



**US Army Corps  
of Engineers**

HUNTSVILLE ENGINEERING  
SUPPORT CENTER

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DEFENSE ENVIRONMENTAL RESTORATION PROGRAM  
FOR  
FORMERLY USED DEFENSE SITES

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS

**ARCHIVES SEARCH REPORT**

**FINDINGS**

**EL CENTRO ROCKET TARGET  
RANGE NO. 2 (#93)**

EL CENTRO, CALIFORNIA

PROJECT No. J09CA014701

SEPTEMBER 1996

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PREPARED BY  
US ARMY CORPS OF ENGINEERS  
ST. LOUIS DISTRICT

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT  
FINDINGS  
FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

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## 1.0 Introduction

### 1.1 Authority

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

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

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

### 1.2 Subject

The former El Centro Rocket Target Range No. 2 (#93), consisting of 400 acres, is located in Imperial County, CA. It encompasses the east ½ and the north ½ of the northwest ¼ of Section 13, Township 14 South, Range 12 East. The Eleventh Naval District acquired the land in 1944 for use as a practice rocket, bombing, and strafing target for Fleet Unit training. Prior to Naval acquisition, the land was uncultivated and undeveloped. The Navy discontinued use of the site in October 1946. The property is now maintained by the Bureau of Land Management (BLM).



### 1.3 Purpose

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

### 1.4 Scope

The entire area of the former El Centro Rocket Target Range No. 2 was considered in assessing the potential for ordnance and explosives. Based on research, chemical warfare material contamination is not a concern.

## **2.0 Previous Site Investigations**

### **2.1 Corps of Engineers Documents**

U.S. Army Corps of Engineers, Los Angeles District (CESPL), prepared an Inventory Project Report (INPR) for the former El Centro Rocket Target Range No. 2 (#93), Project No. J09CA014701, dated 22 September 1993. Science Applications International Corporation (SAIC) personnel conducted a site visit on 3 May 1993. They encountered some OE hazards. CEHND-PM-SO assigned a RAC score of 3 to this site. Copies of this information are in APPENDIX D.

CESPL did not identify any environmental concerns other than the potential for OE.

### **2.2 Other Reports**

Research did not uncover any other reports on this site.

### 3.0 Site Description

#### 3.1 Land Usage

The former El Centro Rocket Target Range No. 2 (#93) (400 acres) is located in Imperial County, CA, situated in Section 13, Township 14 South, and Range 12 East. The site is approximately 5.9 miles west of State Highway 86. Directions from Imperial Avenue and Main Street in El Centro: proceed north 8.4 miles, left on Keystone (3 miles), right on Forrester (0.9 miles), left on Imler (3.1 miles), north on access road (1.16 miles) to the southeast corner of Section 13. The Eleventh Naval District acquired the land in 1944 for use as a practice rocket, bombing, and strafing target for Fleet Unit training. Prior to Naval acquisition, the land was uncultivated and undeveloped. The Navy discontinued use of the site in October of 1946. The former target site is under the jurisdiction of the Bureau of Land Management and remains uncultivated, undeveloped, rough desert land (Vanantwerp 1993).

#### 3.2 Climatic Data

The Imperial Valley of California has a desert climate and records a higher percentage of sunshine than any other place in the United States. The amount of possible sunshine fluctuates between 97%, occurring in June, and 82%, occurring in December.

The summers are long and hot with afternoon temperatures reaching 100° F and higher on the average. The highest temperature recorded at the climatological station at Yuma, Arizona was at 122° F in 1990. The highest daily average temperature of 106.6° F occurs during July.

December and January are the only two months that have an average daily high below 70° F, with temperatures of 68.5° F and 68.7° F, respectively. December through February are the only three months with an average daily low temperature below 50° F, falling between 44° F and 45° F. The average annual daily high temperature is 87.9° F, the low is 60.5° F, and the monthly mean is 74.2° F.

Precipitation is sparse with an annual average precipitation of only 3.17 inches. Moisture laden air from the Gulf of California continually invades the area during the summer months. The highest mean monthly precipitation of 0.64 inches occurs during August. May and June record the lowest mean monthly precipitation at 0.04 and 0.02 inches, respectively. The maximum monthly recorded precipitation of 3.44 inches, also the maximum recorded precipitation in a 24 hour period, occurred in August 1989. The minimum monthly recorded precipitation of 0.00 inches occurred in May 1983.

The relative humidity ranges from 30% to 50%, and it is higher in the winter and lower in the summer. On a daily basis, the relative humidity is usually higher in the early morning and lower in the early evening.

The mean annual wind speed is 7.8 mph with a prevailing direction of north. The prevailing wind direction for summer is south southeast; for fall and winter is north; and for spring is west northwest.

Climatological data for this area are summarized in TABLE 3-1. Data were collected at the National Weather Service meteorological station at Yuma, Arizona.

**TABLE 3-1  
CLIMATOLOGICAL DATA  
YUMA, ARIZONA**

Month	Temperature		Precipitation Average (inches)	Wind	
	Average Minimum (°F)	Average Minimum (°F)		Average Speed Miles/ Hour	Average Direction
January	44.2	68.7	0.35	7.3	N
February	46.9	74.4	0.22	7.4	N
March	50.8	78.9	0.21	7.9	WNW
April	56.5	86.3	0.14	8.3	W
May	63.8	94.2	0.04	8.3	WNW
June	72.0	103.3	0.02	8.5	SSE
July	80.7	106.6	0.26	9.5	SSE
August	80.1	105.3	0.64	8.9	SSE
September	73.2	100.5	0.31	7.3	SSE
October	62.2	90.3	0.29	6.6	N
November	50.9	77.4	0.24	6.9	N
December	44.3	68.5	0.45	7.2	N
<b>Average</b>	<b>60.5</b>	<b>87.9</b>	<b>3.17</b>	<b>7.8</b>	<b>N</b>

### 3.3 Geology and Soils

#### 3.3.1 Geology/Physiography

The El Centro Rocket Target #2 site is located in the Salton Trough section of the Basin and Range physiographic province. This section is characterized by desert alluvial slopes and deltaic plains. The site is located just over fifty miles to the north of the northern tip of the Gulf of California. The Salton Trough is a rift valley that owes its existence to the same tectonic forces that created the gulf.

Structurally, the Salton Trough section is a complexly faulted graben. There are three major northwest-trending fault systems in the southwestern portion of Imperial County. The faults are, from northeast to southwest, the San Andreas, San Jacinto, and Elsinore faults. These faults exhibit right-lateral and vertical movement.

The site is at sea level and is located on ancient lake beds of Cenozoic age. The sediments are of the ancient Lake Cahuilla and playa lakes. The formation is composed of tan and gray fossiliferous clay, silt, sand and gravel. Also found in the site area is Quaternary age alluvium. This formation consists of unconsolidated clay, silt, sand, and gravel occurring primarily as valley fill and streamwash deposits (Morton 1966).

#### 3.3.2 Soils

The majority of the soils on the surface of the former El Centro Rocket Target Range #2 are very deep, somewhat excessively drained, nearly level soils on flood plains. They were formed in alluvial or eolian sands from diverse sources. Typically, the soil is reddish yellow fine sand to a depth of 60 inches.

Permeability is rapid, and available water capacity is low. Surface runoff is slow, and the hazard of erosion is slight. There is a high hazard of soil blowing and abrasion to young plants. A typical profile of the site soils is shown in TABLE 3-2 below.

TABLE 3-2 - Soil Profile						
DEPT H (in)	SOIL DESCRIPTION	PERCENTAGE PASSING SIEVE NUMBER			LIQUID LIMIT	PLAS- TICITY INDEX
		#4	#40	#200		
0-9	Fine sand	100	50-80	10-25	---	NP
9-60	Sand, fine sand	100	40-85	5-30	---	NP

Table modified from Soil Survey of Imperial County, CA.

### 3.4 Hydrology

#### 3.4.1 Surface Water

The study site is located within the Imperial Valley of California. The terrain of Imperial Valley consists mostly of smooth plains. Approximately 50% to 80% of the local relief, which is between 100 and 300 feet, is gently sloping. A large part of the terrain of Imperial Valley is below sea level. The elevation of the water surface for the Salton Sea, located within Imperial Valley, is 228 feet below sea level.

The soil in Imperial Valley of California is warm and dry, with a mean annual temperature higher than 47° F. The western and southern sections of California have very low frost penetration amounts. The average frost penetration for the study site is between zero and 3 inches while the depth of extreme frost penetration is only about 5 inches. The soil in this region is sandy and generally lacks moisture. Evaporation is high due to the plentiful amounts of sunshine and the hot, dry conditions. The vegetation that grows naturally in this area is mostly brush and shrublands. The Imperial Valley is generally vulnerable to droughts which may last several years.

The principle water use of Imperial Valley is for irrigation. Fresh surface water is provided by an extensive network of canals for irrigation.

The average concentration of sediment in the rivers is generally high; between 15,000 and 30,000 parts per million. The prevalent type of chemicals naturally in the rivers are sodium, potassium, sulfate and chloride. The concentration of dissolved minerals in the ground water is low with less than 1000 parts per million.

Natural drainage occurs through washes, draws and gullies (trenches cut out by the natural drainage of runoff from precipitation). These trenches are dry in times of no precipitation. A wash is the largest type of trench drainage, gullies are the

smallest, and draws are usually in between. These natural runoff drainage trenches empty into rivers or canals. Flooding at the site is unlikely because of the small amount of precipitation and the porous nature of the sandy soils throughout Imperial Valley.

Imperial Valley generally drains in a southern direction. The Alamo River, New River and the Western Main Canal all originate at the Salton Sea and flow south into the All American Canal. The Coachella Canal which originates at the Colorado Aqueduct near Coachella, California also flows south, just east of and parallel to the others. These four water systems empty into the All American Canal. The All American Canal flows east along the Mexican border and empties into the Colorado River near Yuma, Arizona. The Colorado River flows south and empties into the Gulf of California.

El Centro Rocket Target Range #2 is in relatively flat terrain. The elevation ranges from a high of about 60 feet above sea level to a low of about 60 feet below sea level. The area drains east into Fillaree Canal and Thistle Canal, both of which drain into the New River.

While no gage data is available at this site, the U.S. Geological Service (U.S.G.S.) maintains gages on some of the major rivers located within the general area. One gage, covering 14 years of continuous record, located on the Alamo River at Calipatria, California, recorded a maximum discharge of 6770 cfs in January 1993. The minimum recorded discharge, 1080 cfs, occurred in August 1990. The maximum recorded stage, 7.20 feet, occurred in January 1993, equivalent to an elevation of 189.20 feet. Another gage, on the New River near Westmoreland, California, has 32 years of continuous record. It recorded a maximum discharge of 3000 cfs in August 1977, and its minimum recorded flow of 691 cfs occurred in January 1966. No stage data is provided for this gage site.

#### 3.4.1 Ground Water

The former El Centro Rocket Target Range #2 is underlain by a regionally extensive system of desert basins. These desert or drainage basins receive the majority of their recharge from precipitation runoff from the surrounding mountains and the Salton Sea to the north. The water is absorbed and held by the coarse-grained Quaternary alluvial sediments. The water is therefore unconfined. The depth to groundwater fluctuates greatly due to the surplus or lack of precipitation in the area.

The land is dry and must be irrigated to be used for pastureland or farmland. There are extensive irrigation systems throughout the surrounding areas for both domestic and farm use.

### 3.5 Ecology

The information provided for this site was compiled from the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game Natural Diversity Data Base (NDDB).

The following federally-listed species may occur in the vicinity of the former El Centro Rocket Target Range #2 Site: desert pupfish (Cyprinodon macularius), endangered; southwestern arroyo toad (Bufo microscaphus californicus), endangered; flat-tailed horned lizard (Phrynosoma mcallii), proposed threatened; Aleutian Canada goose (Branta canadensis leucopareia), threatened; southwestern willow flycatcher (Empidonax traillii extimus), endangered; American peregrine falcon (Falco peregrinus anatum), endangered; Yuma clapper rail (Rallus longirostris yumanensis), endangered; and Mexican flannelbush (Fremontodendron mexicanum), proposed endangered.

The NDDB records did not list any species of state concern in the vicinity of the former El Centro Rocket Target Range #2.

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 Center of Activity

The former El Centro Rocket Target Range #2 is located near the city of El Centro, Imperial County, California.

#### 3.6.2 Population Density

CITY/COUNTY	CITY: El Centro	COUNTY: Imperial
AREA (sq. mi.)	N/A*	4.173
POPULATION	31,384	109,303
POP DENSITY	N/A*	26.2



NOTE: Population density is in units persons per square miles.

\* N/A denotes data which were not available to this study.

### 3.6.3 Types of Businesses and Industry

The number of business establishments in Imperial County can be broken down by type as follows: manufacturing 3.0%; agriculture 3.6%; services 28.3%; trade and financial 48.3%; and other 16.8%. Of the people employed in Imperial County, 21.6% are employed by classified businesses. Trade and financial firms employ 50% of the working population, and the service industry employs 20.5%. 7.6% of the people employed work in manufacturing businesses, and 0.3% are employed by unclassified businesses. Foregoing percentages are from March 1991.

### 3.6.4 Types of Housing

Housing in is composed of both single family and multi-family dwellings. The median value of 4,015 specified owner-occupied housing units in El Centro is \$79,100.

### 3.6.5 New Development in the Area

No new development in the area, except for residential dwellings.

### 3.6.6 Typical cross section of the Population

The part of the population under the age of 18 is 35.8%, and the part over the age of 65 is 8.0%. The median age is 30 years.

### 3.6.7 Information Sources

U.S. Census report as listed below:

- 1990 Census of Population and Housing, Imperial County, California
- 1990 Census of Population and Housing El Centro, California
- 1988 County and City Data Book, Land Area and Population, Imperial County, California
- 1988 County and City Data Book, Land Area and Population, El Centro, California
- 1991 County Business Patterns, Imperial County

## 4.0 Site History

### 4.1 Historical Site Summary

#### 4.1.1 General History

##### 4.1.1.1 El Centro Naval Air Facility

Since 1942, Naval Air Facility (NAF) El Centro has had several names: Marine Corps Air Station; Naval Auxiliary Landing Field; Naval Air Station and the National Parachute Test Range. El Centro, with 92% fine flying weather and long, flat, sandy terrain, proved to be an ideal location for tactical problems and gunnery practice. Construction began on 943 leased and 949 purchased acres on May 15, 1942, and in less than seven months, the base began flight operations. The establishment and placement of the Marine Base Defense Aircraft Group 43 at El Centro in 1943 added to the growth of the station. Other facilities, beyond the station area, included: a rocket range, rocket ground school, skeet and rifle ranges, malfunction and turret ranges for gunnery students and a rabbit range. In the 1940's, Imperial Valley also housed the Salton Sea and Holtville Auxiliary Air Stations. The facility at El Centro, however, was the largest and most active (Coletta 1985; USNAF n.d.; HQUSMCAS 1945).

During World War II, the Naval Air Facility maintained a series of air-to-ground gunnery targets. In addition, the station received specific tasks in connection with the Chocolate Mountain Gunnery Range to the northeast and the Carrizzo Impact Area to the northwest. The El Centro NAF also investigated plane crashes from Tucson, AZ, to San Diego, CA (USNASEL 1949).

In 1947, the Parachute Experimental Division moved from Lakehurst, New Jersey to El Centro. The Secretary of the Navy issued a directive in October 1949 that changed the designation of El Centro from a Naval Air Station to a Naval Auxiliary Air Station. Also, El Centro established a Fleet Gunnery Unit in 1949 that provided support for squadrons conducting gunnery, bombing and carrier landing practice (USNAAS 1950).

In 1986, the NAF's base operating support functional areas were contracted to a civilian firm. Currently, the 2,289 acre base, which has control over an additional 54,000 acres, has a complement of nearly 400 military and 260 civilian personnel. Aerial combat maneuvering, air-to-air gunnery and bombing practice, along with electronic warfare training, are major activities at the El Centro NAF. The NAF is the second largest employer in the Imperial Valley. (USNAF n.d.)

#### 4.1.1.2 El Centro Rocket Target #2 (#93)

In 1944, the Eleventh Naval District acquired approximately 400 acres of desert land from the Department of Interior to establish Rocket Target #2. The Navy used the site for a rocket, bombing, and strafing target for Fleet Unit training. On April 23, 1945, the Commander of the 11th Naval District changed the numbering system of all the El Centro targets. El Centro Target #2 became El Centro Target #93. The Navy discontinued use of Target #93 on October 24, 1946. After disposal, the site remained uncultivated, undeveloped, rough desert land. Currently, the Bureau of Land Management has jurisdiction over the former target area (Bernhard 1945; Vanantwerp 1993; 11th Naval District 1947; Navy Department 1946).

#### 4.1.2 OE/CWM Activities

##### 4.1.2.1 El Centro Naval Air Facility

Various types of ordnance were in use at El Centro NAF during the years of operation of its off-site ranges. Items on hand in 1946 included: Bomb S.A.P. 1000# ANM-59; Bomb, Water-fillable 1000# MK7; Bomb, Water-fillable 500# MK 21; FS Smoke, Mixture 800# drums. Training requirements in 1946 included: 100, 500, and 1000# GP Bombs; small arms ammunition-- .30-cal, .50 cal and 20 mm; 5" HVAR; 11.75" Rocket (Tiny Tim) and the Sub-Caliber Aircraft Rocket (SCAR). Possession of surplus small arms ammunition in 1946 included: .30 cal Tracer M1 (180,235); .30-cal Incendiary M1 (375,000); .30-cal A.P. M2 (125,000) and .30-cal links M1 (40,000). A hand written note indicates the possibility that these surplus items were shipped to Fall Brook Naval Ammunition Depot in Oceanside, California (HQ Naval Air Bases n.d.; United States Pacific Fleet 1946; Naval Air Bases 1946). In 1947, an NAF El Centro officer engaged in the demolition of dud rockets and bombs once each month on the aviation practice ranges (11th Naval District 1947b). Documents stating which ranges this activity occurred on were not found by the research team.

Records did not indicate the use of any chemical warfare materials.

##### 4.1.2.2 El Centro Rocket Target #2 (#93)

The St. Louis District failed to procure specific documentation pertaining to the type of ordnance used on El Centro Rocket Target #2 (93). However, ordnance reported in the area (as stated in the INPR) has included: two parachutes with flares, one five-inch shell, multiple blasting caps fuses (these were most likely the electrical cables for the 2.25" and 3.25" rockets), multiple 50-caliber clips (these are actually called links), and one 25-pound practice bomb. During a February 1996 site visit to the former target, St. Louis personnel found .50 caliber casings and

links; .50 caliber tracer bullets; a 5" rocket warhead, MK 1 Series. At the possible target center, items included: A 3.25" rocket motor, 20mm projectile, TP-T; 20mm training practice; 2.2" rocket motor; 2.25" target rocket; scrap from a 3lb miniature practice bomb and an electrical cable for 2.25" and 3.25" rockets.

#### 4.2 Review of Historical Records

Records relating to the history of El Centro Rocket Target #2 (93) were gathered from the following sources between December 1995 and February 1996. The research team consisted of Rochelle Ross and Theresa Williams, CELMS-PM-M, and David Tajkowski, and John Daly CELMS-PD-R. Decisions about which record groups to examine at the various national, state, and local archives and records centers were made by consulting finding aids, archivists and records managers. Through the use of finding aids, such as inventories and master accession lists, the researchers were able to focus on those record groups they thought would be most fruitful before calling, or visiting, various repositories.

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

RG 72      Records of the Bureau of Aeronautics (NAVY)  
Box 2323, General Correspondence, 1943-45, KV 91 Et 14, Dv 39 Vol 2  
(no entry number). Contained the following information: acquisition of  
Permit for use of land for rocket target, El Centro MCAS; lease of  
additional land for El Centro Bombing Target #1; El Centro MCAS  
Gunnery Training Facilities; access roads to El Centro Rocket Target  
#'s 1 & 2.

Entry 67, Box 274, Confidential Correspondence, 1922-47 (1945), Kv to  
Kv 58.

Entry 17A, Box 980, Confidential Correspondence, 1922-44 (1942), K7-  
Kv41. Contained a map showing the El Centro NAS Plot Plan (Nov 4,  
1942).

RG 49      Records of the Bureau of Land Management  
Abandoned Military Reservations File, CA-Fort Reading to Fort  
Collins, Boxes 25 & 27. No information on El Centro or Holtville.

