious, give cool water to drink. Do not let the conscious victim drink too quickly. Give about 1 glass (4 ounces) of water every 15 minutes.
Let the victim rest in a comfortable position, and watch carefully for changes in his or her condition. The victim should not resume normal activities the same day.
Refusing water, vomiting, and changes in consciousness mean that the victim's condition is getting worse. Call for an ambulance immediately if you have not already done so.
If the victim vomits, stop giving fluids and position them on their side.
Watch for signals of breathing problems.
Keep the victim lying down and continue to cool the body any way you can. If you have ice packs or cold packs, place them on each of the victim's wrists and ankles, on the groin, in each armpit, and on the neck to cool the large blood vessels.

APPENDIX B

BITES AND STINGS

Scorpions, Bees and Spiders

Bee stings are painful, but rarely fatal. Some people however, have a severe allergic reaction to an insect sting. This allergic reaction may result in a breathing emergency. If an insect stings someone, remove the stinger. Scrape it away with from the skin with your fingernail or plastic card, such as a credit card, or use tweezers. If you use the tweezers, grasp the stinger, not the venom sac. Wash the site with soap and water. Cover it to keep it clean. Apply a cold pack to the area to reduce the pain and swelling. Watch the victim for signals of an allergic reaction.

Scorpions live in dry regions of the southwestern United States and Mexico. They live under rocks, logs, and the bark of certain trees and are most active at night. Only a few species of scorpions have a sting that can cause death.

There are only two spiders in the United States whose bite can make you seriously sick or be fatal. These are the black widow spider and the brown recluse. The black widow is black with a reddish hourglass shape on the underside of its body. The brown recluse is light brown with a darker brown, violin-shaped marking on the top of its body. Both spiders prefer dark, out of the way places. Often, the victim will not know that he or she has been bitten until he or she starts to feel ill or notices a bite mark or swelling.

Symptoms: include nausea and vomiting, difficulty breathing or swallowing, sweating and salivating much more than normal, severe pain in the sting or bite area, a mark indicating a possible bite or sting, and swelling of the area.

First Aid: if someone has been stung by a scorpion or bitten by a spider he or she thinks is a black widow or brown recluse, wash the wound, apply a cold pack to the site, and get medical help immediately.

Reptiles

Venomous snakes exist in all parts of the continental United States. The pit viper family represents the greatest hazard in the field. This group includes the rattlesnakes and moccasins (copperhead and cottonmouth). Consider wearing snake chaps in areas of known infestation. Walking in grasses and shrubs that prevent seeing exactly where you are stepping, should be avoided. Extreme caution should be exercised in areas where alligators are present, particularly during the nesting season. Consulting a local resident or authority, such as a fish and wildlife or park ranger, is prudent before entering such areas.

First Aid: Often, a venomous snake will strike without injecting any venom into the wound. This is known as a dry bite. In any event, whenever bitten by a snake, especially if positive identification cannot be made, medical help should be sought immediately. Reassure and keep the victim calm. Keep limbs below the level of the heart. Clean the bite area, and get the person to a medical facility. Do not make incisions or suck the poison with the mouth. If medical help is many hours away, place a constricting band between the wound and the heart (it should be at least two inches wide and be able to slip a finger underneath).

Ticks - Lyme Disease

Transmission:

Lyme Disease (LD) is most commonly transmitted by a tick bite (usually painless). The tick vectors include Ixodes scapularis (Deer Tick), Ixodes dammini (Deer tick), Amblyomme americanum (Lone Star Tick) and Ixodes pacificus. Ixodes dammini was thought to be the only species responsible for transmission until it was shown to be the same as Ixodes scapularis in 1993. The ticks prefer to live in wooded areas, low growing grassland, seashores and yards. Depending on the location, anywhere from less than 1% to more than 90% of the ticks are infected with spirochetes.

The Deer tick has a 2-year life cycle and must feed 3 times. In the larvae stage, it is tan, the size of a pinhead and feeds on small animals like the mouse where it can pick up the spirochete. During the nymph stage the tick is the size of a poppy seed, beige or partially transparent and feeds on larger animals such as cats, dogs and humans. The adult ticks are black and/or reddish and feed on cattle, deer, dogs and humans. The Lone Star tick is gray with a white dot. April through October is considered the "tick season" even though Lyme disease is a year round problem. Ticks are very active in the spring and early summer.

Location:

Cases of Lyme disease have been reported in virtually every state, although the Northeastern, Great Lakes, and Pacific Northwest areas are particularly endemic.

Symptoms:

Lyme disease is called the "Great Imitator" because it can mimic many other diseases, which makes diagnosis difficult. A rash can appear several days after infection, or not at all. It can last a few hours or up to several weeks. The rash can be very small or very large (up to twelve inches across). A "bulls-eye" rash is the hallmark of LD. It is a round ring with central clearing. Unfortunately, this is not the only rash associated with Lyme. Various other rashes associated with LD have been reported. One bite can cause multiple rashes. The rash can mimic such skin problems as hives, eczema, sunburn, poison ivy, flea bites, etc. The rash can itch or feel hot or may not be felt at all. The rash can

disappear and return several weeks later. For those with dark skin the rash will look like a bruise. If you notice a rash, take a picture of it. Some physicians require evidence of a rash before prescribing treatment.

Early Symptoms: Several days or weeks after a bite from an infected tick, a patient usually experiences "flu-like" symptoms such as aches and pains in their muscles and joints, low-grade fever, and/or fatigue.

Other Possible Symptoms -- No organ is spared:

- Jaw -- pain, difficulty chewing
- Bladder -- frequent or painful urination, repeated "urinary tract infection"
- Lung -- respiratory infection, cough, asthma, pneumonia
- Ear -- pain, hearing loss, ringing, sensitivity to noise
- Eyes -- pain due to inflammation, sensitivity to light, scleritis drooping of eyelid, conjunctivitis, blurring or double vision
- Throat -- sore throat, swollen glands, cough, hoarseness, difficulty swallowing
- Neurological -- headaches, facial paralysis, seizures, meningitis, stiff neck, burning, tingling, or prickling sensations, loss of reflexes, loss of coordination, MS like syndrome
- Stomach --pain, diarrhea, nausea, vomiting, abdominal cramps, and anorexia
- Heart -- weakness, dizziness, irregular heartbeat, myocarditis, pericarditis, palpitations, heart block, enlarged heart, fainting inflammation of muscle or membrane, shortness of breath, chest pain
- Joint -- arthralgias or arthritis, muscle inflammation and pain
- Other Organs -- liver infection, elevated liver enzymes, enlarged spleen, swollen testicles, irregular or ceased menses
- Neuropsychiatric -- mood swings, irritability, poor concentration, cognitive loss, memory loss, loss of appetite, mental deterioration, depression, disorientation, sleep disturbance
- Pregnancy -- miscarriage, premature birth, birth defects, stillbirth
- Skin -- single or multiple rash, hives

The above is a list of possible symptoms. They can occur in any combination. You may have one or several symptoms but not everyone will experience every symptom. Lyme affects each host in a different way. Having one or many of these symptoms does not indicate that you have Lyme disease. Diagnosis for Lyme is a clinical one and must be made by a physician experienced in recognizing LD. Serological testing is not reliable.

Lyme Disease Prevention:

- Dress properly, wear long-sleeved shirts that button at the wrist, long pants tucked into socks, and closed shoes. Choose light-colored fabric so you can spot and brush of ticks.

- Apply approved tick repellant and use only as directed. Products that contain DEET are tick repellents. They do not kill the tick and are not 100% effective in discouraging a tick

from feeding on you. Products like Permanone contain premethrin and are known to kill ticks. However, they are not to be sprayed on the skin. Permanone can be sprayed on clothing. Once it is dry it is assumed to be safe. Ticks are anti-gravitational. They are generally seeking the highest point. If they get on your body below the clothes line, one hopes they will travel up and die once they come in contact with treated clothing.

- Always do regular tick checks when outdoors.

- Shower after all outdoor activities are over for the day. If the tick is still wandering it may wash off. Check all body parts that bend. Run fingers gently over skin. If there is a tick and it is attached, it will feel like the last piece of scab left before a cut completely heals. Remove ticks promptly and properly from yourself.

Proper Tick Removal:

Using fine-tipped tweezers, grasp tick close to the skin. Apply gentle, steady straight upward pressure to remove. Disinfect the bite site. Do not squeeze the body, apply Vaseline, use a burnt match, or clean with alcohol while the tick is attached. Any of these actions could cause transmission of the bacteria. Save the tick for testing. Put it in a vial or zip lock bag with a blade of grass. Contact your doctor for further instructions.

The best defense against LD is education. Know your facts.

APPENDIX C

SSHP ACCEPTANCE FORM

ABBREVIATED SITE SAFETY AND HEALTH PLAN

FOR

Siskiyou Rocket and Bombing Range

Macdoel, California

I have read and agree to abide by the contents of the Site Safety and Health Plan.

NAME	OFFICE	SIGNATURE	DATE
Randal Curtis	CEMVS-ED-P	_____	
George Sloan	CEMVS-ED-P	_____	
Alix Borrok	CEMVS-ED-P	_____	

SITE SURVEY SAFETY BRIEFING

(Check subjects discussed)

Date

GENERAL INFORMATION

_____Purpose of Visit
_____Identify Key Site Personnel

SITE SPECIFIC INFORMATION

_____Site Description/Past Use
_____Results of Previous studies
_____Potential Site Hazards
_____OE Safety Procedures
_____Site SOP
_____Site Control and Communications
_____Emergency Response
( ) Location of First aid Kit
( ) Emergency Phone Numbers
( ) Map to Facility
_____PPE
_____Weather Precautions
( ) Cold/Heat
( ) Severe Weather