**National Archives-Suitland Branch  
Washington National Records Center  
4205 Suitland Road  
Suitland, MD 20409**

RG 127      Records of the United States Marine Corps  
Office of the Commandant, General Correspondence, Box 1845, Jan  
1939-June 1950, 2785-2385. Contained a file on the El Centro MCAS,  
no pertinent information.

RG 175      Records of the Chemical Warfare Service  
Entry 2, Box 450, Index Briefs 1918-42, Samples-Schedule.  
Entry 2, Box 448, Index Briefs 1918-1942, Sales-Samples  
Entry 2, Box 259, Index Briefs 1918-1942, Hig-Hooker  
Entry 2, Box 175, Index Briefs 1918-1942, Education-Electric

RG 74        Records of the Bureau of Ordnance (Navy)  
Entry 1529, Box 1282, ND7-ND11, 1945. Req. disposition of 752 MK 6  
Mod 1 parachute flares at NAAS Holtville.

Entry 5595, Box 209, ND10-ND12, 1947. The following information  
was copied from this box: request for ammunition, MCAS El Centro  
(2.25" Rocket SCARs, 8000 rounds); disposal officer has been acquired  
to effect demolitions of dud rockets and bombs on the El Centro  
Aviation Practice Ranges; discontinuance of target and bombing  
ranges (#'s 58, 59, 60, 61, 62, 69, 77, 90 & 91).

Entry 25, Box 362, KV37-NA8, 1943. Monthly ammunition allotment,  
MCAS El Centro.

Entry 25, Box 453, KV9-LL, 1943. This box contained information on  
empty drums for FS Smoke Mixture and a request for ammunition and  
waterfillable bombs MCAS El Centro.

Entry 4444, Box 194, KV thru L1-1, 1946. Receipt for shipment of  
rocket firers.

Entry 4444, Box 193, KK/579 thru Kv, 1946.

Entry 1529, Box 374, F4 1-10, 1945.

Entry 4444, Box 287, ND8-ND11, 1946. Training for a four month  
period, 1,224 Tiny Tim's, 53,292 SCARs, 11,176 100# H2O filled, 2,500  
3.5 AR'S.

Entry 1529, Boxes 373, 376 & 377, 1216 & 1283.

Entry 4444, Boxes 154-156, 264 & 288.

Entry 25, Boxes 187 & 188, 248, 386 & 515.

Entry 5595, Boxes 100 & 101, 130 & 197.

RG 72      Records of the Bureau of Aeronautics  
Entry 69A2454, Box 2 & 3, California. Declaration of Surplus for the  
Holtville Naval Auxiliary Air Station.

RG 143     Records of the Bureau of Supplies and Accounts (NAVY)  
All requests for RG 143 were unsuccessful.

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

Based on the finding aids available at this repository and due to the nature of the site, no boxes were requested.

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

RG 48      Records of the Office of the Secretary of the Interior  
Entry 748, Boxes 44, 45, 92, 142, 149, 162 & 748.  
Entry 749, Boxes 3218, 3219 & 3220.  
Entry 942, Not Found

**Naval Historical Center/AR  
Washington Naval Yard  
901 M Street S.E.  
Washington, D.C. 20374**

Aviation History Files, 11th Naval District, Boxes 210, 212, 221, 290, 292 & 391.  
Information copied included: histories on El Centro MCAS and Holtville NAAS;  
11th Naval District Directory of Naval Air Bases; chronologies of El Centro and  
Holtville NAAS; rounds expended by fleet units (El Centro NAAS).

**United States Marine Corps Historical Center  
Washington Naval Yard  
901 M Street S.E.  
Washington, D.C. 20374**

Additional histories on El Centro were reviewed along with information on the Twenty-nine Palms Marine Corps Base. No copies were made at this repository.

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

All pertinent information was faxed to the St. Louis District.

**National Archives-Pacific Southwest Region  
24000 Avila Rd  
Laguna Niguel, CA 92677-6719**

RG 181      Records of Naval Districts and Shore Establishments  
Box 38, File N1-9, 11th Naval District General Correspondence 1925-1952.

Naval and Marine flying within Western Air Defense Zone; survey of shore activities; mission of El Centro NAAS and a historical report on Holtville NAAS.

Box 39, File N1-N3, 11th Naval District General Correspondence 1925-1952. Danger area-El Centro Gunnery Range for MCAS.

Box 422, File NA-NA, 11th Naval District General Correspondence 1925-1952. Land occupied by rocket target #103; free gunnery range facilities located near El Centro; rocket stowage at El Centro NAS; permit for movable target range for El Centro MCAS and investigation of wrongful release of bombs near El Centro MCAS.

Box 57, File CF20C/SF20C/1943, 11th Naval District Formerly Classified Correspondence 1921-47. Board report of investigation of additional facilities requested at the Marine Corps Air Stations on the west coast.

Box 424, File NA(2), 11th Naval District General Correspondence 1924-1955.

Price of construction for Holtville Outdoor Gunnery Range; acquisition of land for bombing targets and rental price for Holtville Target #1.

Additional boxes viewed under RG 181 at the Pacific Southwest Archives included: Boxes 5, 56, 116, 119, 421, 423, 427, & 435.

RG 270      Records of the War Assets Administration  
Boxes 63 & 64, File Hollister-Holtville, Real Property Case Files.

**Federal Record Center-Pacific Southwest Region  
24000 Avila Rd  
Laguna Niguel, CA 92677-6719**

Based upon the finding aids and on the opinion of the consulting archivist, no boxes were requested at this repository.

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

Based upon the finding aids and on the opinion of the consulting archivist, no boxes were requested at this repository.

**USACOE-Los Angeles District  
300 Los Angeles Ave  
Los Angeles, CA 90053**

Information gathered at the L.A. Corps of Engineers included reports of previous site visits, along with real estate data.

**National Archives-Pacific Sierra Region  
1000 Commodore Dr.  
San Bruno, CA 94066**

RG 291      Records of the Property Management and Disposal Service  
Series 9NSS-121-90-002, Box 59, File B-Calif-730 Salton Sea Test  
Base. File contained regional information on El Centro.



**Federal Record Center-Pacific Sierra Region  
1000 Commodore Dr.  
San Bruno, CA 94066**

Based on the consultation of the archivists and the corresponding finding aids, no documents were requested at this repository.

**NAVFAC Historian's Office  
Seabee Museum  
Construction Battalion Center  
Port Hueneme, CA 93043**

Maps of the El Centro NAAS and of Imperial County (showing bombing targets).

**Naval Facilities Engineering Command  
Southwest Division  
1220 Pacific Hwy, Code 2421  
San Diego, CA 92132-5190**

A Land Acquisition Map of range 2512 (East Mesa) and a Real Estate Summary Map of Imperial County (dated 7-1-65) were available at this repository.

**U.S. Department of the Navy  
Public Works Department (Code 341)  
Naval Air Facility  
El Centro, CA 92243-5001**

A Historic and Archeological Resources Protection Plan for Naval Air Facility, El Centro (October 1994) and additional Land Acquisition Maps were copied at El Centro NAS.

**U.S. Department of the Navy  
Base Library  
Naval Air Facility  
El Centro, CA 92243-5001**

The base library contained a series of scrapbooks on the history and social activities of El Centro.

**Bureau of Land Management  
El Centro Resource Office  
1661 South Fourth St.  
El Centro, CA 92243**

Items procured included a Desert Access Guide to Imperial Valley California and BLM jurisdiction and site access maps.

**Combat Heritage Museum  
Holtville Airport  
Holtville, CA 92250**

Base newspapers of the Holtville Auxiliary Naval Air Station were available for viewing.

**BARSA Inc.  
422 North Imperial Ave.  
El Centro, CA 92243**

Maps on Imperial County and the State of California were available at this repository.

#### 4.3 Summary of Interviews

None of the individuals interviewed, personnel from the Naval Amphibious Base, Naval Facilities Engineering Command, El Centro Naval Air Facility, EOD (Naval, Army, and Marines), and local residents, knew this range had ever existed.

According to the Marine Corps EOD out of Yuma, AZ, the 5" Rocket Warhead found during the site inspection, was practice and not hazardous.

#### 4.4 Air Photo Interpretation and Map Analysis

##### 4.4.1 Air Photo Interpretation

Photographic analysis and land-use interpretation were performed using the following photographic sources:

<u>Photography Date</u>	<u>Scale</u>	<u>Source</u>	<u>Frame Identifier(s)</u>
22 Feb 1949	1:20,000	National Archives	ABN-4F 85 thru 91 ABN-4F 130 thru 136 ABN-4F 174 thru 180
03 May 1953	1:23,600	EROS	GS-YQ 2-113 thru 117 GS-YQ 4-139 thru 143
04 May 1959	1:20,000	ASCS	ABN 4W 60 thru 62
27 Nov 1959	1:20,000	ASCS	ABN 14W 57 thru 59
06 Jun 1965	1:20,000	ASCS	ABN 2FF 15 thru 17 ABN 2FF 56 thru 58
26 Apr 1973	1:40,000	ASCS	472 74 thru 76
16 Sep 1979	1:40,000	ASCS	179 41 thru 41
03 Oct 1992	1:40,000	ASCS	192 27 thru 28 192 51 thru 52

The photography was referenced using the 1957 (photorevised 1979) edition USGS Brawley NW, California 7.5' quadrangle.

No visible signs of bombing were seen on the photography from 1949. There is, however, a circular shaped area that looks different from the surrounding land. This is in the location of the abundance of ordnance debris found during the site inspection. This area is identified on Plate 5.

The photography from 1953 and 1959 do not show any visible signs of ordnance activity. The circular shaped area seen in the 1949 photography does not appear in these photos. A track and powerline which run through the area are detected. Also detected are two mounds and an additional track-like feature that runs in an east-west direction. No other disturbances are seen.

Photographic analysis from 1965 through 1992 does not show any ordnance related activity in the site area.

#### 4.4.2 Map Analysis

Map analysis was performed using the 1957 (photorevised 1979) edition USGS Brawley NW, California 7.5' quadrangle.

Planimetric and topographic features are show on the quadrangle. The planimetric features include buildings, loose and hard surface roads, powerlines and levees. The topography of the area is gently rising terrain to the southwest. Vegetation is sparse and low lying. The site area lies on flat terrain.

## 5.0 Real Estate

### 5.1 Confirmed DoD Ownership

The Navy acquired 400 acres located in the east ½ and the north ½ of the northwest ¼ of Section 13, Township 14 South, Range 12 East for use as the El Centro Rocket Target Range No. 2 (#93). The Eleventh Naval District acquired the land in 1944 for use as a practice rocket, bombing, and strafing target for Fleet Unit training. Prior to Naval acquisition, the land was uncultivated and undeveloped. The Navy discontinued use of the site in October of 1946.

### 5.2 Potential DoD Ownership

DoD only owned that land mentioned in Section 5.1.

### 5.3 Significant Past Ownership other than DoD

There is no significant past ownership other than DoD.

### 5.4 Present Ownership

The former target site is under the jurisdiction of the Bureau of Land Management and remains uncultivated, undeveloped, rough desert land.

## 6.0 Site Inspection

We began the site inspection on El Centro Rocket Target Range #2 at the southern boundary of the site, made a loop through the area and returned to the jeep after we found a 5" Rocket Warhead and what appeared to be the target center due to the abundance of ordnance debris. The description of items found and their location are:

<u>Description</u>	<u>Location</u>
.50-caliber casing and link	N 32°56'57.8" W 115°40'26.3"
.50-caliber tracer bullet	N 32°57'17.4" W 115°40'47.7"
5" Rocket Warhead, MK 1 series	N 32°57'16.7" W 115°40'56.3" (PG 23164 46837)
Possible target center; 3.25" rocket motor, 2.25" rocket motor, 2.25" target rocket, 20mm projectile, TP-T, and scrap from 3-lb miniature practice bombs	N 32°55'25.0" W 115°40'58.3"

We also found, scattered throughout the range, 2-prong electrical connector plugs and nozzle closures for 2.25" and/or 3.25" rocket motors. We notified Range Control when we located the 5" Rocket Warhead. We marked this area and the possible target area and provided to Range Control the GPS location and type of ordnance items found.

The next day, we were told by Range Control that Marine Corps EOD had come arrived and destroyed several items, including the 5" warhead. Upon examining the photograph and researching the item in various publications, it is our belief that the item was a plaster-filled practice version of the MK 1 using a conical nose plug.

Once we returned to St. Louis, we phoned the Marine EOD out of Yuma, AZ and were told the 5" Warhead was practice.

## 7.0 Evaluation of Ordnance Presence

NOTE: All locations were fixed with a Trimble Scout hand-held GPS using mapping datum North American 1927.

A .50 caliber cartridge case and belt link were found at N 32° 56' 57.8", W 115° 40' 26.3"/PG 23949 46264. A .50 caliber bullet was located at N 32° 57' 17.4", W 115° 40' 47.7"/PG 23386 46864.

A large cluster of ordnance scrap and expended munitions, which may very well have been the target center, was located at N 32° 57' 25.0", 115° 40' 58.3"/PG 23109 47092. Included were parts of 2.25" target rockets (SCAR), 3.25" rocket motors, 20mm target practice projectiles with tracer and without, and pieces of 3-lb. miniature practice bombs.

Nearby (at N 32° 57' 16.7", W 115° 40' 56.3"/PG 23164 46837) was a 5" rocket warhead, MK 1 series that was separated from its MK 7 3.25" rocket motor. It appeared to have a nose fuze. The rusted condition of the munition was such that no positive identification could be made on the spot. It could easily have been an HE-filled warhead. This item was immediately reported to Range Control using their hand-held radio. We marked the location with orange tape and departed the area.

The next day, we were told by Range Control that Marine Corps EOD had come out and destroyed several items, including the 5" warhead. Upon examining the photograph and researching the item in various publications, it is our belief that the item was a plaster-filled practice version of the MK 1 using a conical nose plug.

Two-prong electrical connectors and nozzle closures from either 2.25" or 3.25" rockets were also found at this site. These were probably practice or target rockets.

## **8.0 Technical Data of Ordnance and Explosives**

### **8.1 Ordnance Related Mission**

This was an aerial rocketry and gunnery range and apparently also used for practice bombing in the 1940's. Expended rocket motors from 2.25" and 3.25" target rockets, as well as electrical connectors from some were found. A 5" rocket warhead was also located.

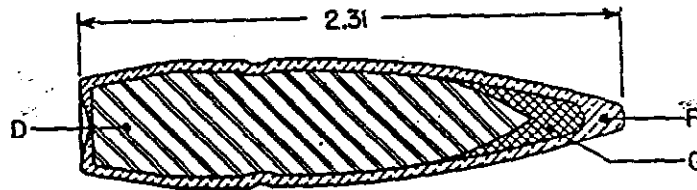
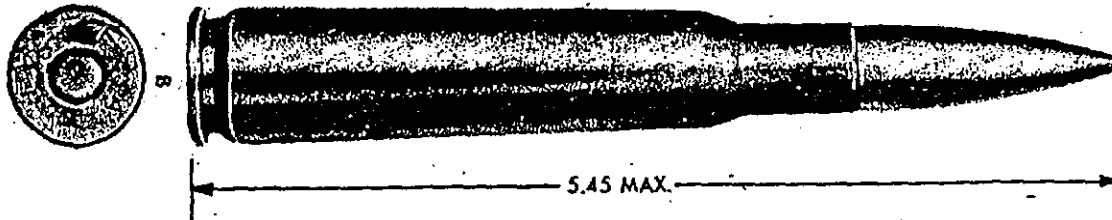
### **8.2 Description of Ordnance**

Target rockets and subcaliber types, such as the 2.25" SCAR, 3.25" and 5" practice rockets would be expected on a range of this kind. The use of practice bombs like the 100-lb., 25-lb., and 3-lb. varieties is also not unusual.

### **8.3 Reference**

TM 9-1325-200, Bombs and Bomb Components, dated 1966  
TM 9-1980, Bombs for Aircraft, dated 1950  
TM 9-1950, Rockets, dated 1950  
NAVSEA OP 1415, Rocket Assemblies, dated 1955  
NAVSEA OP 1664, U.S. Explosive Ordnance, dated 1947

# CARTRIDGE, .50 CALIBER, BALL, M2



BULLET, BALL, CAL..50, M2

**Use:** This cartridge was designed for use in all .50 caliber machine guns. It was commonly used in training for target practice.

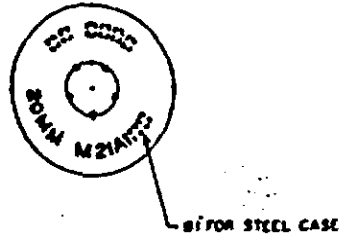
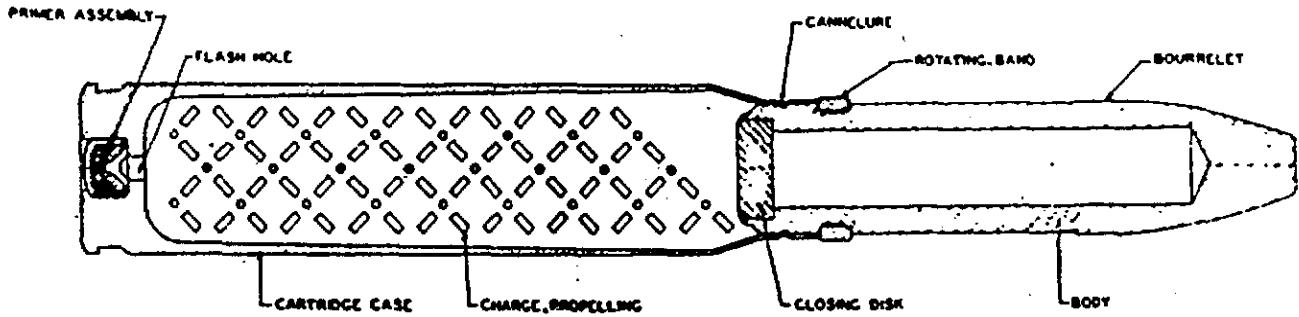
**Description:** The .50 caliber ball did not have any identification color coding as the tip of the bullet was not painted. It consisted of four major parts; a cartridge case, primer, propelling charge, and a projectile. The projectile contained a soft steel core (D), a point filler of antimony lead alloy (G), and a gilding metal jacket (F).

**Use:** This model of the .50 caliber cartridge was also used as combat ammunition against semi-hard targets.

Weight . . . . .	1,800 grains
Length . . . . .	5.45 inches
Maximum Range . . . . .	7,200 yards
Reference . . . . .	TM9-1904, March 1944



# 20 MM BALL MK I



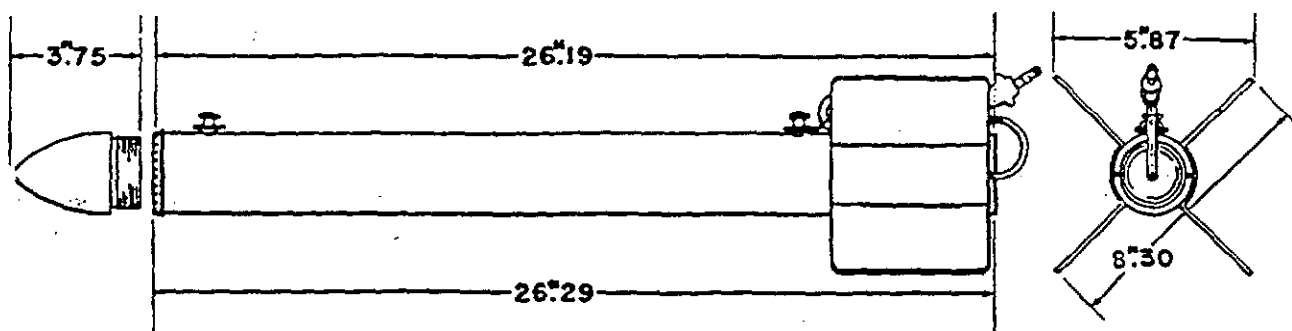
**Use:** This cartridge was originally designed as a training round to simulate the high explosive incendiary (HE-I) round. Later it was superseded by the practice M99 series.

**Description:** The 20 mm was a fixed round consisting of a projectile, cartridge case, propellant, and a primer. The aircraft weapons were fed either through a drum type magazine or disintegrating linked belts. The projectile was machined from bar steel. The nose appeared to have been cut off squarely, and was painted black.