Safety Briefing Attendance

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

NAME (Print)	**ORGANIZATION**	**SIGNATURE**
Randal S. Curtis	USACE-CEMVS-ED-P	_____
George Sloan	USACE-CEMVS-ED-P	_____
Alix Borrok	USACE-CEMVS-ED-P	_____

APPENDIX L-2

Site Inspection Report - Siskiyou Rocket and Bombing Range

CEMVS-ED-P 5 September 2001

MEMORANDUM FOR RECORD

SUBJECT: ASR Site Inspection: Siskiyou Rocket and Bombing Range - California

1. Personnel from the St. Louis District Corps of Engineers traveled to California to perform a site survey of the former Siskiyou Rocket and Bombing Range. The Ordnance and Explosive (OE) and Chemical Warfare Materials (CWM) Archive Search Report (ASR) program requires a site inspection. The ASR program supports the Defense Environmental Restoration Program (DERP) at Formerly Used Defense Sites (FUDS).

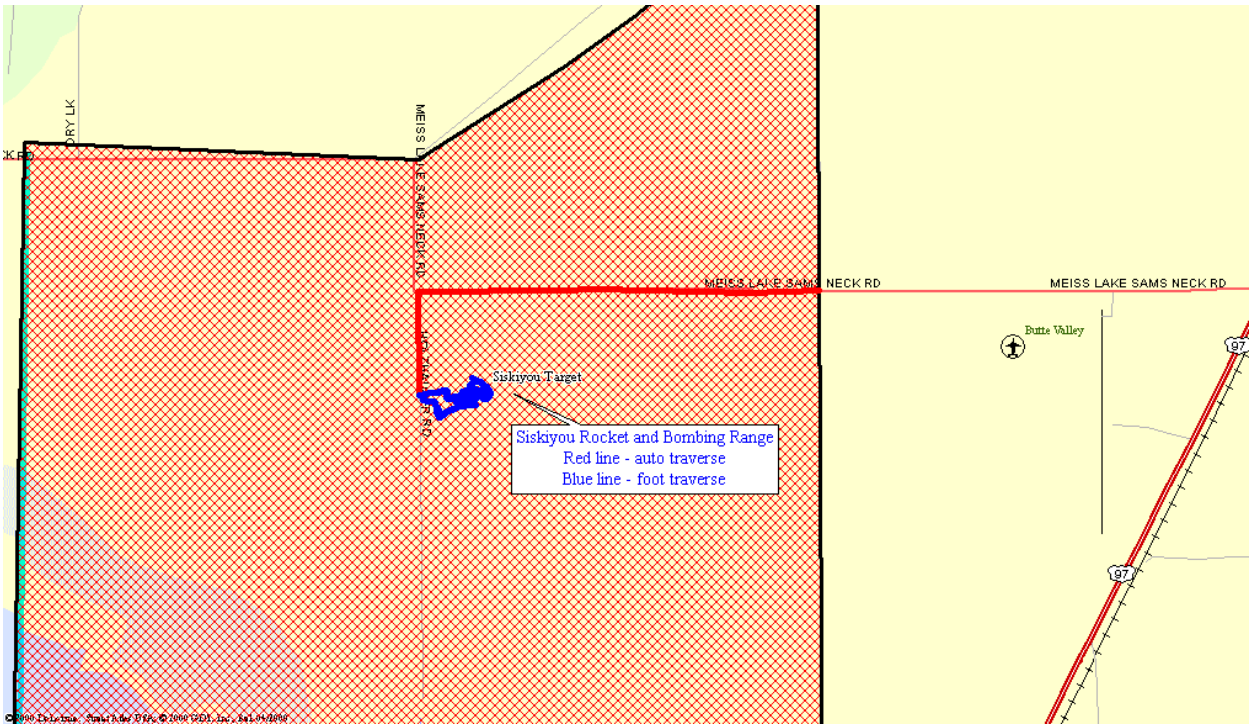
2. The ASR site inspection characterized OE and CWM potential based on a visual examination at the former Siskiyou Rocket and Bombing Range. Landowners granted verbal permission for right-of-entry prior to the site inspection. The site inspection included only visual and non-intrusive methods of inspection. The team followed a site safety and health plan (SSHP) prohibiting digging or handling of potential OE/CWM. The inspection team consisted of the following personnel: Alix Borrok, Randal Curtis and George Sloan.

3. The team traveled to Macdoel, California to begin a site inspection of the Siskiyou Rocket and Bombing Range on Saturday, 25 August 2001. They met with Jim Stout (530-398-4391) of the Klamath National Forest, Goosenest Ranger District at 37805 Highway 97, three miles south of Macdoel. Mr. Stout is the grasslands manager for the district and had led the INPR team to the site. The team held a short meeting in the district office reviewing the aerial imagery, the general history of this site and related NAS Klamath Falls targets in northern California. Mr. Stout mentioned that one of their staff archeologists had taken pictures of OE debris in the past. The descriptions matched the expected types of practice bombs and rockets but it also included a “20 mm” projectile as identified by archeologist. He agreed to try and locate the picture of the “20 mm” and send it to the ASR team.