**Purpose:** Although originally designed for practice firing, this cartridge was so effective that it was later adopted for actual combat fire as a ball round.

Weight	. . . . .	0.56 pounds
Diameter	. . . . .	0.784 inch (greatest)
Length	. . . . .	7.23 inches
Reference	. . . . .	TM9-1904, March 1944

# ROCKET, 2.25 INCH PRACTICE



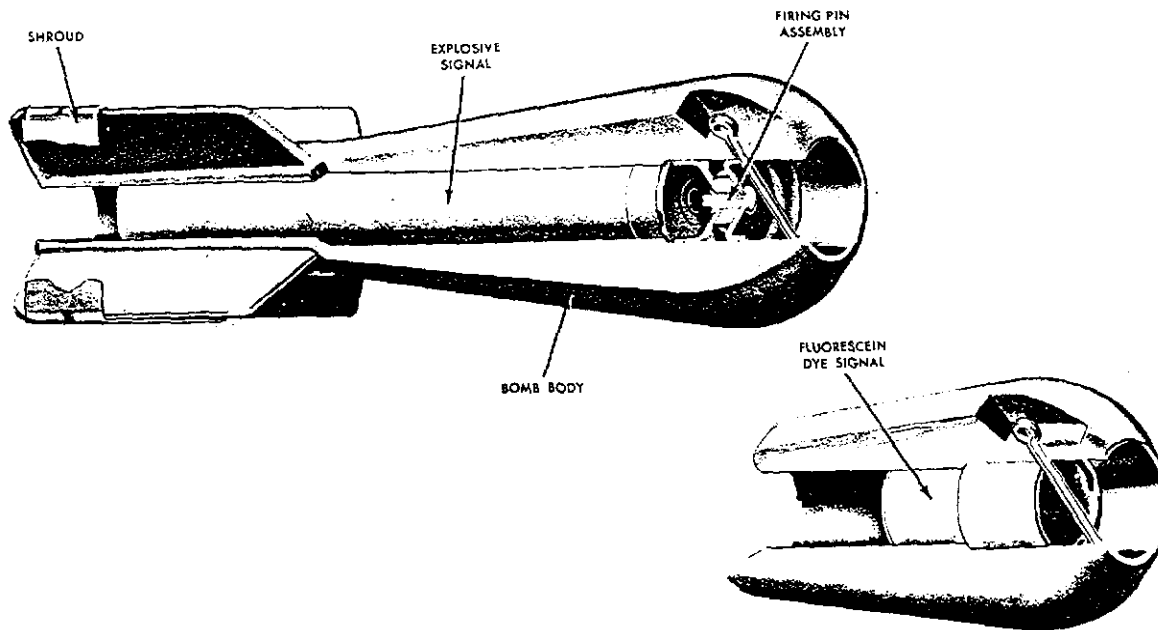
**Use:** These rockets were used for practice firing against surface targets.

**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 contained no fuze and were solid steel, zinc die cast, or cast iron. The item's explosive hazard was the propellant in the rocket motor and the igniter.

**Purpose:** This item was forward fired from aircraft and simulated the trajectories of the 5 inch rockets.

**Weight** . . . . . 12.47 pounds  
**Diameter of Body** . . . . . 2.25 inches  
**Length** . . . . . 29.07 inches  
**Reference** . . . . . NAVSEA OP 1415, May 1955

# 3 LBS & 4.5 LBS MINIATURE PRACTICE BOMBS AN-MK 5 MOD 1, AN-MK 23, AN-MK 43



**Description:** These bombs are used for low-altitude horizontal, or dive bombing practice. The three 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 which 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 which contains a fluorescein dye and is actuated by impact on water. When the MK5 signal is installed, the firing pin assembly is not used.

<b>Over-all length</b> .....	8.25 inches
<b>Body Diameter</b> .....	2.18 inches
<b>Fin Dimension</b> .....	2.5 inches
<b>Weight</b> .....	AN-MK 5 Mod 1 - 2 lb. 11 oz. $\pm$ 1 oz
	AN-MK 23 - 3 lb. $\pm$ 2 oz
	AN-MK 43 - 4 lb. 7 oz. $\pm$ 2 oz.
<b>Signal</b> .....	AN-Mk 4 or MK 5
<b>Filler</b> .....	AN-MK4 Black powder/pyrotechnic charge
.....	MK 5 Fluorescein dye
<b>Reference</b> .....	OP 1280, Feb 45
.....	TM 9-1325-200, Apr 66

# ROCKET, 5" AIRCRAFT, HE MK1 with 3.25" MOTOR MK 7

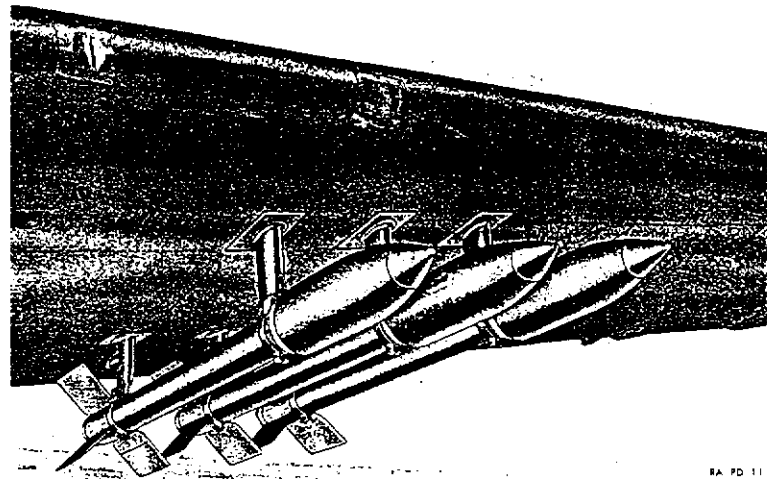
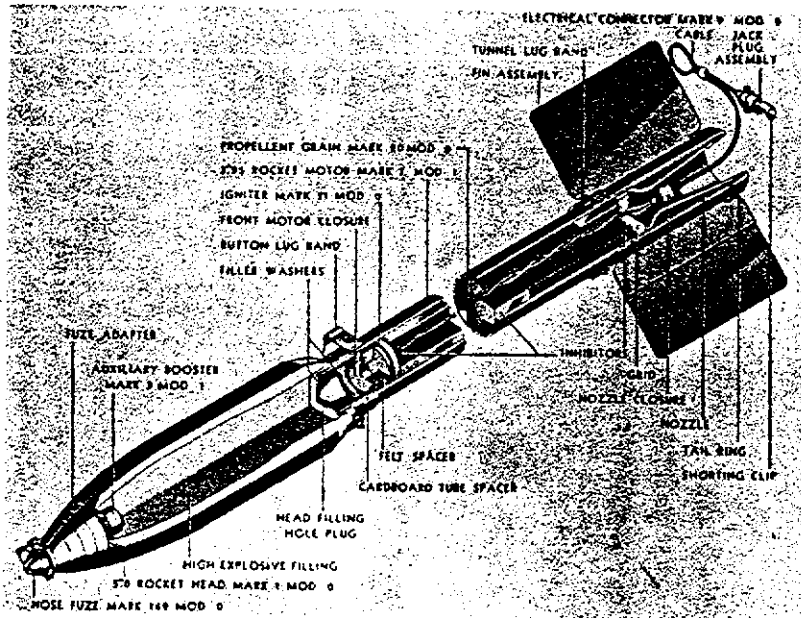


Figure 57. 5.0-inch aircraft rocket (5.0-inch head MK 1 Mod 0 and 3.25-inch motor MK 7 Mods)

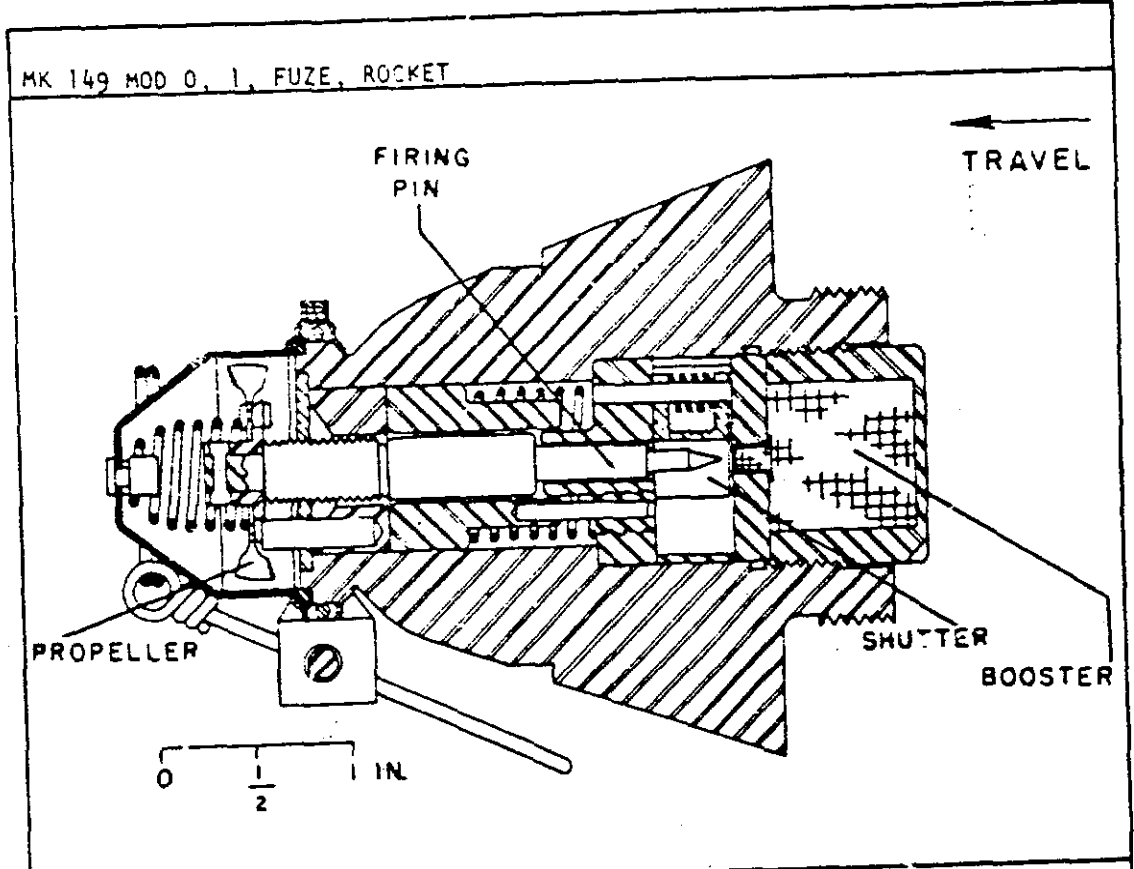
Figure 129. 5.0-inch A.R. with 3.25-inch Motor

**Use:** These are aircraft-fired high explosive rockets for use against shipping, personnel, bivouac areas and light armor targets.

**Description:** These rockets are of the fixed-fin stabilized, electrically fired type. They use the MK 7 series 3.25" rocket motors for propulsion and contain both a nose fuze and a base fuze. The range is 2,000 yards. There was a plaster-filled practice version utilizing a conical nose plug.

Length	65.8" (overall), 18.3" (warhead)
Diameter	5.0" (warhead), 3.25" (motor)
Weight	85.5 lbs. (total)
Filler	8 lbs. TNT
Fuzes	MK 149 nose fuze, MK 157, MK 159, or MK 165 base fuze

References	TM 9-1950, 1950; OP 1664, 1947, DTIC "Obsolete Fuzes" guidebook
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**IDENTIFICATION**

Agency NOL, 0431, Young  
 Status Obsolete  
 Ass'y Dwg. No. GA 393783 (MOD 0)  
 GA 978604 (MOD 1)  
 Parts List LD 109204, LD 284796  
 Specification MIL-F018702  
 Previous Number AIR -8

**GENERAL**

Carriers Rocket  
 Cal. — Size 3'5 AR, 5'0 HVAR  
 Location Nose  
 Use HE or GP  
 MIL-STD's  
 Max Values  
 Rotat. (rps)  
 Setback (g)  
 Velocity (fps)

**KEY FEATURES**

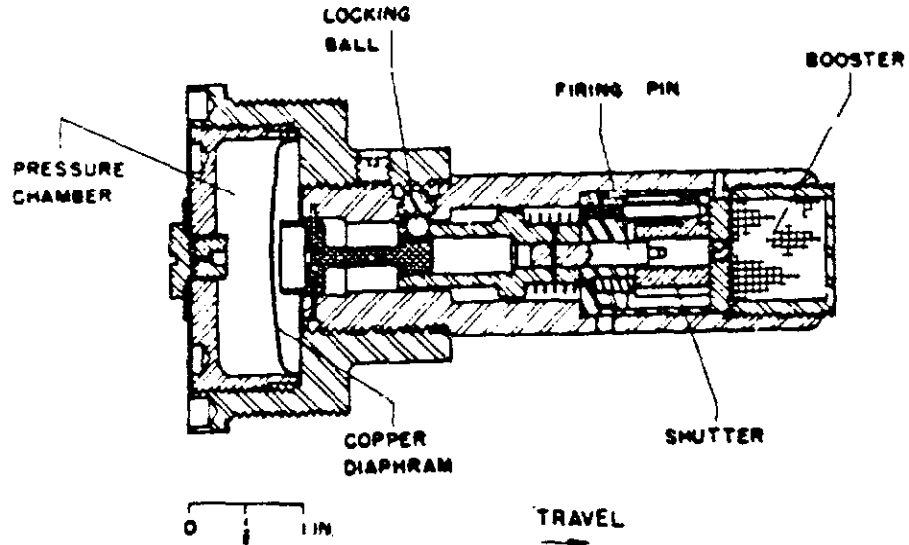
Sensitive to firing on water impact

MIL-HD3K-137

20 FEBRUARY 1970

MK 149 MOD 0, 1, FUZE, ROCKET	
<b>ARMING DATA</b> Method Vane Delay 275-600 ft (AR), 650-1100 ft (HVAR) Rotation (rps) Non-arm Arm Setback (g) Non-arm Arm Arming Wire External Indicat. Yes	<b>PHYSICAL DATA</b> Weight 2.6 lb Total Length (in.) 4.22 Body Diam. (in.) Intrusion 0.825 in. Thread Size 1.7-14NS-2
<b>FUNCTIONING DATA</b> Action PD, SQ, Select Type Mechanical Delay Instantaneous Time Type Time Setting (sec) Target Ground Sensitivity Material Mild steel Thickness (in.) 0.187 Max Obliq. (°) 75 Velocity (fps) Carrier	<b>POWER SUPPLY</b> <b>EXPLOSIVE TRAIN</b> S&A Device Primer Detonator MK 23 MOD 1 Booster Tetryl Lead Tetryl
<b>REMARKS</b> Replaces Fuze MK 148 It may be fired as a dud against light targets	

MK 159 MOD 0, 1, FUZE, ROCKET



**IDENTIFICATION**

Agency NOL, 0431, Young  
 Status Obsolete  
 Ass'y Dwg. No. GA 422550 (MOD 0)  
 GA 439631 (MOD 1)  
 Parts List  
 Specification  
 Previous Number PIR-3

**GENERAL**

Carrier Rocket  
 Cal. — Size 5'10 HVAR  
 Location Base  
 Use HE or GP  
 MIL-STD's  
 Max Values  
 Rotat. (rpm)  
 Setback (g)  
 Velocity (fps)

**KEY FEATURES**

IL-HDBK-137

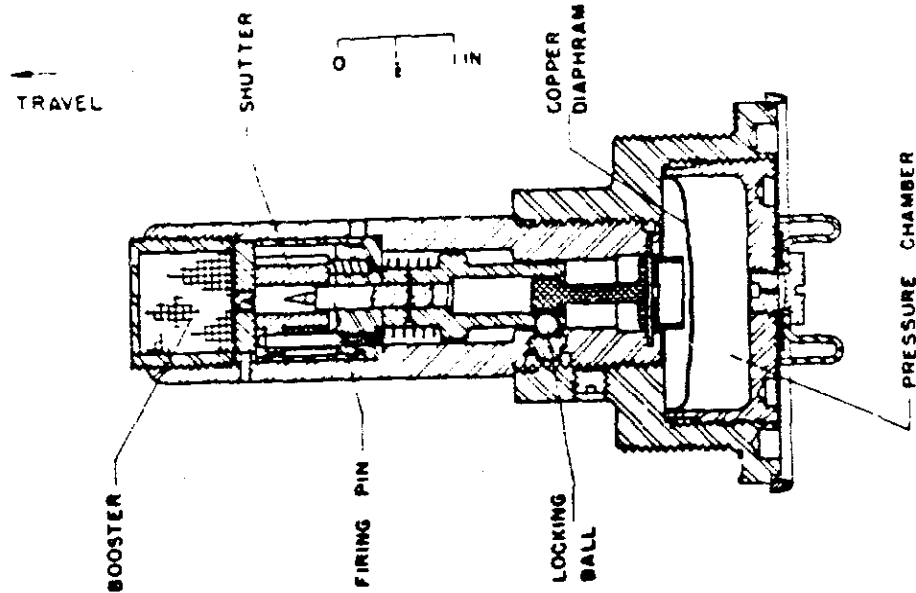
20 FEBRUARY 1970

MK 159 MOD 0, 1, FUZE, ROCKET	
<b>ARMING DATA</b> Method Motor gas pressure Delay 250-670 Rotation (rps) Non-arm Arm Setback (g) Non-arm Arm Arming Wire No External Indicat. No	<b>PHYSICAL DATA</b> Weight 3.4 lb Total Length (in.) 5.812 Body Diam. (in.) Intrusion 0.890 in. Thread Size 2.75-14NS-2
<b>FUNCTIONING DATA</b> Action BD, Delay Type Mechanical Delay 0.015 sec Time Type Time Setting (sec) Target Ground Sensitivity Material Thickness (in.) Max Obliq. (°) Velocity (fps) Carrier	<b>POWER SUPPLY</b>  <b>EXPLOSIVE TRAIN</b> S&A Device Primer MK 106 MOD 0 Detonator MK 31 MOD 0 Booster Tetryl 12 gm Delay Blk. powder
<b>REMARKS</b>	

Volume 2 Series N  
Chapter 5 Item MK 159 MOD 0, 1



MK 157 MOD 0-2, FUZE, ROCKET



**IDENTIFICATION**

Agency NOL, 0431, Young  
 Status Obsolete  
 Ass'y Dwg. No. 438015 (MOD 0)  
 439625 (MOD 1)  
 Parts List 439630 (MOD 2)  
 Specification  
 Previous Number PIR-2

**GENERAL**

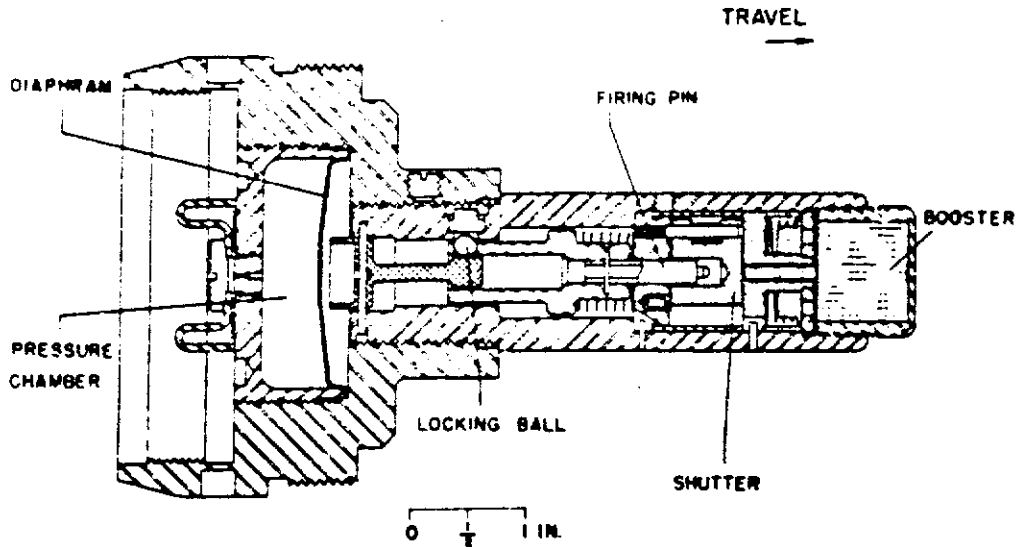
Carriers Rocket  
 Cal. — Size 5 in., 11.75 in. HVAR  
 Location Base  
 Use HE or GP  
 MIL-STD's  
 Max Values  
 Rotat. (rpm)  
 Setback (g)  
 Velocity (fps)