4. The team traveled to the site via Meiss Lake Sam’s Neck Road north off of Highway 97. About 2.5 miles west of Highway 97, there was a gate to a dirt road (Holtzhauser Road) heading south. The team drove south about a quarter of a mile, then walked to the target site using a GPS to ascertain the location[1]. The 600 diameter circular perimeter of the target is marked by a short berm less than two feet high that is readily discernable.

[1] Target coordinates were determined using georeferenced historic aerial imagery. The resulting waypoints were uploaded into a Garmin Etrex Legend GPS (Global Positioning System) receiver using mapping datum WGS 1984.

The team crisscrossed the target a number of times finding scrap weathered wood within the interior, roughly in a ring pattern around the center. Ostensibly this was the smaller 100 foot diameter aiming circle, which must have been knocked down before the aerial imagery was taken.



5. Within the bermed target area the team located OE debris from 100-lb. Practice Bombs (i.e. Navy MK VII or XV), 2.25 inch SCARs (Sub-Caliber Aerial Rocket), AN-MK 23 iron miniature practice bomb and a link for a .50 caliber machine gun. The vast majority of the items located were sheet metal from practice bombs, tailfins and the expended rocket motors. The team did not find any evidence of high explosives (HE) use on the site such as cratering or HE frag. Mr. Stout thought that the dimpling observed on the aerial imagery was probably natural in origin. The team continued their examination to NE of the target berm. They then preceded through the target and thence SW along the approximate path of the rocket approach line. Only a few OE debris items were noted beyond the target area though. The team returned to the vehicle, backtracked to the district office and parted company with Mr. Stout.

6. Mr. Stout reported having found a bomb that looked like a larger version of an MK 23. Other people have reported finding practice bombs in the past as well. 16 – 17 years ago rockets were reportedly found in the area.

Range Feature Locations based on Georeferenced Aerial Photography				
Latitude	**Longitude**	**Easting**	**Northing**	**Feature**
N41 ^{o} 53’ 21”	W122 ^{o} 01’ 12”	581306	4637749	Siskiyou Target

RANDAL S. CURTIS, P.E.
Project Manager/Civil Engineer

GEORGE SLOAN
Safety and Occupational Health
Specialist

ALIX BORROK
Project Historian

APPENDIX M

REPORT DISTRIBUTION LIST

Addressee	No. Copies
Commander, U.S. Army Engineering and Support Center Huntsville, ATTN: CEHNC-ED-SY-O (D. MARDIS) P.O. Box 1600 Huntsville, Alabama 35807-4301	2

PLATES

REPORT PLATES

1 **Siskiyou Rocket and Bombing Range** - NAS Klamath Falls and Vicinity Ranges and Facilities
2 **Siskiyou Rocket and Bombing Range** - Vicinity Map
3 **Siskiyou Rocket and Bombing Range** – Aerial Photography 1955

Thematic Computer-Aided Design and Drafting (CADD) map files completed in association with this Archives Search Report are based on historic cartographic, aerial and site visit data collected during this investigation. The thematic maps were created using Intergraph's Microstation.

The thematic maps were created by scanning and warping selected historic data to reference points collected from non-stable selected base maps such as U.S. Geological Survey (USGS) 7.5 minute, quadrangle sheets or National Imaging and Mapping Agency (NIMA) maps. The horizontal scale and horizontal datum of the base maps is generally known. In this case the datum used was 1927 North Atlantic Datum/World Geodetic System (WGS) 1984. Attempts have been made to rectify the data to the referenced base maps. However, distortions in scale and contortions of the features are present. These distortions are a result of inaccuracies in the source data, as well as the processes of scanning and rectifying the data**.** Much of the data on the maps lack sufficient information to support a determination of accuracy.