**KEY FEATURES**

20 FEBRUARY 1970

MK 157 MOD 0-2, FUZE, ROCKET	
<b>ARMING DATA</b> Method Motor gas pressure setback Delay 250-670 ft Rotation (rps) Non-arm Arm Setback (g) Non-arm Arm Arming Wire No External Indicat. No Arms 0.1 sec after acceleration ceases	<b>PHYSICAL DATA</b> Weight 3.4 lb Total Length (in.) 6.17 Body Diam. (in.) Intrusion 6.17 in. Thread Size 2.75-14NS-2
<b>FUNCTIONING DATA</b> Action BD, Delay Type Mechanical Delay 0.02 sec Time Type Time Setting (sec) Target Ground Sensitivity Material Mild steel Thickness (in.) 0.5 Max Obliq. (°) Velocity (fps) Carrier	<b>POWER SUPPLY</b>  <b>EXPLOSIVE TRAIN</b> S&A Device Primer MK 106 MOD 0 Detonator MK 31 MOD 0 Booster Tetryl Delay Blk. powder
<b>REMARKS</b> Used in 5 in. AR with 3.5 in. motor and 11.75 in. AR with 11.75 in. motor	

MK 165 MOD 0, FUZE, ROCKET



**IDENTIFICATION**

Agency NOL, 242, Kabik  
 Status Obsolete  
 Ass'y Dwg. No. GA 561458  
 Parts List  
 Specification  
 Previous Number PIR-21

**GENERAL**

Carriers Rocket  
 Cal. — Size 5.0 HVAR  
 Location Base  
 Use HE U. CP  
 MIL-STD's  
 Max Values  
 Rotat. (rps)  
 Setback (g)  
 Velocity (fps)

**KEY FEATURES**

20 FEBRUARY 1970

MK 165 MOD 0, FUZE, ROCKET

<b>ARMING DATA</b> Method            Gas pressure Delay            250-570 ft Rotation (rps) Non-arm        Arm Setback (g) Non-arm        Arm Arming Wire      No External Indicat. No		<b>PHYSICAL DATA</b> Weight            5.7 lb Total Length (in.) 6.97 Body Diam. (in.) Intrusion        6.97 Thread Size      3.625-12NS-2	
<b>FUNCTIONING DATA</b> Action            BD, Delay Type              Mechanical Delay              0.020 sec Time Type Time Setting (sec) Target            Ground Sensitivity Material Thickness (in.) 0.5 Max Obliq. (°) Velocity (fps) Carrier		<b>POWER SUPPLY</b>  <b>EXPLOSIVE TRAIN</b> S&A Device Primer Detonator Booster            Tetryl 12 gm Detonator was adapted from delay detonator assembly of Fuze MK 145 (0.020 sec delay)	
<b>REMARKS</b>  An Improved version of Fuze MK 157			

## **9.0 Evaluation of Other Site Information**

The archive search did not reveal any additional areas of potential environmental concern associated with DoD use.

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS  
FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

APPENDICES

- A. REFERENCES
- B. GLOSSARY AND ACRONYMS
- C. TEXT / MANUALS
- D. REPORTS / STUDIES
- E. LETTERS / MEMORANDA / MISCELLANEOUS ITEMS
- F. REAL ESTATE DOCUMENTS
- G. NEWSPAPER / JOURNALS (NOT USED)
- H. INTERVIEWS
- I. PRESENT SITE PHOTOGRAPHS
- J. HISTORICAL PHOTOGRAPHS (NOT USED)
- K. HISTORICAL MAPS / DRAWINGS
- L. SITE SAFETY AND HEALTH PLAN / SITE INSPECTION REPORT
- M. REPORT DISTRIBUTION LIST

**APPENDIX A**

**REFERENCES**

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
**ARCHIVE SEARCH REPORT**  
**FINDINGS**

FOR  
**EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)**  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

APPENDIX A

REFERENCES

**INVENTORY PROJECT REPORT (INPR)**

**Vanantwerp, R.L., COL**

1993 Letter to Commander, South Pacific Division, subject: DERP-FUDS Inventory Project Report's (INPR's) for Site Nos. J09CA017200, J09CA015300, J09CA016800, J09CA014500, J09CA014700, J09CA015600, J09CA017000, J09CA017300 and J09CA016700, dated 22 September 1993; Site Survey Summary Sheet, dated 16 September 1993; Findings of Fact, dated 5 January 1995; Project Summary Sheet, n.d.; RAC Form, dated 1 February 1995; DD Form 1391.

**REFERENCES**

**Bagley, D. W. and R. R. Smith.**

1943 Correspondence to Commanding Officer, Marine Corps Air Station, El Centro, CA, dated 27 April, regarding the Danger Area for a gunnery range at El Centro. Record Group 181; Box 39: N1-N3. National Archives-Pacific Southwest Region, Laguna Niguel, CA.

**Bernhard, A.D.**

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AAF	Army Air Field
AA	Anti-Aircraft
AEC	Army Environmental Center
AGO	Adjutant General's Office
AP	Armor Piercing
APDS	Armor Piercing Discarding Sabot
APERS	Antipersonnel
APT	Armor Piercing with Tracer
ASR	Archives Search Report
Aux	Auxiliary
BAR	Browning Automatic Rifle
BD	Base Detonating
BD/DR	Building Demolition/Debris Removal
BE	Base Ejection
BGR	Bombing and Gunnery Range
BLM	Bureau of Land Management
BRAC	Base Realignment And Closure
BT	Bomb Target
CAA	Civil Aeronautics Administration
CADD	Computer-Aided Design/Drafting
Cal	Caliber
CBDA	Chemical and Biological Defense Agency
CBDCOM	Chemical and Biological Defense Command
CE	Corps of Engineers
CEHND	Corps of Engineers, Huntsville Division
CELMS	Corps of Engineers, St. Louis
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS

FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

APPENDIX B

GLOSSARY AND ACRONYMS

CERFA	Community Environmental Response Facilitation Act
CESPL	Corps of Engineers, Los Angeles District
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
COE	Chief of Engineers
COMP	Composition
CTG	Cartridge
CSM	Chemical Surety Material
CSM	Command Sergeant Major
CWM	Chemical Warfare Material
CWS	Chemical Warfare Service
DA	Department of the Army
DARCOM	Development and Readiness Command
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DERP-FUDS	Defense Environmental Restoration Program-Formerly Used Defense Sites
DoD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
EE/CA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EOD	Explosives Ordnance Disposal
EPA	Environmental Protection Agency
ERDA	Environmental Restoration Defense Account
FDE	Findings and Determination of Eligibility
FFMC	Federal Farm Mortgage Corporation
FLCH	Flechette
FS	Feasibility Study
FWS	(U.S.) Fish and Wildlife Service

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS

FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

APPENDIX B

GLOSSARY AND ACRONYMS

FUDS	Formerly Used Defense Sites
GIS	Graphic Information System
GSA	General Services Administration
HE	High Explosive
HEAT	High Explosive Anti-Tank
HEI	High Explosive Incendiary
HEP	Plastic
HE-S	Illuminating
HTRW	Hazardous Toxic and Radioactive Waste
HTW	Hazardous and Toxic Waste
IAS	Initial Assessment Study
INPR	Inventory Project Report
IRP	Installation Restoration Program
MCX	Mandatory Center of Expertise
MG	Machine Gun
MG	Major General
mm	Millimeter
MT	Mechanical Time
MTSQ	Mechanical Time Super Quick
NAF	Naval Air Facility
NARA	National Archives and Records Administration
NAS	Naval Air Station
NCDC	National Climatic Data Center
NCP	National Contingency Plan
NFS	National Forest Service
NG	National Guard
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NOFA	No Further Action

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS  
FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

APPENDIX B

GLOSSARY AND ACRONYMS

NPRC	National Personnel Records Center
NRC	National Records Center
OEW	Ordnance and Explosive Waste
OSHA	Occupational Safety and Health Act
PA	Preliminary Assessment
PD	Point Detonating
PIBD	Point Initiating, Base Detonating
PL	Public Law
QASAS	Quality Assurance Specialist Ammunition Surveillance
RA	Removal Action
RAC	Risk Assessment Code
RD	Remedial Design
RG	Record Group
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SAIC	Science Application International Corporation
SARA	Superfund Amendments and Reauthorization Act
SCAR	Sub-Caliber Aircraft Rocket
SCS	Soil Conservation Service
SLD	St. Louis District, Corps of Engineers
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SWMU	Solid Waste Management Units
TECOM	Test Evaluation Command
TEU	Technical Escort Unit
TNT	Trinitrotoluene
TP	Target Practice
USA	United States of America
USACE	U.S. Army Corps of Engineers

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS

FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

APPENDIX B

GLOSSARY AND ACRONYMS

USADACS	U.S. Army Defense Ammunition Center and School
USAED	U.S. Army Engineer District
USAESCH	U.S. Army Engineering and Support Center, Huntsville, AL
USATHMA	U.S. Army, Corps of Engineers, Toxic and Hazardous Materials Agency
USC	United States Code
USDA	U.S. Department of Army
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
WAA	War Assets Administration
WD	War Department
WNRC	Washington National Records Center

**APPENDIX C**  
**TEXT / MANUALS**



ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS  
FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

APPENDIX C

TEXT / MANUALS

**Coletta, Paola, E.**

1985 United States Navy and Marine Corps Bases, Domestic. Greenwood  
Press, Westport, CT.

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**UNITED STATES  
NAVY AND  
MARINE CORPS BASES,  
DOMESTIC**

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PAOLO E. COLETTA, *Editor*  
K. Jack Bauer, *Associate Editor*

1965



Greenwood Press  
Westport, Connecticut • London, England

called for an addition to the gasoline storage supply and various other projects that amounted to more than \$2 million, but the cancellation of various other projects reduced costs by \$600,000.

Edenton was placed in caretaker status on 1 July 1946 and inactivated and disestablished on 1 August 1946. On 2 August 1955, however, it was reestablished as a naval auxiliary air station, only to be disestablished on 31 December 1958 and decommissioned on 1 January 1959. With another turn of the wheel of fate, it was redesigned as an outlying field for MCAS Cherry Point, N.C., on 9 January 1959. Within three months, however, it was disestablished again on 31 March 1959. Given the cost of modernization, about \$48 million, it was decided to close the facility; with the laying off of 1,294 military and 138 civilians, this would account for an annual saving of \$810,000. The 3,283 acres of land on which it sat were declared surplus with the right of recapture.

#### BIBLIOGRAPHY

- A. U.S. Navy, Bureau of Yards and Docks, *Building the Navy's Bases in World War II*, 2 vols. (Washington: GPO, 1947); "Edenton, N.C., MCAS/NAS," in *Naval Air Stations*, 3 vols. (Washington, D.C., Navy Yard: Naval Aviation History Office, n.d.); "Unit History of U.S. Marine Corps Air Station, Edenton, N.C." (Washington: Naval Historical Center, Operational Archives Branch).
- B. "Four Stations Will Close," *Naval Aviation News*, Mar. 1958, p. 34.  
Nancy Lindstrom-TAPEE2-445-457

#### EL CENTRO, CALIF., MARINE CORPS AIR STATION, 1943-1945, AND NAVAL AIR FACILITY, 1949-

Shortly after the Japanese attack on Pearl Harbor, the Navy approved the request of the Marine Corps for the establishment of five air stations on the West Coast. Site selection devolved upon Lt. Col. William Fox, USMCR, with directions to find sites in the Imperial Valley of California. One of the sites Fox chose was at El Centro, at the southern end of the valley not far from the Mexican border 125 miles east of San Diego, seven miles west of Imperial and El Centro, Calif., and fifty miles west of Yuma, Ariz. It was an excellent choice because the floor of the valley, at a mean elevation of minus fifty-two feet, is flat, sandy, and extends for many miles. Although summer temperatures reach 105° F, the air is dry, and winter weather runs between 75° F and 90° F. With an average wind speed of only ten mph, flying is possible 92 percent of the time. El Centro was thus ideal for all types of precombat training, for the solution of tactical problems, and for gunnery practice.

On a property acquired by the Navy (943 acres leased and 949 purchased, later expanded to 2,300 acres), the Civil Aeronautics Administration had already constructed two 4,500-by-150-foot runways. Additional construction began on 15 May 1942, and limited operations were possible only seven months later. Construction and improvement costs reached about \$11.5 million. Beyond the station area were skeet and rifle ranges, malfunction and turret ranges for gunnery practice, a rabbit range, a rocket range, and a rocket ground school. The first

air unit to report aboard, on 1 January 1943, was Marine Air Base Defense Aircraft Group 43, soon redesignated Marine Air Group (MAG 43) and still at the base at the end of the war. Commissioning occurred on 23 July 1943, Lt. Col. Thomas J. McQuade commanding.

Many were the trained squadrons that left El Centro for forward operating areas in the Pacific, and as the desirability of the base for training purposes became increasingly evident, the construction of a second area was authorized. Work began on 10 April 1944 and was completed for occupancy in December, with MAG-35 and a transport training group the first groups to come on board. The initial allotment for construction under a cost-plus-fixed-fee contract was \$6,014,671. The final expenditure for the first area was \$8.5 million; for the second area, \$3 million. To the end of 1944, sixteen squadrons of fighter, bomber, and transport aircraft pilots and aircrewmembers were trained at El Centro.

Soon after the end of World War II, El Centro was greatly reduced and on 1 May 1946 was commissioned as a naval auxiliary air station. On 15 October 1946 its status was that of modified maintenance. On 6 January 1947 the Bureau of Aeronautics established there a storage pool for TD2 *Devastator* torpedo aircraft and on 20 March authorized Western Air Lines to operate two flights daily. Its condition when inspected by the staff of the Commandant of the Eleventh Naval District had been found to be "good to very good." Inspected again on 3 June 1947, the report read "very good." In November 1947 the Parachute Experimental Division from NAS Lakehurst, N.J. (q.v.), moved to El Centro. On 9 June the Joint Parachute Test Facility was established; it consisted of the Naval Parachute Unit and the 6511 Parachute Development Test Group. Also, from 1947 to 1964, the Air Force cooperated as part of El Centro's test organization. The Naval Aerospace Recovery Facility commissioned in 1964 was combined with the Naval Auxiliary Air Facility on 1 July 1973 to form the National Parachute Test Range. When the last was transferred to the Naval Weapons Center, Inyokern/China Lake (q.v.), on 1 July 1979, El Centro again became a naval air facility.

Soon after the end of World War II, El Centro was used to provide support to various fleet squadrons. In 1949 there was established the Fleet Gunnery Unit, which for ten years provided support for squadrons that came to conduct gunnery, bombing, and carrier landing practice. In addition, a permanent detachment from Attack Squadron 174 beginning in 1979 provided maintenance support for East Coast A-7 pilots who fly out to use the range area. The expanded Desert Test Range is a modern inert target complex that utilizes remote TV and acoustical and laser scoring systems. The current mission of NAF El Centro is to support operational fleet units that come for bombing and gunnery practice or to use the simulated carrier deck landing area. In use are four runways, the longest of which is equipped with a permanent mirror landing system at each approach end. El Centro is the winter home for training for the Blue Angels Demonstration Team.

At the nearby town of El Centro is a general hospital, eleven public and

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parochial elementary schools, two junior high schools, one high school, and two schools for higher education: Imperial Valley (two-year) Community College, and the San Diego State College extension at Imperial Valley Center, Calexico. There are two man-made lakes nearby, and mountain areas and the former site of a naval seaplane base at Salton Sea, Westmorland, Calif. (q.v.) are but an hour's drive away. The usual range of station facilities is available, with quarters for 29 officers and 141 men, and off-base housing located in three suburban areas located within two miles of El Centro. Word about station affairs is passed in part through *The Sand Paper*. In addition to Attack Squadron 174, a second tenant command is U.S. Air Force Space and Missile System Organization (or SAMSO), which works with NAVSTAR, a naval satellite navigation system useful to all branches of the armed forces.

#### BIBLIOGRAPHY

- A. "History of Marine Corps Air Station, El Centro, Calif., December 18, 1945" (Washington: Naval Historical Center, Operation Archives Branch); Commandant 11th Naval District, "Command Histories, 3 September 1959" (Washington: Naval Historical Center, Operational Archives Branch).
- B. *Naval Air Facility, El Centro, California* (N.p.; CR Printers, 1979), courtesy Ens. Apprentice, USNR, Public Affairs Officer, NAF, El Centro, 11 Feb. 1983.

#### EL TORO (SANTA ANA), CALIF., MARINE CORPS AIR STATION, 1944-

On 15 September 1944 Col. William J. Fox, USMCR, who during World War II served as a representative with Army and Navy people on a site selection board to choose sites for air stations in southern California, became the aviation assistant to the Commandant of the Marine Corps. In this billet his mission involved the military direction and administrative coordination of Marine Corps aeronautical activities in the Eleventh Naval District. In addition to subordinate units at Marine Corps Air Stations (MCAS) at Santa Barbara (Goleta) (q.v.), Mojave (q.v.), and El Centro (q.v.), he had charge of the Marine Corps Department at Miramar (q.v.); the Headquarters Squadron, Marine Corps Activities, Naval Air Bases, Eleventh Naval District; and Marine auxiliary air stations at Gillespie, Ill.; Chino Field, Ontario; and Ryan Field, Hemet, Calif., and all outlying fields for El Toro.

Since Naval Air Station (LTA) Santa Ana (q.v.) is covered separately, a brief resume of El Toro's beginnings must suffice.

Following the Japanese attack on Pearl Harbor, the United States direly needed aviation training areas. Because of the mountainous terrain and limited air space in Southern California, the Army, Navy, and Marine Corps became involved in numerous conflicts. A particular problem was that the Army, responsible for coast defense, might send up aircraft to intercept naval or Marine aircraft and thus disrupt training schedules, and the Marines were under the pressure of knowing that their squadrons would soon be sent to engage in combat in the South Pacific. In early 1942 Marine aviation had only two wings, the First and

**APPENDIX D**  
**REPORTS / STUDIES**

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS  
FOR  
EL CENTRO ROCKET TARGET RANGE NO. 1 (#92)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014601

APPENDIX D

REPORTS / STUDIES

**INVENTORY PROJECT REPORT (INPR)**

**Vanantwerp, R.L., COL**

1993 Letter to Commander, South Pacific Division, subject: DERP-FUDS Inventory Project Report's (INPR's) for Site Nos. J09CA028800, J09CA017400, J09CA017700 and J09CA014600, dated 22 September 1993; Findings of Fact, dated 5 January 1995; Site Survey Summary Sheet, dated 16 September 1993; Project Summary Sheet, n.d.; RAC Form, dated 1 February 1995; DD Form 1391.



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

REPLY TO  
ATTENTION OF

CEHND-PM-SO (200-1c)

28 March 1995

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

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


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

DIVISION	PROJECT NO.	RAC	SITE NAME
SPD	109CA014701	3	Imperial County, El Centro Rocket Target #2 (#93) (encl)

2. A completed DD1391 cost estimate and RAC score is included with the enclosure. The POC is Mr. Robert Britton at commercial 205-895-1545.

FOR THE DIRECTOR OF PROGRAMS  
AND PROJECT MANAGEMENT

Encl

  
LAWSON S. LEE, P.E.  
Chief, Ordnance and Technical  
Programs

CF:

Commander,

U.S. Army Engineer Division, South Pacific, ATTN: CESP-ED-G, 630 Sansome Street,  
Room 720, San Francisco, CA 94111-2206

U.S. Army Engineer District, Los Angeles, ATTN: CESPL-ED-MI, P.O. Box 2711,  
Los Angeles, CA 90053-2325





1-526  
REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS  
630 Sansome Street, Room 720  
San Francisco, California 94111-2206

CESPD-ED-G (200-1c)

6 JAN '95

MEMORANDUM FOR

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

Commander, U.S. Army Engineer Division, Huntsville,  
P.O. Box 1600, Huntsville, AL 35807-4301

SUBJECT: Defense Environmental Restoration Program For Formerly  
Used Defense Sites (DERP-FUDS), Inventory Project Report (INPR)  
for El Centro Rocket Target No. 2 (#93), Imperial County,  
California, Site No. J09CA014700

1. I am forwarding the INPR for El Centro Rocket Target No. 2 (#93) Project for appropriate action. The site is eligible for DERP-FUDS.
2. I recommend that CEHND determine the need for further investigation and action at this site regarding a potential OEW project. Los Angeles District has computed a RAC 3 on this project, but recommends a RAC 2.