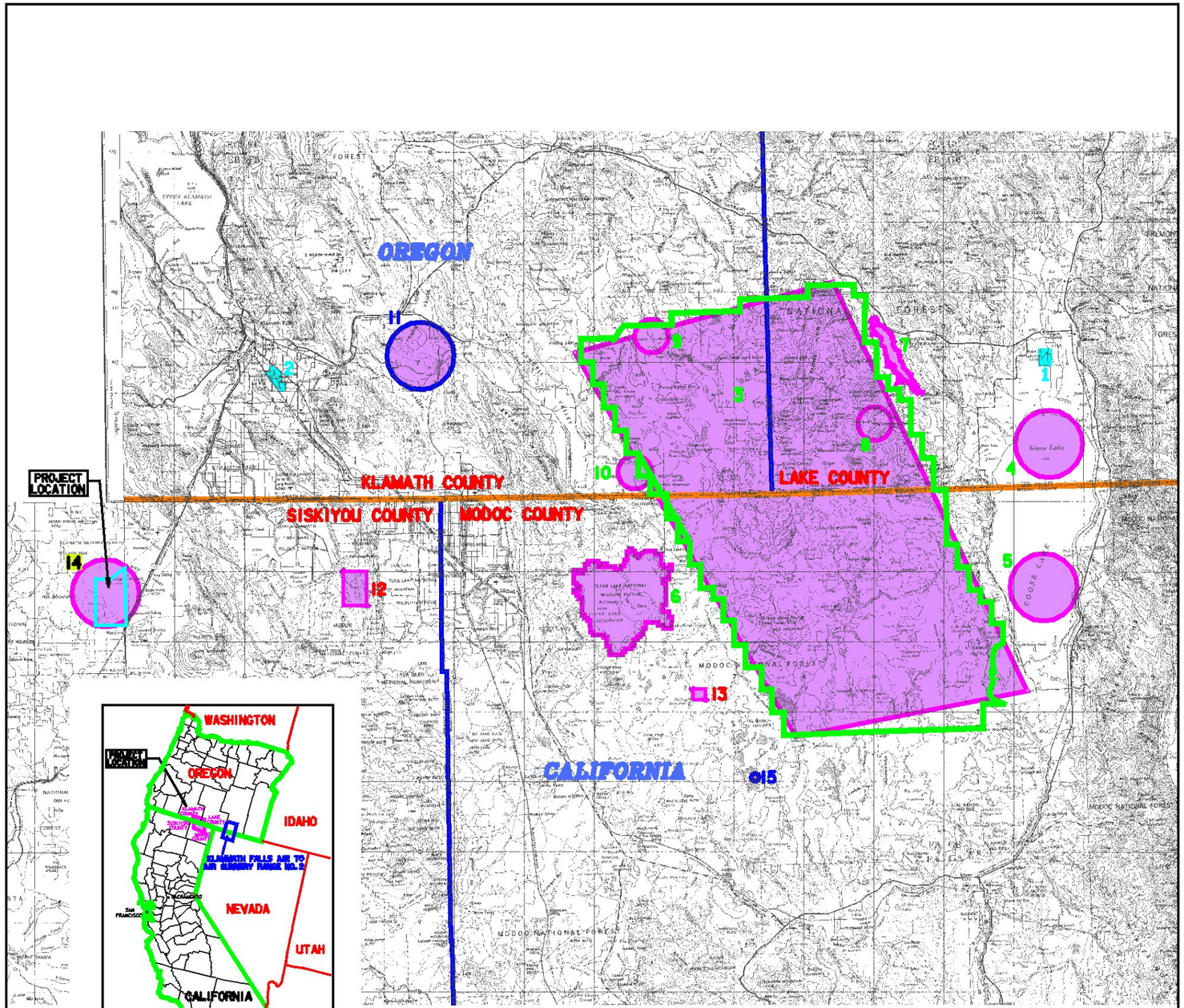
Many of the historic maps used were hand-drawn or built on locations that were inaccurate by modern standards. In general, historic map inaccuracies are unknown and not quantifiable. The unknown inaccuracies may then be magnified by the georeferencing process. Therefore, thematic maps generated from historic maps and drawings will have accuracy no greater than the least accurate source.

The historical aerial photography has been semi-rectified (georeferenced) to the base map; however, the photos have not been corrected for photogrammetric displacements such as those due to topography or the altitude of the aircraft at the time of imaging. They are not orthorectified images. Locations of features noted on aerial photography are not exact due to the rectifying of both the image and the base map.

The horizontal and vertical locations of selected features noted in the ASR and located on the thematic maps have been established utilizing Global Positioning System (GPS) technology. These coordinates were acquired using the Federal Version PLGR96+ GPS receiver. Features located utilizing GPS techniques are so noted in the ASR**.** The PLGR+96 uses the Precise Positioning Service (16 m SEP) and Wide Area GPS Enhancement (WAGE) 4 m CEP**.**

The lineage and source of the historic data used to generate the thematic maps is unknown. The majority of Federal Geographic Data Committee (FGDC) Metadata fields

are therefore unknown. A metadata file that gives all available pertinent information has been provided with this product. The statements above are inclusive of all available information regarding the historic data sources and the thematic maps generated. The thematic maps are not original digital mapping data; are scanned and warped data with selected unique feature annotation. The intended purpose of the mapping data is for photo-interpretation and not design. The vector data and associated symbology is unique to the intended purpose. The majority of the digitized features are not part of the current Tri-Service CADD Standards list of features and associated line types and symbology (ie. range fans, pits, disturbed land). The mapping data produced does comply with applicable Tri-Service Standards.