Encl

*for* *DEPitt* *col*  
BRUCE K. SCOTT  
Brigadier General, U.S. Army  
Commanding

CF:  
CESPL-ED-MI (HTRW)



DEPARTMENT OF THE ARMY  
LOS ANGELES DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 2711  
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO  
ATTENTION OF:

CESPL-ED-MI

22 September 1993

MEMORANDUM FOR Commander, South Pacific Division, CESPDP-ED-G  
ATTN: Vince Del Greco

SUBJECT: DERP-FUDS Inventory Project Reports (INPR's) for Site Nos: J09CA017200, J09CA015300, J09CA016800, J09CA014500, J09CA014700, J09CA015600, J09CA017000, J09CA017300, and J09CA016700

1. Enclosed are the INPR's for:

- J09CA017200 HOLTVILLE ROCKET TARGET 1R
- J09CA015300 EL CENTRO BOMBING TARGET SITE
- J09CA016800 WINONA BT #2
- J09CA014500 BOMBING TARGET YUMA RECLAMATION PROJECT
- J09CA014700 EL CENTRO ROCKET TARGET #2
- J09CA015600 EAST BOREGO BT
- J09CA017000 HOLTVILLE TARGET #2
- J09CA017300 KANE SPRINGS SBT
- J09CA016700 WINONA BT #1

We determined that ordnance contamination eligible under DERP-FUDS may exist.

2. I recommend the following:

- a) Findings and Determination of Eligibility be approved and signed.
- b) Forward a copy of this report to Commander, Huntsville Division to determine if further action is appropriate.

9 Encl

  
R. L. VANANTWERP  
COL, EN  
Commanding

**SITE SURVEY SUMMARY SHEET**  
**FOR**  
**DERP-FUDS SITE NO. J09CA014700**  
**EL CENTRO ROCKET TARGET NO.2 (#93)**  
**16 September 1993**

**SITE NAME:** EL CENTRO ROCKET TARGET NO. 2 (#93), also known as El Centro Rocket No. 2 and El Centro Target 93.

**LOCATION:** El Centro Rocket Target #93 is located in Imperial County, California, approximately 5.9 miles west of California Highway 86. The access road is marked by a two-inch iron pipe (I.P.) on the north side of the road at the shoulder, 1.16 miles south of the southeast corner of the site.

**SITE HISTORY:** The available information suggests that the Navy acquired this site (E 1/2 and the N 1/2 of the NW 1/4 of Section 13, Township 14 South, Range 12 East) in approximately 1944. The site was located in property described as "unimproved, undeveloped, rough desert lands," and was presumably used as a rocket, bombing and/or strafing target. El Centro Rocket Target #93 was discontinued by October 1946. Currently, this vacant desert property is owned by the United States of America and administered by the Bureau of Land Management. An active target area borders the site to the west. During the onsite survey, the following evidence of former bombing and strafing was observed: two parachutes with flares, one five-inch shell, multiple blasting caps and fuses, multiple 50-caliber clips, and one 25-pound practice bomb. These ordnance remains were primarily observed along the northern edge of the subject property and on the adjoining property north of the site. None of these items appeared to be recently deposited.

**SITE VISIT:** The site was visited on May 3, 1993, by Hunter Butler and Sandra Rehfeldt of Science Applications International Corporation, San Diego, California.

**CATEGORY OF HAZARDS:** OEW

**PROJECT DESCRIPTION:** OEW. Recommend the MCX for OEW at Huntsville Division make a determination regarding further investigation at this site.

**AVAILABLE STUDIES AND REPORTS:** Historical information on 11th Naval District bomb targets was obtained from the National Archives office in Laguna Niguel, California. Land acquisition and ownership records were obtained from the Bureau of Land Management, El Centro, California, and the Imperial County Assessor's Office, El Centro, California.

**DISTRICT POC:** Jatin Desai, Los Angeles District, (213) 894-6266

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

EL CENTRO ROCKET TARGET NO. 2 (#93)  
IMPERIAL COUNTY, CALIFORNIA  
SITE NO. J09CA014700

FINDINGS OF FACT

1. In December 1944, the Eleventh Naval District requested acquisition of this 400-acre site from the Department of Interior. No further information was available concerning acquisition of El Centro Rocket Target #93.
2. The Navy presumably acquired this undeveloped desert land for use as a rocket, bombing, and/or strafing target site for fleet training.
3. Historical records indicate that Target #93 had been discontinued by October 1946. Reportedly, steps were being initiated at that time to return the property to its prior state. Currently, the target site is owned by the United States of America (administered by the Bureau of Land Management). This desert property has remained unimproved.

DETERMINATION

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

5 Jan 75

Date

DE R H col

BRUCE K. SCOTT

Brigadier General, U.S. Army  
Commanding

**PROJECT SUMMARY SHEET**  
**FOR**  
**DERP-FUDS OEW PROJECT NO. J09CA014701**  
**EL CENTRO ROCKET TARGET NO.2 (#93)**  
**SITE NO. J09CA014700**

**PROJECT DESCRIPTION:** During World War II, this site was used by the Eleventh Naval District as a rocket, bombing and/or strafing target for Fleet Unit training. The site was located in undeveloped desert and it remains the same at present. A U.S. Naval Reservation (target area) currently borders the property to the west. The following ordnance was observed during the site survey: two parachutes with flares; one five-inch shell; multiple blasting caps/fuses; multiple 50-caliber clips and one 25-pound practice bomb. These materials were most concentrated in the northern portions of the site. The practice bomb was observed offsite. However, neither the extent of such materials nor the potential health threat have been determined. Agricultural land is located one to two miles east of the site and a powerline service road transects the northwest and southwest corners of the site. The presence and condition of any ordnance below the surface is not known, but is a likely result of sand shifting in high wind.

**PROJECT ELIGIBILITY:** This site was formerly used by the Eleventh Naval District.

**POLICY CONSIDERATION:** No policy considerations prevent the proposal of this project.

**PROPOSED PROJECT:** Recommend the Corps' Mandatory Center of Expertise (MCX) for OEW at Huntsville Division make a determination concerning further investigation.

**RAC FORM:** Attached.

**DISTRICT POC:** Request CEHND inform Mr. Jatin Desai at (213) 894-6266 when a determination is made regarding project status.

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

Site Name El Centro Rkt. Tgt #2 (#93) Rater's Name R. G. Harris  
 Site Location Imperial Cty, CA Phone No. (305) 895-1590  
 DERP Project # LD9CMA014701 Organization CEHND-PM-50  
 Date Completed 1 Feb 95 RAC Score 3 (II, C)

OEW RISK ASSESSMENT:

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

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

TYPE OF ORDNANCE  
 (Circle all values that apply)

A. Conventional Ordnance and Ammunition	VALUE
Medium/Large Caliber (20 mm and larger)	(10)
Bombs, Explosive	10
Grenades, Hand and Rifle, Explosive	10
Landmines, Explosive	10
Rockets, Guided Missiles, Explosive	10
Detonators, Blasting Caps, Fuzes, Boosters, Bursterns	(6)
Bombs, Practice (w/spotting charges)	(6)
Grenades, Practice (w/spotting charges)	4
Landmines, Practice (w/spotting charges)	4
Small Arms (.22 cal - .50 cal)	(1)
Conventional Ordnance and Ammunition (Select the largest single value)	10

What evidence do you have regarding conventional OEW? As reported in  
TNPR.

B. Pyrotechnics (For munitions not described above.)

VALUE

Munition (Container) Containing  
White Phosphorus (WP) or other  
Pyrophoric Material (i.e.,  
Spontaneously Flammable)

10

Munition Containing A Flame  
or Incendiary Material (i.e., Napalm,  
Triethylaluminum Metal Incendiaries)

6<sup>+</sup>

Flares, Signals, Simulators, Screening  
Smokes (other than WP)

4

Pyrotechnics (Select the largest single value)

4

What evidence do you have regarding pyrotechnics? As reported in INPR.

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? As reported in INPR.

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? As reported in INPR.

E. Chemical Warfare Materiel 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 OEW? As reported in INPR.

TOTAL HAZARD SEVERITY VALUE

14

(Sum of Largest Values for A through E--Maximum of 61)

Apply this value to Table 1 to determine Hazard Severity Category.

TABLE 1

HAZARD SEVERITY\*

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

\* Apply Hazard Severity Category to Table 3.

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



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

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

A. Locations of OEW Hazards

	VALUE
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 OEW? As reported in INPR.

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

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

What are the nearest inhabited structures? As reported in INPR, a powerline road crosses the site.

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

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

Number of Buildings (Select the single largest value)

2

Narrative As reported in INPR.

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)

3

Describe types of buildings in the area. As reported in INPR.

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

BARRIER	VALUE
No barrier or security system	5
Barrier is incomplete (e.g., in disrepair or does not completely surround the site): Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.	4
A barrier, (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security guard, but no barrier	2
Isolated site	1
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the facility; or An artificial or natural barrier (e.g., a fence combined with a cliff), which completely surrounds the facility; and a means to control entry, at all times, through the gates or other entrances to the facility (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the facility).	0
Accessibility <u>(Select the single largest value)</u>	<u>5</u>
Describe the site accessibility. <u>As reported in INPR.</u>	

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

	VALUE
Expected	5
None Anticipated	0
Site Dynamics <u>(Select largest value)</u>	<u>0</u>
Describe the site dynamics. <u>As reported in INPR.</u>	

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.

20

TABLE 2

HAZARD PROBABILITY

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

\* Apply Hazard Probability Level to Table 3.

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

TABLE 3

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

RISK ASSESSMENT CODE (RAC)

- RAC 1 Expedite INPR, recommending further action by CEHND - Immediately call CEHND-ED-SY--commercial 205-955-4968 or DSN 645-4968.
- RAC 2 High priority on completion of INPR - Recommend further action by CEHND.
- RAC 3 Complete INPR - Recommend further action by CEHND.
- RAC 4 Complete INPR - Recommend further action by CEHND.
- RAC 5 Usually indicates that no further action (NOFA) is necessary. Submit NOFA and RAC to CEHND.

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

*OEW was seen on the site during the site visit. OEW was also seen just north of the site and off-site.*

**APPENDIX E**

**LETTERS / MEMORANDA / MISCELLANEOUS ITEMS**

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS  
FOR  
EL CENTRO ROCKET TARGET RANGE NO. 1 (#92)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014601

APPENDIX E

LETTERS / MEMORANDA / MISCELLANEOUS ITEMS

**Bernhard, A.D.**

- 1945 Numbering of Land and Water Targets, dated 23 April 1945.  
Engineering Division Installation Support Section. U.S. Army Corps  
of Engineers, L.A. District.

**Commandant, Eleventh Naval District.**

- 1947b Correspondence to the Chief of Bureau of Yards and Docks, dated  
24 July, regarding Free Gunnery Range Facilities near El Centro, CA.  
Record Group 181; Entry: Commandant's Office, General  
Correspondence; Box 425. National Archives-Pacific Southwest  
Region, Laguna Niguel, CA.

**Headquarters, Naval Air Bases.**

- n.d. Speedletter; File NAB11/S78-2, regarding Ordnance Inventories at  
11th Naval District's Air Bases. Record Group 74; Entry 4444; Box  
287; File ND8-ND11, 1946. National Archives-Suitland Branch,  
Suitland, MD.
- 1946b Correspondence to Chief, Bureau of Ordnance, dated 12 August,  
regarding a Request for Disposition of Small Arms Ammunition for  
Caliber .30 Aircraft Machine Gun. Record Group 74; Entry 4444; Box  
287; ND8-ND11, 1946. National Archives-Suitland Branch, Suitland,  
MD.

**Headquarters, U.S. Marine Corps Air Station, El Centro, CA.**

- 1945b "History of Marine Corps Air Station, El Centro, California," dated  
18 December. Naval Historical Center and Archives, Washington  
Naval Yard, Washington, D.C.

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS

FOR  
**EL CENTRO ROCKET TARGET RANGE NO. 1 (#92)**  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014601

APPENDIX E

LETTERS / MEMORANDA / MISCELLANEOUS ITEMS

**U.S. Naval Auxiliary Air Station, El Centro, CA.**

1950 "Historical Report of U.S. Naval Auxiliary Air Station, El Centro, CA for the period of 1 July to 31 December 1949." Naval Historical Center and Archives, Washington Navy Yard, Washington, D.C.

**U.S. Naval Air Facility, El Centro, CA.**

n.d. Brief Introduction to NAF, El Centro and Imperial County. Environmental Office, NAF El Centro, CA.

**U.S. Naval Air Station, El Centro, CA.**

1949 "Historical Report of U.S. Naval Air Station, El Centro, CA for the period of 1 August 1946 to 30 June 1949." Naval Historical Center and Archives, Washington Navy Yard, Washington, D.C.

**U.S. Pacific Fleet.**

1946 "COMFAIR West Coast Service and Training Munition Requirements," dated 26 January. Record Group 74; Entry 4444; Box 287; File: ND8-ND11, 1946. National Archives-Suitland Branch, Suitland, MD.



**Bernhard, A.D.**

Numbering of Land and Water Targets,  
dated 23 April 1945.  
Engineering Division Installation Support Section.  
U.S. Army Corps of Engineers, L.A. District.

NABLE/OT  
(950126)(mc)

23 April 1945

Subject: Land and Water Targets - Numbering of.

7. Rocket Targets regardless of location will bear numbers from 90 on.

<u>Present Name of Target</u>	<u>New Number</u>
Winona #1	90
Winona #2	91
El Centro #1	92
El Centro #2	93
Holtville 1R	94
Holtville 2R	95
King #1	96
King #2	97
29 Palms #1	98
29 Palms #2	99
29 Palms #3	100
Mojave 1	101
Trabuco Rocket	102

Numbers from 103 on available for assignment to new rocket targets.

*A. D. Bernhardt*

A. D. BERNHARD  
Commander, Naval Air Bases,  
Eleventh Naval District.

- Copies to:
- ComEleven (30)
  - ComFairWestCoast (150)
  - Deputy Comdr., NAB-11th N.D. (10)
  - MarFairWestCoast (100)
  - Naval Air Control Center (250)

*HQ, Naval Air Bases*

*1945.*

*Already in App. A.*

**Headquarters, Naval Air Bases.**

Speedletter; File NAB11/S78-2,  
regarding Ordnance Inventories at 11th Naval District's Air Bases.  
Record Group 74; Entry 4444; Box 287; File ND8-ND11, 1946.  
National Archives-Suitland Branch, Suitland, MD.

ND8-ND11, 1946 287

DECLASSIFIED PER EXECUTIVE ORDER 12356, SECTION 3.3, NND PROJECT  
NUMBER NND 917566, BY J3/CWC, DATE 12/14/95

FILE OR SERIAL NO. NAB11/S78-2  
Serial 02-90 JEH:st  
DATE

**SPEEDLETTER**  
TO:

Page 3 of 3 Pages

Use in lieu of despatches, telegrams, teletypes, and mailgrams when appropriate.  
Do not handle through Communication Offices.  
Despatch phraseology may be used.  
Use size No. 9 window envelopes when appropriate and available.  
If used for classified matter handle as prescribed in U. S. Navy Regs., Arts. 75 1/2 and 76.  
Upon receipt **EXPEDITE HANDLING and DELIVERY** as much as possible.

NAAS REAM FIELD (Cont'd)

M16A1 8-15 Sec. delay  
Auxiliary Booster MK 4

10  
79

NAS SANTA ANA

7.2 Rocket head MK 5 (Torplex load) - 125,000 lbs. 2  
2 1/2 Rocket motor MK 3 Mod 2 (inert) - 17,000 cu. ft. avail. 2000 lbs. 20  
7.2 Rocket Head MK 4 Mod 1  
Fuze ANM 100A2 } 900 cu. ft. as of 1 Jan. '46  
Fuze MK 140 }

600  
620  
32  
100  
600

MCAS EL CENTRO

Bomb S.A.P. 1000# ANM-59 76,000 cu. ft. avail. as of 1 Jan. '46  
Bomb waterfillable 1000# MK 7 } 6500 cu. ft. avail. as of 1 Jan. '46  
Bomb waterfillable 500# MK 21 }  
FB Smoke Mixture 800# drums } 2150 cu. ft. avail. as of 1 Jan. '46

2  
282  
28  
148

MCAS EL TORO

FB Smoke Mixture 800# drums Space for 213 drums as of 1 Jan. '46

100

By direction.

Encl. 1. Copy of Ref(a)

- NAAS Brown Field
- NAAS Camp Kearney
- NAAS Ream Field
- NAS Santa Ana
- MCAS El Centro
- Com11
- MCAS El Toro
- ComFair WC (Grd Dept)

Title and Signature  
*H. T. WRAY*  
H. T. WRAY, Comdr., USN(ret)  
Ordnance Officer

SENDER'S MAILING ADDRESS (including symbol or flight number of originating office.)

HEADQUARTERS RECEIVED  
COMMANDER, NAVAL AIR Bases  
ELEVENTH NAVAL DISTRICT  
SAN DIEGO 35, CALIFORNIA

ATTENTION ADDRESS: Address reply exactly as indicated on right.

HQ, Naval Air Bases

n.d.

0306461

**Commandant, 11th Naval District.**

Correspondence to the Chief of Bureau of Yards and Docks,  
dated 24 July 1947,  
regarding Free Gunnery Range Facilities near El Centro, CA.  
Record Group 181; Entry: Commandant's Office,  
General Correspondence; Box 425.  
National Archives-Pacific Southwest Region, Laguna Niguel, CA.

Na (El Centro)

H 1-1/(El Centro)  
ND11-RGH/Sk  
Serial 27541/44E

24 JUL 1947

FIRST ENDORSEMENT on  
ComdrNAS, LIND ltr NAB11/  
El Centro/H19/L11-3 MCF:rb  
Serial 298-80 of 15 May 1947.

From: Commandant, Eleventh Naval District.  
To: Chief, Bureau of Yards and Docks.  
Subject: Free Gunnery Range Facilities Located Near  
Naval Air Station, El Centro, California -  
Request for Disposal Instructions.

Enclosure: (E) Location and Plot Plan for Free Gunnery  
Range, El Centro, California.  
(F) Parcel Descriptions keyed to Encl. (E).

1. Forwarded. It is recommended that the semi-  
permanent installations and facilities as outlined in the  
basic letter be retained.

2. It is further recommended that all surplus  
buildings be placed at public sale. It is considered that  
although the location is isolated there is a demand for  
these buildings in the general area. The information re-  
quired by FMR #2 will be furnished at an early date cover-  
ing the surplus installations.

3. Enclosure (E) is a print outlining the area  
to be retained. Enclosure (F) is a list of private interests  
in this retained area, by parcel, as keyed to enclosure (E).

Q. C. BADGER

Copy to:  
BUSAER  
CO, NAS, El Centro  
Com Fleet Air WesCo  
ComdrNAS

NAT'l Archives Pacific SW  
Box 425 Rg 181  
El Centro - El Centro  
Commandant's office

Copy for Commandant's Office

**Headquarters, Naval Air Bases.**

Correspondence to Chief, Bureau of Ordnance,  
dated 12 August 1946,  
regarding a Request for Disposition of Small Arms Ammunition  
for Caliber .30 Aircraft Machine Gun.  
Record Group 74; Entry 4444; Box 287; ND8-ND11, 1946.  
National Archives-Suitland Branch, Suitland, MD.

K9 M. Envy 7/11/46  
ND 8-ND 11, 1946

DECLASSIFIED PER EXECUTIVE ORDER 12356, SECTION 3.3, NND PROJECT  
NUMBER NND 917566, BY J3/CWC, DATE 12/14/95

In reply address  
COMMANDER,  
NAVAL AIR BASES  
11th Naval District  
San Diego 35, Calif  
and refer to

HEADQUARTERS  
COMMANDER, NAVAL AIR BASES  
ELEVENTH NAVAL DISTRICT

NAB II: L11-3/F41-11 JEH:st  
Serial 54-90

ND 11  
Mr 2  
jm

AUG 12 1946

To: Chief of the Bureau of Ordnance  
Subj: Disposition of Small Arms Ammunition for Caliber .30  
Aircraft Machine Gun - Request for.  
Ref: (a) BuOrd ltr (Mn2b) S78-1(17) dtd 1Aug46  
(b) BuOrd ltr F41-1(Mn6b) dtd 26Jul46

082046 0060

1. In compliance with references (a) and (b), disposition  
is requested for the following .30 Caliber aircraft machine  
gun ammunition which is surplus to the requirements of  
activities within Naval Air Bases.