NOTE: BACKGROUND IMAGE IS GEOREFERNCED 1:250,000 SCALE 1 DEGREE BY 2 DEGREE SERIES USGS MAP

KEY TO FEATURES:

FEATURE NUMBER	FEATURE DESCRIPTION
1	NAVAL AUXILIARY AIR FACILITY LAKEVIEW-F10OR0532
2	NAVAL AIR STATION KLAMATH FALLS-F10OR0572
3	KLAMATH FALLS AIR-TO-AIR GUNNERY RANGE NO.1-J09CA7478
4	GOOSE LAKE NORTHERN STRAFING AND LOW LEVEL BOMBING TARGET-J09CA7478
5	GOOSE LAKE SOUTHERN STRAFING AND LOW LEVEL BOMBING TARGET-J09CA7478
6	CLEAR LAKE RESERVOIR DIVE BOMBING AND STRAFING TARGET-J09CA7478
7	DREW'S RESERVOIR DIVE AND GLIDE BOMBING TARGET-J09CA7478
8	DOG LAKE DIVE BOMBING TARGET-J09CA7478
9	GERBER'S RESERVOIR DIVE BOMBING TARGET-J09CA7478
10	WILLOW VALLEY RESERVOIR DIVE BOMBING TARGET-J09CA7478
11	KLAMATH FALLS NAVY DIVE AND GLIDE BOMBING TARGET AT YONNA VALLEY ALKALI LAKE
12	MODOC MOBILE TARGET (OR KLAMATH FALLS STATIONARY BOMB TARGET)
13	SISKIYOU STRAFING TARGET (OR KLAMATH FALLS MOBILE DIVE BOMB TARGET)
14	SISKIYOU ROCKET AND BOMBING RANGE (AKA MACDOEL PRACTICE GUNNERY RANGE)-J09CA107201
15	LOST VALLEY RESERVOIR TARGET (PROBABLY ASSOCIATED WITH NAS K.F.)

LEGEND

- KLAMATH FALLS AIR TO AIR GUNNERY RANGE NO.1 &ASSOCIATED BOMB TARGETS
- OTHER IDENTIFIED FUDS ASSOCIATED WITH NAVAL AIR STATION KLAMATH FALLS
- UNIDENTIFIED FUDS ASSOCIATED WITH NAVAL AIR STATION KLAMATH FALLS
- PLANNED BUT UNCONSUMATED TARGETS FOR NAS KLAMATH FALLS: NOT FUDS
- DANGER AND CAUTION AREAS ASSOCIATED WITH NAS KLAMATH FALLS