NAVAL AIR STATION, SAN DIEGO

- .30 Caliber Ball M2
- .30 Caliber Incendiary M1
- .30 Caliber A.P. M2
- .30 Caliber Blank
- .30 Caliber Dummy
- .30 Caliber Link M1

BOSO 517757  
to Fall Brook

136,550  
48,000  
38,500  
2,815  
79,678  
540,000

NAVAL AIR STATION, EL CENTRO

- .30 Caliber Tracer M1
- .30 Caliber Incendiary M1
- .30 Caliber A.P. M2
- .30 Caliber Links M1

BOSO 517758  
to Fall Brook

130,235  
375,000  
125,000  
40,000

NAVY CORPS AIR STATION, EL TORO

- .30 Caliber Ball M2
- .30 Caliber Incendiary M1
- .30 Caliber Links M1

BOSO 517759  
to Fall Brook

103,120  
24,000  
14,000

HQ, Naval Air Bases

1946b



**Headquarters, U.S. Marine Corps Air Station, El Centro, CA.**

"History of Marine Corps Air Station, El Centro, California,"  
dated 18 December 1945.

Naval Historical Center and Archives, Washington Naval Yard, Washington, D.C.

Washington Naval Yard  
Historical Center and Archives  
Washington, D.C.

DC - 70432

DEC 18 1945

2185-65

AA-1127-rmq

2d Endorsement

HEADQUARTERS, U. S. MARINE CORPS, WASHINGTON, D. C.

From: Commandant of the Marine Corps.  
 To: Chief of Naval Operations, Aviation History Unit, OP-519.

Subject: Station History, submission of.

Reference: (a) CNO ltr. Ser 118433, dtd 14Mar45.

Enclosure: (A) History of Marine Corps Air Station, El Centro, California.

1. Forwarded.

*P. K. Smith*

P. K. Smith  
By Direction

*This history is evidently a duplicate  
 HQ, USMCAS, El Centro  
 1945 by a different  
 officer.*

*for Nacorak*

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FILMED

IN REPLY REFER TO NO.

Serial 625-44

HEADQUARTERS  
U. S. MARINE CORPS AIR STATION  
EL CENTRO, CALIFORNIA

Reg. 10170  
C. J. Hall



**DECLASSIFIED**

28 December 1944.

From: Commanding Officer.  
To: Chief of Naval Operations.  
Via: (1) Bureau of Aeronautics.  
(2) Commandant of the Marine Corps.  
(3) Commandant of the Eleventh Naval District.  
(4) Commander, Naval Air Bases, Eleventh Naval District.

Subject: Historical Report, submission of.

References: (a) Avia Circ Ltr #74-44, Op-33-J-6-JEJ, serial 356333,  
dtd 25 Jul 44.  
(b) Manual for Historical Officers, NavAer 00-25Q-26.

Enclosure: (A) Report of Historical Officer, MCAS, El Centro, Calif.

1. In accordance with references (a) and (b), subject report is hereby submitted.

*H. C. Brewster*  
H. C. BREWSTER

End-1

8Jan45

NAB11/A9

SCB:dln

HQS. DEP. COMDR., (MARCOR ACT.), NAB, 11ND, USMCAS, EL TORO, CALIF.

To: Chief of Naval Operations.  
Via: (1) Commandant, Eleventh Naval District.  
(2) Commandant of the Marine Corps.  
(3) Bureau of Aeronautics.

1. Forwarded.

*Wm. J. FCA*  
Wm. J. FCA  
Deputy Commander, NAB, 11ND  
(Marine Corps Activities)

157116

**FILED**

HISTORY OF MARINE CORPS AIR STATION,

EL CENTRO, CALIFORNIA

**DECLASSIFIED**

CHRONOLOGY:

**DECLASSIFIED**

The formal commissioning of Marine Corps Air Station, El Centro, took place on 23 July 1943, fourteen months after the initial construction began. The ceremony was performed by Rear Admiral Ernest L. Gunther, who was at that time Commander of the Naval Air Station, San Diego. Dedication was attended by the officers and enlisted men with the guard detachment forming the Guard of Honor.

At the time of commissioning the base was under the command of Lt. Col. Thomas J. McQuade, of Baltimore, Md., who had come aboard on 14 July 1942. Lt. Col. Karl E. Voelter, of Miami, Fla., arrived on 22 February 1943 and acted as Executive Officer until he assumed command of the base upon the detachment of Lt. Col. McQuade on 10 December 1943. Lt. Col. Hugh C. Brewster, of Burbank, Calif., succeeded Lt. Col. Voelter, assuming command on 21 November 1944. He is commanding officer at the present time.

NARRATIVE:

The plans for Marine Corps Air Station, El Centro, were laid to meet the need for an air base where the best of flying conditions would prevail and where facilities would be available for all types of pre-combat training. The heart of the Imperial

**DECLASSIFIED****DECLASSIFIED**

Valley made an excellent site for such a base, for aerological evidence indicates that from September to September fine flying weather prevails 92% of the time. The floor of the valley itself, mean elevation -43', flat, sandy, and extending for many miles, is ideal for tactical problems and gunnery practice.

The initial plans which called for a base organization operating under cognizance of the 11th Naval District have been modified to place Marine Corps Air Station, El Centro, directly under the Deputy Commander, Naval Air Bases, 11th Naval District, Marine Corps Air Station, El Toro, California.

On the property acquired by the Navy (943 acres leased and 749 purchased) the Civil Aeronautics Authority had already completed two 4500'x150' runways. Plans drawn up by the 11th Naval District for the station itself were modified by the Bureau of Aeronautics before final authority was given which started the actual construction on 15 May 1942. In less than seven months the base was sufficiently completed to allow active flight operations. The construction and improvements have totaled approximately eleven and one-half million dollars. Since the original plans were laid additional facilities have been completed including skeet and rifle ranges, malfunction and turret ranges for gunnery students. A rabbit range is under construction, and Marine Fleet Air, West Coast, has established a rocket range and rocket ground school. All of these are, of course, maintained beyond the station area.\*

\* Appendix 1.

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Although an advance echelon had been sent to El Centro to prepare for the arrival of a training group upon the base, it wasn't until 1 January 1943 that Marine Base Defense Aircraft Group 43 was officially established and ordered to this base. This group was redesignated Marine Air Group\* and is still located at El Centro. Many squadrons, their training completed, have been shipped from here to combat areas.\*\*

As the desirability of the base for training purposes became increasingly evident, the construction of a second area was authorized. Work began on 10 April 1944 and was completed for occupancy about 1 December 1944. Marine Air Group 35, a transport training group, was ordered to occupy the area on 28 October 1944.\*\*\*

The success of the training programs using the facilities of this base have adequately demonstrated that the site was wisely chosen, that the time, planning, and expenditures which have gone into its building have been more than justified, and that Marine Corps Air Station, El Centro, has richly contributed to the advancement of the war effort.

\* Group 43 General Order #17, dated 10 November 1944.

\*\* Appendix 2.

\*\*\* MarFairWest Letter T16-3 (2)/CIM/lah, dated 20 October 1944.  
(12068)

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APPENDICES:

DELETED

## 1. Costs of Construction:\*

Initial allotment	<u>\$ 6,014,671.00</u>
Final expenditure in first area	\$ 8,500,000.00
Final expenditure in second area	<u>3,000,000.00</u>
	\$11,500,000.00

All contracts issued on a cost-plus-a-fixed-fee basis.

## 2. The following squadrons have been components of Group 43:

- VMSB-235 - Formally commissioned 8 March 1943. ✓  
Detached 25 March 1944. ✓
- VMF-216 - Formally commissioned 15 September 1943. ✓  
Detached 16 September 1943. ✓
- VMF-217 - Activated under this Group 1 July 1943. ✓  
Detached 20 December 1943. ✓
- ✓ VMF-122 - Joined the Group 20 August 1943. ✓  
Detached 9 July 1944. ✓
- ✓ VMO-155 - Transferred from MAG 15 to this Group on  
23 June 1943. ✓  
Detached 7 February 1944. ✓
- ✓ VMTB-242 - Activated in the Group on 1 July 1943. ✓  
Detached 23 January 1944. ✓
- ✓ VMF-313 - Assigned to temporary duty with the group on  
12 January 1944. ✓  
Detached 17 March 1944. ✓

\* Official Completion Report submitted by Kistner, Curtis, and Wright, holders of Architects and Engineers contract.

CONFIDENTIAL

- VMF-323 - Joined by assignment 6 January 1944. ✓  
Detached 18 February 1944. ✓
- VMB-433 - Joined from Third Wing, Cherry Point, N.C., on  
or about 20 January 1944. ✓  
Detached 30 April 1944 to MarAircraftSoPac. ✓
- VMB-443 - Joined from Third Wing, Cherry Point, N.C., on  
or about 15 February 1944. ✓  
Detached 4 May 1944 to MarAircraftSoPac. ✓
- ✓ VMF(N)-  
543 - Joined on or about 30 September 1944 from Ninth  
Wing, Cherry Point, N.C.  
Still attached.
- VMF-461 - Activated 15 March 1944 in the Group. ✓  
Still attached.
- ✓ VMF-462 - Activated with the Group 15 April 1944. ✓  
Transferred to Group 46 10 October 1944. ✓
- ✓ VMF-471 - Activated with the Group 15 May 1944. ✓  
Transferred to Group 46 10 October 1944. ✓
- ✓ VMF-472 - Activated with the Group 1 June 1944. ✓  
Decommissioned 10 October 1944. ✓
- ✓ VMF(N)-  
544 - Air echelon 2 November 1944. ✓  
Ground echelon 7 November 1944.  
Still attached.



**U.S. Naval Auxiliary Air Station, El Centro, CA.**

"Historical Report of U.S. Naval Auxiliary Air Station, El Centro, CA  
for the period of 1 July to 31 December 1949."

Naval Historical Center and Archives, Washington Navy Yard, Washington, D.C.

WASHINGTON Naval Yard  
Historical Center/Archives  
WASHINGTON, D.C.

U. S. NAVAL AUXILIARY AIR STATION  
EL CENTRO, CALIFORNIA

1459-325  
A12/DWB:elw  
Serial 703 -11  
APR 14 1950

DECLASSIFIED

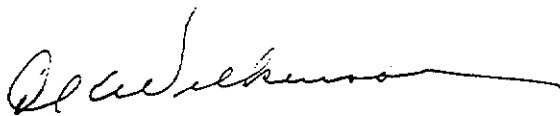
From: Commanding Officer, U. S. Naval Auxiliary Air  
Station, El Centro, California  
To: Chief of Naval Operations (Aviation History Unit)  
Via: Commander, Naval Air Bases ELEVENTH and TWELFTH  
Naval Districts.

Subj: Historical Report (OpRep 50-1)

Ref: (a) ACL 18-49 dated 18 Feb 1949.

Encl: (1) Historical Report of USNAAS for the period  
1 July to 31 December 1949.

1. Enclosure (1) is submitted herewith in accordance with  
reference (a).

  
C. K. WILKINSON

USNAAS, El Centro, CA

1950

U.S. NAVAL AUXILIARY AIR STATION  
EL CENTRO, CALIFORNIA

DEC 1949

PART I. - Chronology of the U.S. Naval  
Auxiliary Air Station El Centro, California for  
the period 1 July 1949 to 31 December 1949.

- 1 July - 25 October The station was commanded by Commander William I. DARNELL, USN. On October 25, 1949, Commander Claude K. WILKINSON, USN, assumed command relieving Commander Darnell.
- 1 July 1949 Completed Project #803-48, providing additional fire protection in the defense housing area, at a cost of \$4,470.00.
- 1 August 1949 Completed Project #34973-49, the rehabilitation of the old Marine Gunnery Range, five (5) miles NW of the station for the use of NATTU, at a cost of \$11,700.00. The Unit previous to the completion of these quarters, had been based on the station. It then moved to permanent quarters at the range.
- 22 August 1949 Commander Air Force, Pacific Fleet established the Fleet Weapons Training Unit, consisting of one officer and twelve enlisted men. The assigned mission of the Unit is to assist the squadrons temporarily base on board.
- 29 August 1949 Project #34742-50, the installation of a steam line between buildings #119 and #402, was commenced.
- 27 September 1949 Contract NOy 19610 was approved by BuAer in the amount of \$150,000.00 for the repair to aircraft operating areas and roads.
- 30 September 1949 Completed project #34847-49, the air-conditioning of the Textile Testing Laboratory in building #212 for the Parachute Experimental Unit, at a cost of \$4,400.00.
- 25 October 1949 The Change of command in compliance with BuPers orders Pers-3161A-MLJ-1 No. 23801 of 16 June 1949.
- 28 October 1949 Commenced work on contract NOy 19315, the obstruction lighting of a night field carrier landing pattern for runway 12.
- 21 November 1949 Commenced project #34774-50, the alteration of building #113 preliminary to the installation of a wind tunnel for the Parachute Experimental Unit.

DEC

U.S. NAVAL AUXILIARY AIR STATION  
EL CENTRO, CALIFORNIA

ED

5 December 1949

The Board of Supervisors, Imperial County, ordered the closing of the so called Niland-Elythe road through the Chocolate mountains from 0600 to 1300 daily, Monday through Thursday of each week, and thus restored the entire Chocolate mountain range for use by the Navy in aerial gunnery.

8 December 1949

Leon G. Boyer, a civilian machinist employed in the Public Works Department, fell from the roof of a building under repair and broke his left arm and hip. The man was transported to the USNH, San Diego for treatment.

14 December 1949

M/SGT Aubrey R. JONES, USMC, attached to VMF(N) 513, was killed in the crash of a F6F-5N, BuNo. 94144, while engaged in bombing targets in the Carrizzo Impact Area. One section of the stabilizer gave way causing Jones to crash with a 500# bomb aboard.

15 December 1949

Completed the project #34742-50 at a cost of \$1,200.00.

15 December 1949

Commenced work on project #34818-50, the installation of locks on hanger doors.

21 December 1949

Transferred the SNB-2, BuNo. 67125 to Pensacola, Florida, for overhaul, and received SNB-3, BuNo. 23793, from Corpus Christi, Texas, for service.

31 December 1949

The following statistics are presented for the period:

<u>PERSONNEL</u>	<u>ALLOWANCE</u>	<u>ON BOARD</u>
Officer	22*	27*
Enlisted	196*	228*
Civilian	125	108
Total	343	363

\* Includes the Parachute Experimental Unit.

Flying time of the station assigned aircraft - (1 SNB) - 305 hours.

**U.S. Naval Air Facility, El Centro, CA.**

Brief Introduction to NAF, El Centro and Imperial County.  
Environmental Office, NAF El Centro, CA.

FINAL FORM 99 (7-90)

**FAX TRANSMITTAL**

# of pages ▶ 3

To <b>JIM LUBBERT</b>	From <b>John Crow</b>
Dept./Agency <b>COE</b>	Phone # <b>619-339-2532</b>
Fax # <b>314-331-8828</b>	Fax # <b>619-339-2249</b>
NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION	

**tion**



**IMPERIAL VALLEY AREA**

Many centuries ago, the area that is now Imperial Valley was a vast lake . . . an inland sea. The Colorado River built and rebuilt its delta through the ages until finally, the Imperial Valley "Sea" was cut off from the River. The Colorado, which also created the Grand Canyon of Arizona, wandered into the Gulf of California, an arm of the Pacific Ocean, and the inland lake it had abandoned began a long process of drying up.

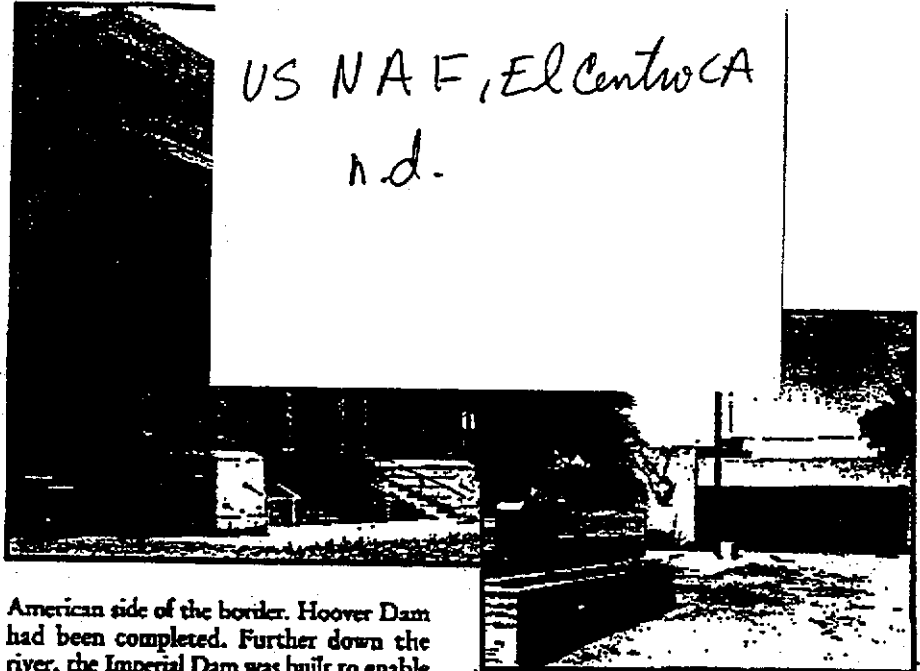
As the water receded, it left a fertile lake bottom, flat with the exception of sand dunes. Eventually this Valley, as we now know it, was formed. More centuries passed and the depression between the Colorado River and the mountains to the west of the Valley was looked on as a badland. The only inhabitants here were small bands of nomadic Indians. Why? Because there was no water. What had once been an inland lake finally became one of the most arid lands on earth.

When the Spanish and later the Mexicans and Americans arrived in the area there were those who dreamed that someday water would be brought from the Colorado River through the sand dunes surrounding the Valley to irrigate the unbelievably rich land and make it productive.

As recently as 1901, the first water was brought into Imperial Valley from the Colorado River. This water came from a canal built through Mexico and brought into the Valley at the Mexican border near Calexico, California. In 1905, Colorado River flooding caused a breakthrough in the canal feeding the Valley and for two years the area was flooded. Homes, early farms and businesses were lost. It took courage and strength to stay on and fight the elements, but finally, with the help of the federal government and the Southern Pacific Railway Company, the break was repaired in the canal and the Valley was saved.

Since the terrible floods of 1905-1907, the Imperial Valley has moved ahead steadily. Irrigation was expanded, more canals and ditches were built and more settlers moved in to farm the land which was now capable of being irrigated.

The All-American Canal was completed in 1940, bringing water from the Colorado River to Imperial Valley entirely on the



American side of the border. Hoover Dam had been completed. Further down the river, the Imperial Dam was built to enable control of the flood waters of the Colorado so the valley would never again be faced with the threat of floods.

The All-American Canal is 85 miles long and 232 feet across at its widest part. It is 21.6 feet deep. There are only two canals in the United States larger than the All-American; both are ship canals. As it winds through the sand dunes to the east of Imperial Valley, it represents a magnificent engineering accomplishment. This man-made river runs through America's driest climate, through drifting sand dunes 50 to 100 feet high and furnishes the only source of water to the more than 120,000 valley inhabitants.

Because of enormous reservoirs of hot water below the surface of Imperial Valley, geothermal energy is now being developed. A number of plants are in production, creating dependable sources of electricity. The success of these geothermal projects is closely followed by developers.

The entire Imperial Valley is below sea level. Calexico, at the Mexican border, is one foot below sea level and El Centro is 52 feet below sea level.

The climate of the Imperial Valley is warm and dry. More sunshine is recorded in Imperial Valley than in any other area in the United States. The summers are extremely hot, but the autumn, winter

and spring seasons are delightfully warm, sunny and dry. The annual rainfall in Imperial Valley is 3.2 inches. There is no snow . . . no smog . . . and seldom any fog. Almost all homes and businesses are air-conditioned. The people who live in Imperial Valley and El Centro find living pleasant the year round.

Imperial County is the fourth most productive agricultural area in the United States and ranks first in the nation in pen-fed cattle. In a recent year, the Valley produced over \$800 million in farm crops. All farming in Imperial Valley is done by irrigation. The water supply is so dependable that a favorite expression here is: "The farmer does not pray for rain in Imperial Valley, he telephones for it!"

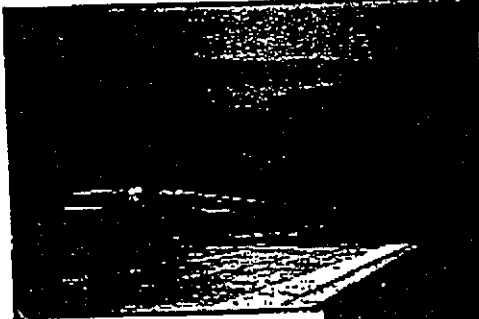
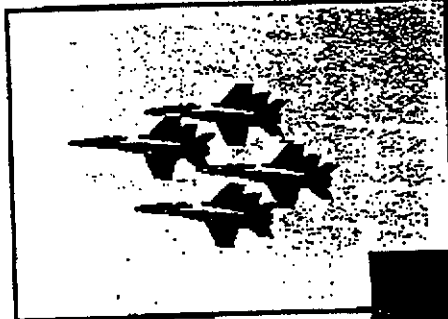
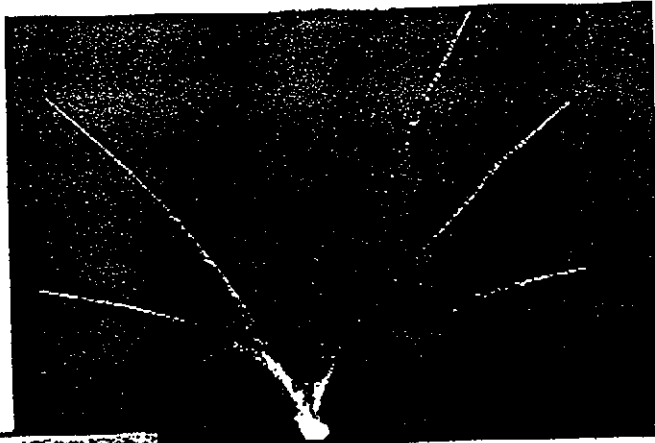
**CLIMATE**

Day temperatures rise to 100 degrees almost every day from June through September while dropping to the low 70's at night. Winter temperatures are moderate, usually in the 50's and 60's. NAF El Centro enjoys clear weather more than 95 percent of the time.

Enjoy your stay in Imperial Valley and El Centro - "Where the Sun Spends the Winter."



# Navy Pilots Like El Centro Skies



Because of its unique location, NAF El Centro is known to every naval aviator and plays a key role in their initial and continued training. What makes the NAF so special is its combination of unique climate, vast unobstructed desert terrain, limited non-military air traffic and its own dedicated gunnery and bomb ranges. These factors make this an ideal environment for aerial combat maneuvering, air-to-air gunnery and bombing practice and electronic warfare training. Variable climatic conditions and population are limiting factors at the Navy's only other facilities with similar missions - Fallon, NV and Key West, FL. The result is that NAF El Centro is a very busy and much-in-demand air facility. For example, the number of flight operations (landings and take-offs) exceeded 130,000 in 1991. Flight operations on a typical day reach over 450 between 7 a.m. and 11 p.m.

The NAF is the "Winter Home" of the Navy's famous Blue Angels. Starting early every January, the "Blues" conduct over two months of intensive flight operations prior to the start of their air show season. Until mid-March, the officers and enlisted personnel, who are specialists in all the aviation roles required to support the squadron's maintenance, administration and public affairs requirements, hone their skills as a cohesive unit.

NAF El Centro and its personnel have the role of providing the essential support to the squadrons and units training here. This includes flight operations, logistics, billeting, messing, hangars, ramps, aircraft parking space, administration and supply transport. Every month, seven to twelve squadrons and from 150 to 1,600 personnel will train here. Additionally, U.S. Air Force parachutists, U.S. Navy SEALs, Army Green Berets and British and French aviators visit for various phases of their training.

# Welcome Aboard



## HISTORY

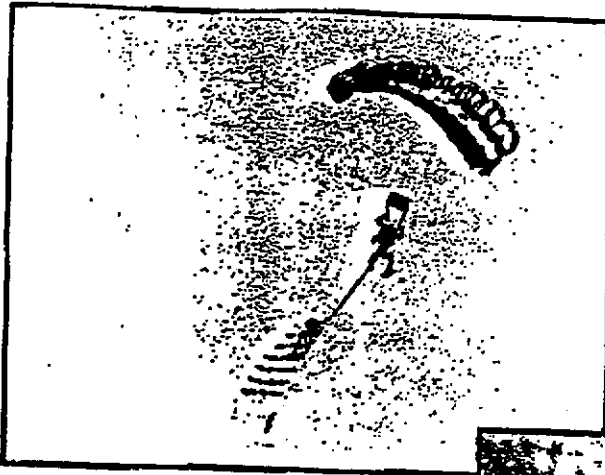
Whether it concerns flying from an aircraft carrier or landing on the moon, NAF El Centro is proud of its past accomplishments, its expanding mission today and its important role in the future.

Since 1942, NAF El Centro has had several names: Marine Corps Air Station; Naval Air Facility; Naval Auxiliary Landing Field; Naval Air Station; and the National Parachute Test Range.

For 35 years, the El Centro facility was involved in aeronautical escape system testing, evaluation and design. In November 1947, the Parachute Experimental Division moved from Lakehurst, NJ to El Centro, CA. The Joint Parachute Facility, established in 1951, consisted of the Naval Parachute Unit and the Air Force's 6511th Test Group (parachute). In 1959, an ejection seat (designed for pilot escape from a high-speed jet at altitudes under 1,000 feet) was successfully tested at El Centro. That group also tested the parachute system that the Mercury Space Program used for the first U.S. manned satellites returning safely to Earth, and later the Apollo re-entry systems.

Five years later, the U.S. Naval Aerospace Recovery Facility was designated, and later combined with the Naval Air Facility, to form the National Parachute Test Range. In 1979, the parachute test function was transferred to the Naval Weapons Center, China Lake and El Centro again became a Naval Air Facility.

The 2,289-acre base, which has control over an additional 54,000 acres, currently has a complement of nearly 400 military personnel and 260 civilian employees with a combined payroll of nearly \$16 million annually. The Naval Air Facility underwent a major change in 1986 when the base operating support functional areas were contracted to a civilian firm. This company assumed responsibilities for public works, supply, dining services, transportation, billeting, communications, transient line and ground support operations. The transition freed many military personnel for more critical fleet positions and added about 150 new civilian contract jobs to the local community. The NAF is the second-largest employer in the Imperial Valley.



The local economy also benefits from those who participate in the training offered at the facility and then return to their parent commands. About 15,000 pilots and crew members visited NAF El Centro in fiscal year 1991 and the facility averaged 50 local hotel room reservations daily.

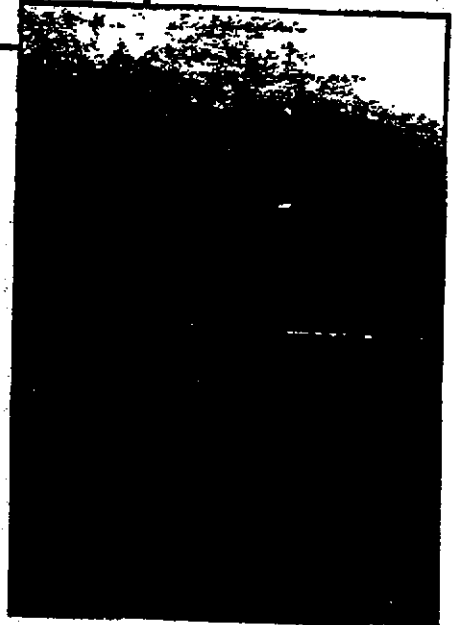
NAF El Centro has a long history of providing support to fleet squadrons who take advantage of the ideal weather and wide open spaces of the Imperial Valley.

## MISSION

Naval Air Facility El Centro, under the command of Commander, Fighter Airborne Early Warning Wing, U.S. Pacific Fleet, provides realistic training to aviation units and activities of the Navy's operating and training forces. Aviation squadrons visit NAF El Centro to practice gunnery, bombing, carrier landings and air combat.

The facility has two operating runways. The 9,500-foot east/west runway handles 96 percent of the traffic. It is equipped with a Fresnel Lens Optical Landing System at each approach end as well as lighted carrier deck landing areas at both ends so pilots can simulate ship landings.

Apart from "touch-and-go" landings and take-offs, air crews utilize the many ranges at NAF El Centro to develop their skills. A remotely controlled target area allows naval aviators to practice ordnance delivery. The desert target range is used for air-to-ground bombing, rocket firing, strafing, bomb dummy drops and mobile land target training. The target complex



uses the Weapons Impact Scoring System that microwaves imaging to a range master control building.

The addition of the Display and Debriefing Subsystem, known as the DDS, expanded the role of NAF El Centro to include air combat training utilizing remote television, acoustical and laser scoring systems. The DDS is linked with the Navy's Tactical Aircrew Combat Training System (TACTS) which provides a computerized record of the tactics individual air crews employ and evaluates the effectiveness of each maneuver. Many believe the training at El Centro is as close as pilots can get to actual air combat. Much of the film "Top Gun" was shot at NAF El Centro.



**U.S. Naval Air Station, El Centro, CA.**

"Historical Report of U.S. Naval Air Station, El Centro, CA  
for the period of 1 August 1946 to 30 June 1949."  
Naval Historical Center and Archives, Washington Navy Yard, Washington, D.C.

IN REPLY REFER TO NO.

1452-351  
A12/WID:ek  
Serial 1171-10

NAVAL  
U. S. MARINE CORPS AIR STATION  
EL CENTRO, CALIFORNIA

Washington Naval Yard  
Historical Center / Archives  
Washington, D.C.



2 AUG 1949

From: Commanding Officer, U. S. Naval Air Station, El Centro, Calif.  
To: Chief of Naval Operations (Aviation History Unit).  
Via: Commander, Naval Air Bases, ELEVENTH and TWELFTH Naval Districts.

Subject: Historical Report (OpRep 50-1).

Reference: (a) Aviation Circular Ltr No. 18-49.

Enclosure: (A) Historical Report of MAS El Centro for the period 1 August 1946 to 30 June 1949.

1. Enclosure (A) is submitted pursuant to Aviation Circular Letter No. 18-49. It will be noted that it covers the period 1 August 1946 to 30 June 1949, no other historical report having been submitted during that period. It also will be observed that enclosure (A) consists only of a chronology (Part I) and a documented narrative (Part II). There is no material requiring inclusion in an appendix.

*W. I. Darnell*  
W. I. DARNELL

DECLASSIFIED

IN REPLY ADDRESS  
COMMANDER,  
NAVAL AIR BASES  
11TH NAVAL DISTRICT  
SAN DIEGO 35, CALIF.  
AND REFER TO:

NAB 11/12 NRL:jn  
EC/A12  
Serial 176-95

HEADQUARTERS  
COMMANDER, NAVAL AIR BASES  
ELEVENTH NAVAL DISTRICT

APR 20 1950



FIRST ENDORSEMENT on NAAS, El Centro ltr ser 703-11 dtd 14 Apr 1950.


From: Commander, Naval Air Bases, Eleventh and Twelfth Naval Districts.  
To: Chief of Naval Operations (Aviation Historical Unit).

Subj: Historical Report (OpRep 50-1); Forwarding of.

1. Forwarded, contents noted.

2. By copy of this endorsement the Commanding Officer, El Centro, is requested to submit future historical reports direct to Chief of Naval Operations (Aviation Historical Unit) as indicated in reference (a) with a copy to this command.

Copy to:  
CO, NAAS, El Centro

  
R. F. JONES,  
Chief of Staff.

US Naval Air Station  
El Centro CA.  
1949

FILED

IN REPLY REFER TO NO.

1452-351  
A12/WID: gk  
Serial 1171<sup>10</sup>

NAVY  
U. S. ~~NAVAL AIR STATION~~ AIR STATION  
EL CENTRO, CALIFORNIA



Part I - Chronology of the  
U. S. Naval Air Station, El Centro, California,  
1 August 1946 to 30 June 1949  
2 AUG 1949

AVIATION CIRCULAR

From:  
To:  
Via:

Commanding Officer, U. S. Naval Air Station, El Centro, Calif.  
Chief of Naval Operations (Aviation History Unit), ~~Naval Air Station~~  
Commander, Naval Air Bases, ELEVENTH and TWELFTH Naval Air Districts.

Subject:

Historical Report (OpRep 50-1).

Reference:

(a) Aviation Circular Ltr No. 18-49.

Enclosure:

(A) Historical Report of NAS El Centro for the period  
1 August 1946 to 30 June 1949.

1. Enclosure (A) is submitted pursuant to Aviation Circular Letter No. 18-49. It will be noted that it covers the period 1 August 1946 to 30 June 1949, no other historical report having been submitted during that period. It also will be observed that enclosure (A) consists only of a chronology (Part I) and a documented narrative (Part II). There is no material requiring inclusion in an appendix.

W. I. DARNELL

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D

**NAVAL**  
**U. S. MARINE CORPS AIR STATION**  
**EL CENTRO, CALIFORNIA**



PART I. - Chronology of the  
 U. S. Naval Air Station, El Centro, California,  
 for the period 1 August 1946 to 30 June 1949.

1 August 1946.

On this date the station is commanded by Commander Earl C. PETERSON, USN. The station is under the military command of Commander, Naval Air Bases, Eleventh Naval District, and in turn under the Commandant, Eleventh Naval District. It is under the management control of the Bureau of Aeronautics. It is located approximately eight miles (by highway) WNW of the center of El Centro, California, and has only one satellite, a gunnery facility located in the desert seven miles (by road) WNW of the station itself. This satellite activity is not in use.

The station is responsible for maintenance of air-to-ground gunnery targets, five in number, three of them located in the desert northeast of the station, between the irrigated area and the sand hills, the other two located five miles north of Plaster City. The station also is assigned an occasional specific task in connection with the Chocolate Mountain Gunnery Range, covering a large irregular area to the northeast and the Carrizzo Impact Area, a rectangle of smaller area, to the northwest.

In this area there is also the Naval Auxiliary Air Station, Holtville, and the Naval Auxiliary Air Station, Salton Sea. Of the three, the Naval Air Station, El Centro, is the largest and most active, therefore represents the Navy Department in the area of Imperial County and eastern Riverside County. The station during the period covered, discharged miscellaneous responsibilities incident to investigation of old and new aircraft crashes as far east as the Chocolate Mountains of Arizona, it searched for missing aircraft to the north as far as Palm Springs, to the west as far as eastern San Diego County, to the east as far as Tucson. It serviced downed military aircraft at points in southeastern California. It represented the Navy and Marine Corps, as well as the other branches of the armed services, in providing shore patrol coverage as appropriate, and assembling stragglers from throughout the area for return to their respective commands.

IN REPLY REFER TO No.

NAVAL  
U. S. ~~MARINE CORPS~~ AIR STATION  
EL CENTRO, CALIFORNIA



1 August 1946. As of this date the personnel situation is as follows:

	<u>ALLOWANCE</u>	<u>ON BOARD</u>
Officer	26	27
Enlisted	291	149
Civil Service	178	176

23 August 1946.

At about 2300 fire was discovered in a building consisting of several dallas huts located behind building 411. The building was a radio repair shop and was completely destroyed. The origin was not definitely established but was most probably an electrical short circuit. There was no injury to personnel.

15 October 1946.

Effective this date the station was placed in a modified maintenance status, by authority of CMO Air Logistics Directive 14-MI-46, of 2 October 1946.

21 October 1946.

CASU 53 which had been based here during the war, and following the conversion of this station from a Marine Corps Air Station to a Naval Air Station (1 May 1946), was decommissioned this date.

1 November 1946.

Commander Peterson was relieved as commanding officer by Commander William I. Darnell, USN. During the ensuing month the station supported three squadrons of jet fighters from March Field (Army Air Force). One fatal crash occurred on the day of arrival, when a plane went out of control and fell about two miles north of El Centro. This occurred at the end of the ferry flight from March Field to El Centro, while the aircraft were circling the land.

31 December 1946.

The first of 86 TD2C aircraft were received from NAS Mojave. This was the beginning of a BuAer preservation and storage pool then being established at this station.

During this period the station aircraft were one SNE and one OY. The total aircraft flight hours from 1 August to 31 December were 136.9.

1 January 1947.

On this date the personnel situation stood as follows:

	<u>ALLOWANCE</u>	<u>ON BOARD</u>
Officer	10	12
Enlisted	150	105
Civil Service	112	102

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NAVAL  
U. S. ~~NAVY~~ AIR STATION  
EL CENTRO, CALIFORNIA



- 1 February 1947. As of this date the TD2C aircraft in storage had increased to 104.
- 25 March 1947. 112 additional units of low cost housing were accepted from the contractor, making a total of 152 units of low cost housing and 60 family units of homoja housing located at and administered by the Naval Air Station.
- 1 May 1947. Western Airlines commenced scheduled operations at this station, under agreement with BuAer.
- 15 June 1947. Commenced project #504-47, to replace and rehabilitate evaporative coolers at a cost of \$15,000.
- 20 June 1947. During the night building 448, located in the salvage yard, and containing miscellaneous construction and salvage material was completely destroyed by fire, probably caused by sparks from the dump located westward, no injury to personnel.
- 30 June 1947. Aircraft flight time for the preceding six months was 118.6 hours.
- 1 July 1947. On this date the personnel situation stood as follows:

	<u>ALLOWANCE</u>	<u>ON BOARD</u>
Officer	10	13
Enlisted	150	140
Civil Service	104	101

- 21 September 1947. This date the station went on a shop store basis, all procurement and accounting being conducted by the Supply Officer, NAS San Diego. Shop stores were established in the supply department, transportation and public works.
- 23 October 1947. Commenced project #36704-48, the rehabilitation of permanent runway lighting system at a cost of about \$50,000.
- 1 November 1947. The U. S. Naval Parachute Experimental Unit, with Lieutenant Commander Luther B. Nicholson, USN, as Officer-in-Charge, and having four aircraft, was established at this station. It had formerly been disestablished at NAS Lakehurst, the move being directed by CNO Air Logistics Directive 99-NM-47 dated 3 October 1947.
- 31 December 1947. During the preceding six months the two station aircraft previously listed accumulated 155.1 aircraft hours of flight time.

**NAVAL**  
**U. S. MARINE CORPS AIR STATION**  
**EL CENTRO, CALIFORNIA**

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1 January 1948.

On this date the personnel situation, not including the Parachute Experimental Unit, stood as follows:

	<u>ALLIANCE</u>	<u>ON BOARD</u>
Officer	12	10
Enlisted	159	104
Civil Service	137	123

23 January 1948.

Commenced project #67-47, for the repair (seal-coating) of station roads.

19 February 1948.

Commenced project #36713-48 for the rehabilitation of semi-permanent taxiway lighting system.

5 April 1948.

Aircraft OY-1, Bureau No. 04000, was transferred to Marine Corps Air Station, Cherry Point, for overhaul. Subsequently, the station aircraft consisted of an SNE only, the Parachute Experimental Unit continuing to operate one PV2, one F8F, 1 SB2C, and one SNB.

1 May 1948.

In accordance with Air Logistics Directive 35-MN-48 the station was placed in an active operating condition, the mission being to support fleet rocket and gunnery training operations and aircraft storage (drones). Provide facilities to support regular operations for rocket and gunnery training, Naval Parachute Experimental Unit and occasional additional temporary operations by one carrier group. This directive officially recognized a situation which had been in existence throughout the period immediately preceding, since in fact fleet squadrons had conducted gunnery training, plus day and night familiarization, at this station while it was in a modified maintenance status.

6 May 1948.

Commenced project #34976-48, installation of evaporative cooling system in building 170, to improve the adaptability of this temporary structure to the storage and assembly of aircraft rockets. The use of this temporary building for such purpose had been approved by the Bureau of Ordnance, pending availability of a proper magazine.

5 June 1948.

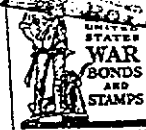
Commenced contract NOy 15190, for rehabilitation of barracks building 409, cost about \$17,000.