NOTE: KLAMATH FALLS AIR TO AIR GUNNERY RANGE NO. 2 NOT SHOWN ON PLATE

0 55000 110000

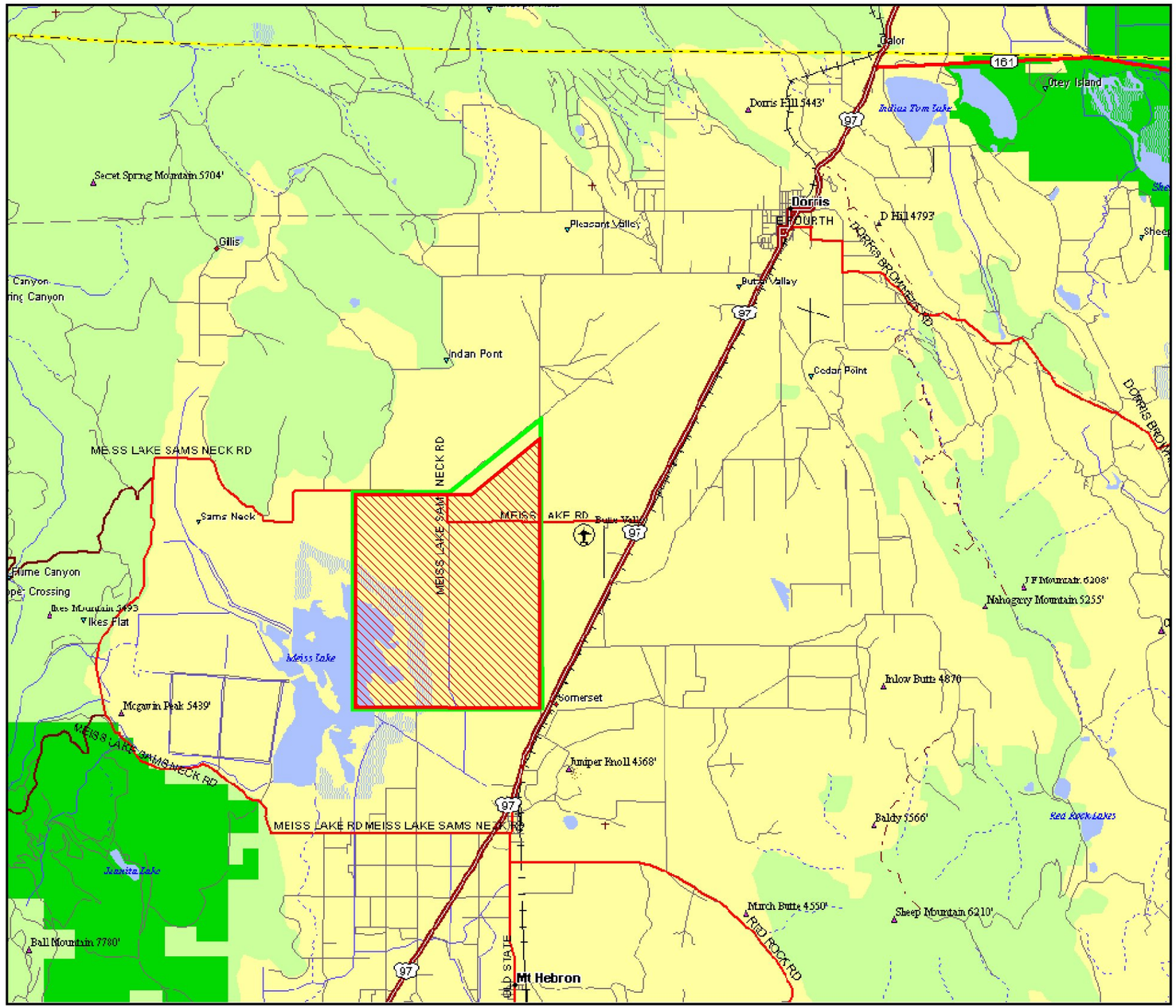
APPROXIMATE SCALE IN FEET

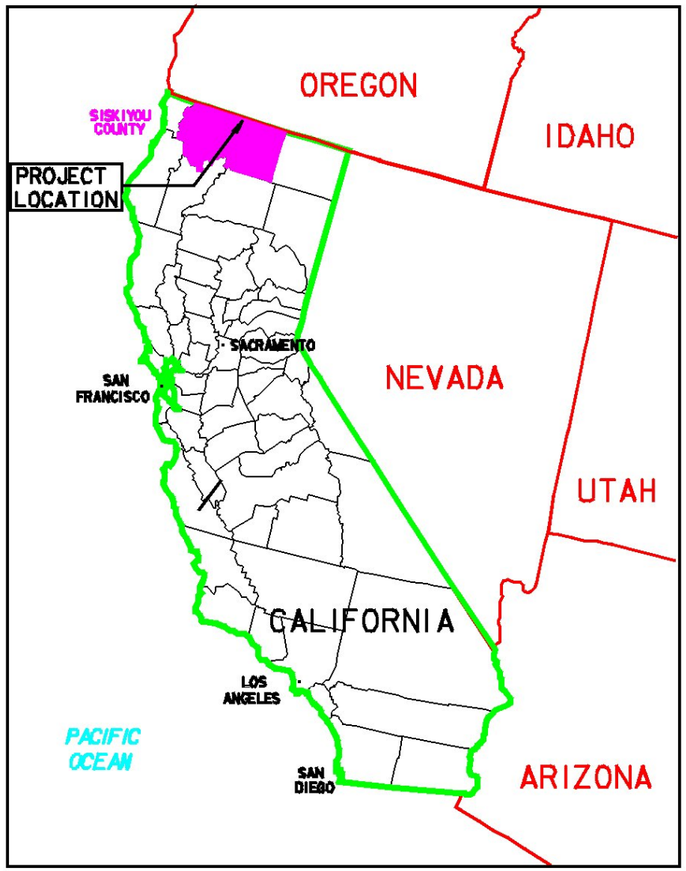
N

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

SISKIYOU ROCKET & BOMBING RANGE
SISKIYOU COUNTY, CALIFORNIA
DERP-FUDS: J09CA107201
NAS KLAMATH FALLS & VICINITY
RANGES AND FACILITIES

PROJ. DATE:	DATE OF MAP: 2001	PLATE NO. 1
01-NOV-2001 14:21	t:\dew\dew2001\california\siskiyou\MAPS\Modoc.dgn	





LEGEND

- PROBABLE FUDS PROPERTY (7,440 ACRES)
- ACQUIRED FUDS PROPERTY (7,040 ACRES)

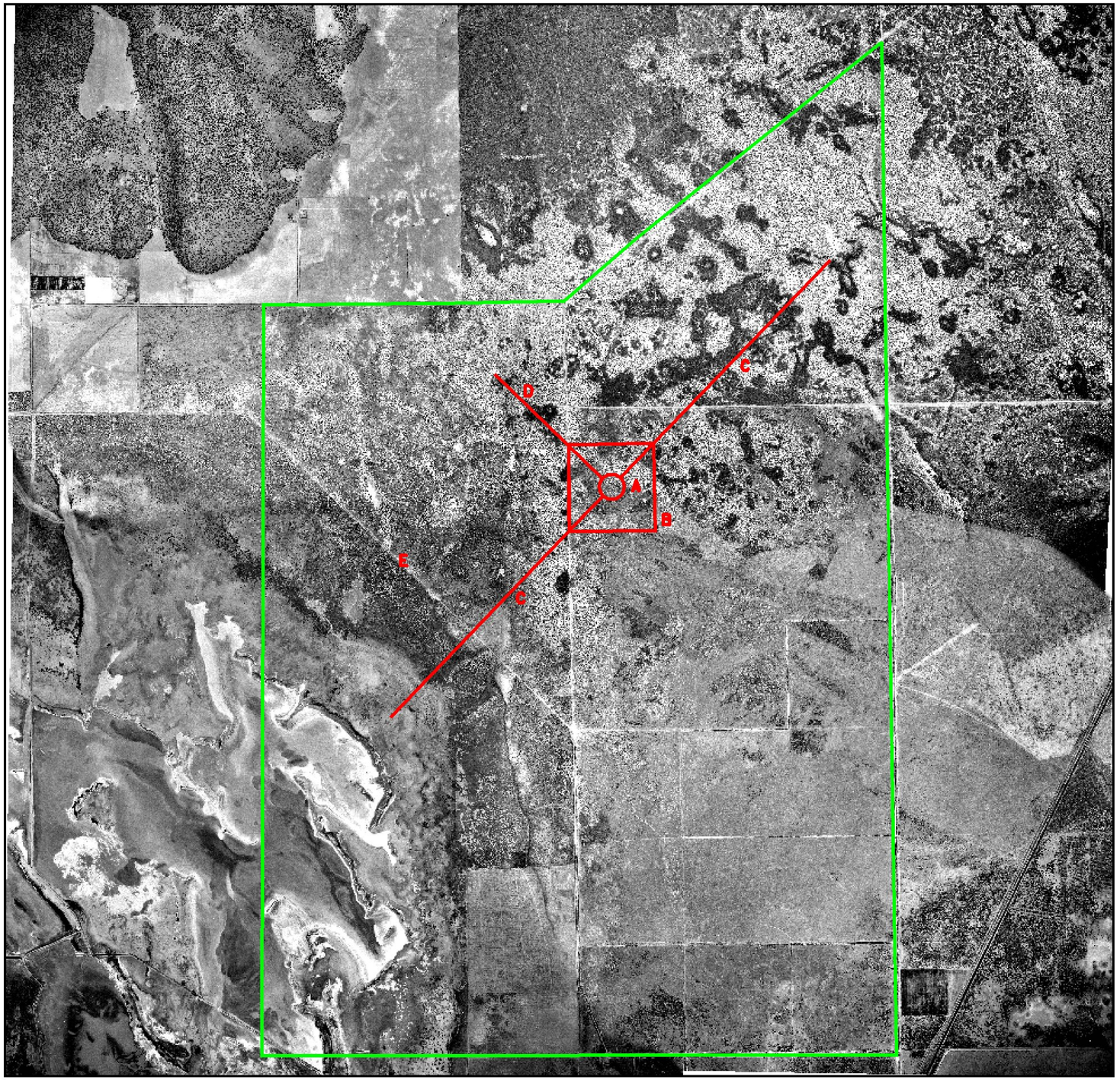
N

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

SISKIYOU ROCKET & BOMBING RANGE
SISKIYOU COUNTY, CALIFORNIA
DERP-FUDS*J09CA107201

VICINITY MAP

PROJ. DATE: 2000	DATE OF MAP: 1998	PLATE NO. 2
01-NOV-2001 14:22	t:\new\new2001\california\siskiyou\MAP\PLATE_1.DGN	



Imagery: 5 August 1955, frames DDC-7P-9, 11, 104 & 106
scale 1:24,000 from USDA - Aerial Photography Field Office
Salt Lake City, UT

A 600 FOOT DIAMETER CIRCLE, WITH 30 FOOT DIAMETER DIMPLING THAT MAY BE NATURAL BUT MAY BE THE RESULT OF CRATERING OR SCARING FROM OE USE
B 2,200 FOOT SQUARE
C APPROACH FLIGHT LINE, DIAGONAL ACROSS TARGET CONTINUING ABOUT 7,800 FEET BOTH NE AND SW FROM THE TARGET CENTER
D 4,000 FOOT DIAGONAL BEGINS AT THE CENTER HEADING TO THE NW, OSTENSIBLY FOR A RAKE STATION, THOUGH NO STRUCTURES ARE VISIBLE
E ROAD PERPENDICULAR TO APPROACH FLIGHT LINE ADDED BETWEEN 1948 AND 1951

LEGEND

PROBABLE FUDS BOUNDARY

FEATURE LOCATION

0 2700 5400

APPROXIMATE SCALE IN FEET

N

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

SISKIYOU ROCKET & BOMBING RANGE
SISKIYOU COUNTY, CALIFORNIA

1955 AERIAL PHOTO

PROJ. DATE: 2000	DATE OF PHOTO: 1955	PLATE NO. 3
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