30 June 1948.

The aircraft flight time for the station SNB during the preceding six months was 135.1 hours.



NAVAL  
U. S. MARINE CORPS AIR STATION  
EL CENTRO, CALIFORNIA



1 July 1948.

The personnel situation, including an allowance of 8 officers and 58 men for the Parachute Experimental Unit, was as follows:

	<u>ALLOWANCE</u>	<u>ON BOARD</u>
Officer	21	23
Enlisted	215	195
Civil Service	170	111

6 July 1948.

Commenced contract NOy 15459, for replacement of combustible ducts in eight of the principle buildings currently occupied.

16 October 1948.

Commenced contract NOy 16663 for installation of self-closing fire doors in the station theater, building 313.

15 November 1948.

Commenced project #807-48, for improvement of fire protection of the low cost housing development referred to under item dated 25 March 1947.

23 November 1948.

Commenced contract NOy 17094, for repairs to primary settling basin #348.

17 December 1948.

Commenced project # 34837-49 for installation of a textile testing laboratory in building 212, incident to provision of facilities for the Parachute Experimental Unit.

31 December 1948.

During the preceding six months the station SNE flew 219.3 air-craft hours.

1 January 1949.

Including the Parachute Experimental Unit, the personnel situation stood as follows:

	<u>ALLOWANCE</u>	<u>ON BOARD</u>
Officer	21	21
Enlisted	217	174
Civil Service	113	111

4 April 1949.

Commenced project #34973-49, for rehabilitation of gunnery facilities (previously termed a satellite) to accommodate the Naval Air Technical Training Unit, expected to arrive from NAS Santa Ana.

18 April 1949.

At about 1910, fire was discovered in hangar 504, which resulted in total loss of the hangar and 19 TD2C aircraft stored therein. The origin was undetermined; there was no injury to personnel.

IN REPLY REFER TO No.

NAVY  
U. S. MARINE CORPS AIR STATION  
EL CENTRO, CALIFORNIA



30 April 1949.

The Naval Air Technical Training Unit (target aircraft) was established, Lieutenant Emery C. Ceise, USN, Officer-in-Charge. One SNJ assigned this unit which was moved from MAS Santa Ana in accordance with CNO spdltr OP-542-E/rp, NC318/A4-2 Serial 714P542 dated 15 April 1949.

8 June 1949.

Under CNO Air Planning Directive 13-111-49 dated 8 June 1949 the mission of the station was revised as follows: "Provide support to fleet rocket and gunnery training operations, Parachute Experimental Unit, Technical Training, and aircraft storage (drones), provide facilities to support regular operations for rocket and gunnery training, two squadrons (CVG), Naval Parachute Experimental Unit, and NATTU.

30 June 1949.

During the preceding six months the station SNB accumulated 227.3 hours. 53 TD2C aircraft remain in the BuAer storage pool on this date, the maximum strength of this pool during its existence having been 112 aircraft. During the current month the military personnel allowance for the station was revised to 14 officers and 143 men. The allowance for the Parachute Experimental Unit was revised to 8 officers and 52 men.

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NAVAL  
U. S. ~~MARINE CORPS~~ AIR STATION  
EL CENTRO, CALIFORNIA



PART II. - Documented Narrative of the  
U. S. Naval Air Station, El Centro, California,  
for the period 1 August 1946 to 30 June 1949.

1. During the first six months of the period covered, the Navy was in the throes of demobilization. At one time the number of men was reduced to about 80. At the same time the squadrons were suffering from the same ailment, and the purpose to which MAS El Centro should be put was not clearly in evidence. During those first six months there was little fleet activity. The station crew was engaged primarily in the station-keeping and in a dogged effort to demobilize material remaining in the unoccupied buildings scattered throughout the station, the material having been inherited from the Marine Corps when the station was established on 1 May 1946. Demobilization of men has so far outstripped demobilization of material that the process of emptying and cleaning unoccupied buildings consumed the better part of a year starting about 1 November 1946.

2. Early in 1947 squadrons from San Diego, then squadrons from Alameda began arriving at El Centro for one week or two week periods of gunnery training, principally rockets and bombs. Except for a comparative lull during the last quarter of the fiscal year 1949, this practice has continued and intensified throughout the entire period. The lack of activity during the closing quarter was the result of a shortage of funds. During the calendar year 1948, the station issued 1,815 tons of ordnance for use by squadrons based here and in training on targets maintained by this station. During the fiscal year 1949 a total of 49 squadrons based here for periods of varying length, for pursuit of the gunnery training syllabus.

3. During 1947, in addition to clearing unoccupied buildings, the station arranged through the Navy Department for the sale of every temporary building aboard the station, these included Dallas huts and many prefabricated buildings of the expeditionary type. A total of perhaps 200 structures were disposed of, to the great improvement in appearance of the station and to the provision of much better building space for fire protection. The experience up to that time had been that such buildings also constituted the greatest fire risks.

4. During the early part of this period the Naval Auxiliary Air Station, Holtville, and the Naval Auxiliary Air Station, Salton Sea, were disestablished, leaving El Centro the only Naval establishment in Imperial County. The base at Salton Sea was inherited by the Army (Air Force) and soon thereafter turned over to the Atomic Energy Commission, wherein authority over the Salton Sea Base now reposes. During the administration of the air force at Salton Sea, an emergency seadrome was established there as a safe haven for seaplanes of the trans-Pacific service and the seaplane squadrons operating at San Diego and in the transcontinental ferry service. The emergency seadrome consisted only of one rearming boat, plus mooring buoys, night lighting buoys, and minor related equipment. This emergency seadrome continues in existence, although somewhat less effective since the departure of an inactive navy reserve officer who until recently was engineer in charge at the base. Owing to the 40 plus miles from MAS El Centro to Salton Sea an unavoidable delay in arriving at the base is responsible for this reduced effectiveness. Formerly, personnel at the base who had no actual connection with the Navy, could be depended upon to go into

*Blind*

NAVAL  
U. S. MARINE CORPS AIR STATION  
EL CENTRO, CALIFORNIA



action at first receipt of a seaplane emergency alarm. Early in 1948, a 45 foot pickup boat was commissioned at the base and likewise is maintained by naval personnel, specifically personnel of the Parachute Experimental Unit. It is for personnel rescue incident to deliberate over-water parachute jumps.

5. During the latter part of the period reported on, the station has become prepared to provide emergency service to jet aircraft. Jet fuel is available.

6. During the period reported upon there has been one serious accident involving Civil Service personnel: An electrician making repairs to an electric transmission line touched the line and fell about 35 feet to the ground. He was hospitalized for some weeks but returned to duty with no permanent ill effect other than the loss of one finger.

7. There has been no serious injury to any military personnel attached to the station but there have been two or three injuries resulting from deliberate parachute jumps. The climate, although very hot during summer months, is very healthful and sickness, including any contagious disease, has been very rare. No death has occurred among naval personnel at this station during the reported period. One seaman died in the Naval Hospital, San Diego, shortly after being transferred, as a result of a brain tumor.

8. During this period the allotment able for station maintenance has at times been as low as \$25,000 per month (December 1946). During the last quarter reported upon it was \$95,000 for the quarter. This has permitted the accomplishment of routine maintenance and repairs to casualties but has not permitted any long range program of improvement in structural condition in our appearances. Owing to climate, however, it appears that the present buildings may continue usable for perhaps 15 years.

DECLASSIFIED

**U.S. Pacific Fleet.**

"COMFAIR West Coast Service and Training Munition Requirements,"  
dated 26 January 1946.

Record Group 74; Entry 4444; Box 287; File: ND8-ND11, 1946.  
National Archives-Suitland Branch, Suitland, MD.

Kg 74, Entry 4444, Box 28 /  
ND 8-ND 11, 1946

CLASSIFIED PER EXECUTIVE ORDER 12356, SECTION 3.3, NND PROJECT  
NUMBER NND 917566, BY JB/CWC, DATE 12/14/95

UNITED STATES PACIFIC FLEET  
AIR FORCE  
FLEET AIR, WEST COAST

26 Jan 1946

COPY

045

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

COMPAIR WEST COAST SERVICE AND TRAINING MUNITION REQUIREMENTS

	NAS SAN DIEGO	NAAS BROWN	NAAS CAMP KEARNEY	MGAS EL CENTRO	NAAS LOS ALAMITOS
SERVICE				126	
100# GP	300	114		48	
500# GP	96	48		32	
1000# GP	20	20	36		
350# BB	72		72		
Torpedoes					
.30 Cal.	96,000	48,000		48,000	
.50 Cal.	434,460	145,050	172,800	195,630	
20 MM	19,200	9,600		9,600	
5" HVAR	900	342		272	
any Tin				12	
TRAINING (For a four month period)			162		
100# Live	744	244			
500# Live	318	122	81		
1000# Live	372	122	81		
325-350# DB	54		810	11,176	1,220
100# H2O fil.	7,440	2,440	2,430	20,176	3,660
Minatures	22,320	7,320		53,292	1,464
SCAR (fast)	7,632	2,928		2,500	
3.5 A R				1,224	
any Tin				348,000	174,000
.30 Cal	696,000	348,000		2,380,560	888,480
.50 Cal	5,193,120	1,776,960	864,000	69,600	34,800
20 MM	189,200	69,600			

ENCLOSURE (A)

ENCLOSURE (A)

United States Pacific  
Fleet  
1946

030656 0318

**APPENDIX F**

**REAL ESTATE DOCUMENTS**

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
**ARCHIVE SEARCH REPORT**  
**FINDINGS**  
FOR  
**EL CENTRO ROCKET TARGET RANGE NO. 1 (#92)**  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014601

APPENDIX F

REAL ESTATE DOCUMENTS

**Commandant, 11th Naval District.**

1947a Correspondence to the Chief of Bureau of Yards and Docks, dated 28 February, regarding the leases and/or permits for Imperial Valley Bombing Targets. Record Group 181; Entry: 11th Naval District, Commandant's Office, General Correspondence 1925-55; Box 425. National Archives-Pacific Southwest Region, Laguna Niguel, CA.

**Navy Department.**

1946 Discontinuance of Bombing Targets 62, 92 and 93, dated 24 October 1946. Engineering Division, Installation Support Section. U.S. Army Corps of Engineers, L.A. District.



**Commandant, 11th Naval District.**

Correspondence to the Chief of Bureau of Yards and Docks,  
dated 28 February 1947,  
regarding the leases and/or permits for Imperial Valley Bombing Targets.  
Record Group 181; Entry: 11th Naval District, Commandant's Office,  
General Correspondence 1925-55; Box 425.  
National Archives-Pacific Southwest Region, Laguna Niguel, CA.

NA/NI-13(NI Centre)  
ND11-RM/EP  
Serial 25618/44X

*na (d) Centre*

28 FEB 1947

**From:** Commandant, Eleventh Naval District.  
**To:** Chief, Bureau of Yards and Docks.  
**Subject:** Leases and/or Permits for Imperial Valley  
Bombing Targets - Restoration and Termination of Bombing Targets 69, 77, 79,  
92 and 93.  
**Enclosure:** (A) ComKABs ltr Serial 1037-80 to Com11,  
dated 31 Oct. 1946.

1. By enclosure (A) the Commander, Naval Air Bases, advised the Commandant that the subject targets had been restored to original condition except as noted and requested that the leases and/or permits be terminated.

2. The Commandant concurs in the recommendation of Commander, Naval Air Bases, as to the degree of restoration and requests approval for termination of leases and/or permits.

*Commandant, Eleventh  
Naval District  
1947*

A. K. Fogg  
by direction

Copy for Commandant's Office

*NA-Laguna  
RG 181  
E: Commandant's Office  
Box 425*

**Navy Department.**

Discontinuance of Bombing Targets 62, 92 and 93,  
dated 24 October 1946.  
Engineering Division, Installation Support Section.  
U.S. Army Corps of Engineers, L.A. District.

HRL/PAL/ALJ(mn)  
Serial: AS 938

N1-13

24 October 1946

Imperial Irrigation District  
Imperial, California

Attention: Mr. H. Pike, Chief Electrical Engineer

Dear Sir:

Your letter of October 21, 1946 to Naval Air Control Center is acknowledged. The Commandant is now able to inform you that Bombing Areas Nos. 62, 92 and 93 have been discontinued and that the Navy contemplates no further aircraft bombing operations over these areas. Steps are being initiated to return the land to its owners.

Yours very truly,

G. KENN  
Captain, U.S. Navy  
Air Control Officer

Naval Department  
1946

By Direction Copy

h  
k

**APPENDIX G**

**NEWSPAPERS / JOURNALS  
(NOT USED)**

**APPENDIX H**

**INTERVIEWS**

**TELEPHONE OR VERBAL CONVERSATION RECORD**

DATE 4 January 1996

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

**SUBJECT OF CONVERSATION:** 2nd Quarter Sites**OUTGOING CALL**

<b>PERSON CALLING</b>	<b>ADDRESS</b>	<b>PHONE NUMBER AND EXTENSION</b>
Rochelle Ross	CELMS-PM-M	314-331-8784
<b>PERSON CALLED</b>	<b>OFFICE</b>	<b>PHONE NUMBER AND EXTENSION</b>
Command Master Chief Tom Dye	Naval Amphibious Base Building 156, 2nd floor Coronado, CA	619-437-0732

**SUMMARY OF CONVERSATION:**

Dick Thiel and Dave Frandsen (HFA, Inc) gave me Tom's name and number.

Theresa, Randy and I will be stopping by the 16th of January to talk to Tom and his assistant Rick Kiser regarding any other possible points of contact who may have information regarding our sites this quarter.

He did suggest we contact the El Centro Naval Facility and go through their historical files.

The EOD unit in charge out there is the EOD North Island. The POC is the Officer in Charge, Lt Martinez at 619-545-0486.

**TELEPHONE OR VERBAL CONVERSATION RECORD** DATE 11 January 1996  
 For use of this form, see AR340-15; the proponent agency is the Adjutant General's Office.

<b>SUBJECT OF CONVERSATION:</b> 2nd Quarter Sites		
<b>OUTGOING CALL</b>		
<b>PERSON CALLING</b>  Rochelle Ross	<b>ADDRESS</b>  CELMS-PM-M	<b>PHONE NUMBER AND EXTENSION</b>  314-331-8784
<b>PERSON CALLED</b>  Officer in Charge, LT. Martinez and Officer Branum (used to the OIC)	<b>OFFICE</b>  Naval EOD, North Island	<b>PHONE NUMBER AND EXTENSION</b>  619-545-0486

**SUMMARY OF CONVERSATION:**

Command Master Chief, Tom Dye, of the Naval Amphibious Base gave me the above name and number.

I spoke to Mr. Branum. Once Lt Martinez returns, they will review their files for UXO recovered around El Centro. He also suggested I call the Army 70th EOD located in Point Loma, 619-553-8500. This detachment maintains an historical database which contains all past recovered ordnance from all local EOD units. The Naval EOD send their info to this office.

Next Tuesday, when in San Diego, I am to call back to find out what information they were able to find. Lt. Martinez may meet us at Tom Dye's office Tuesday morning.

=====

Neither the Army 70th EOD or the EOD North Island had any information on any of the Imperial County Ranges for us.



**TELEPHONE OR VERBAL CONVERSATION RECORD**

DATE 7 MAR 96

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

**SUBJECT OF CONVERSATION:** El Centro Rocket Target Range #2 (reference 5" Rocket warhead)**OUTGOING CALL**

<b>PERSON CALLING</b> Gregg Kocher	<b>ADDRESS</b> St. Louis District U.S. Army Corps of Engineers, 1222 Spruce St., St. Louis, MO 63103	<b>PHONE NUMBER AND EXTENSION</b> (314) 331-8790
<b>PERSON CALLED</b> CPT Dan Peterlick	<b>OFFICE</b> Marine Corps EOD Yuma Marine Corps Air Station, Yuma, AZ	<b>PHONE NUMBER AND EXTENSION</b> (520) 341-2788

**SUMMARY OF CONVERSATION:**

I spoke with CPT Peterlick of the Marine Corps EOD in Yuma, who told me the 5" rocket warhead we found at El Centro Rocket Target Range #2 was practice. Apparently, his unit has encountered these before, and recognized it as such.

**APPENDIX I**

**PRESENT SITE PHOTOGRAPHS**

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS

FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA

PROJECT NO. J09CA014701

APPENDIX I

PRESENT SITE PHOTOGRAPHS

**Page I-1**

PHOTO #1 - .50 CALIBER CASING AND LINK  
(LOCATION: N 32°56'57.8" W 115°40'26.3"; PG 23949 46264)

PHOTO #2 - VIEW FROM NORTHEAST CORNER (Facing Southwest)  
(LOCATION: N 32°57'17.3" W 115°40'31.5")

**Page I-2**

PHOTO #3 - .50 CALIBER TRACER BULLET  
(LOCATION: N 32°57'17.4" W 115°40'47.7"; PG 22386 46864)

PHOTO #4 - 5" ROCKET WARHEAD, MK 1 SERIES  
(LOCATION: N 32°57'16.7" W 115°40'56.3"; PG 23164 46837)

**Page I-3**

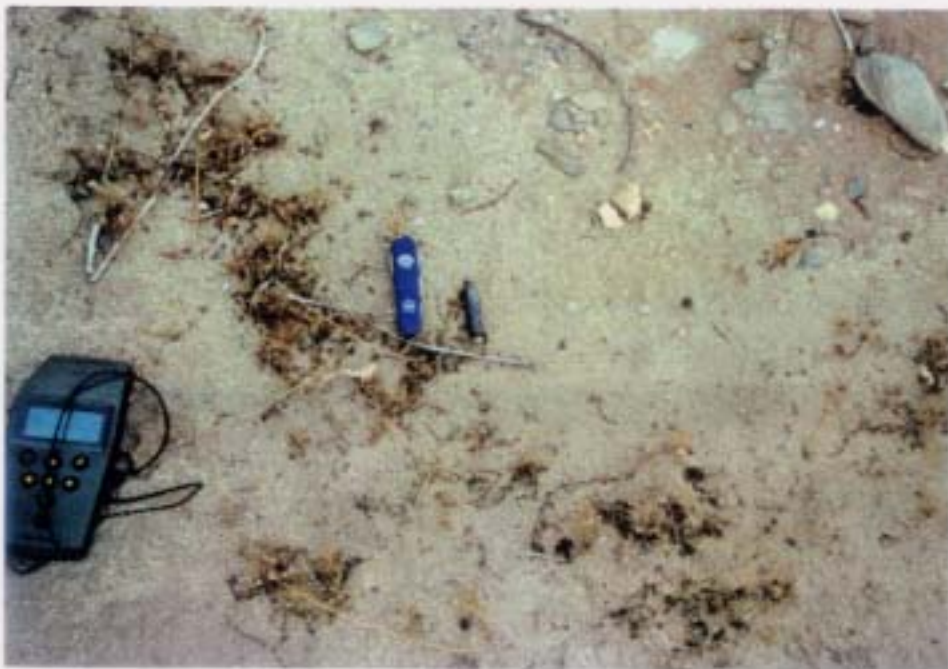
PHOTO #5 - POSSIBLE TARGET CENTER; 3.25" ROCKET MOTOR,  
20MM PROJECTILE, TP-T; 20MM TRAINING PRACTICE;  
2.25" ROCKET MOTOR, 2.25" TARGET ROCKET;  
SCRAP FROM 3-LB MINIATURE PRACTICE BOMB  
(LOCATION: N 32°57'25.0" W 115°40'58.3"; PG 23109 47092)



**PHOTO #1**  
**.50 CALIBER CASING AND LINK**  
**(LOCATION: N 32°56'57.8" W 115°40'26.3"; PG 23949 46264)**



**PHOTO #2**  
**VIEW FROM NORTHEAST CORNER (Facing Southwest)**  
**(LOCATION: N 32°57'17.3" W 115°40'31.5")**



**PHOTO #3**  
**.50 CALIBER TRACER BULLET**  
**(LOCATION: N32°57'17.4" W 115°40'47.7"; PG 22386 46864)**



**PHOTO #4**  
**5" ROCKET WARHEAD, MK 1 SERIES**  
**(LOCATION: N 32°57'16.7" W 115°40'56.3"; PG 23164 46837)**





**PHOTO #5**

**POSSIBLE TARGET CENTER; 3.25" ROCKET MOTOR,  
20MM PROJECTILE, TP-T; 20MM TRAINING PRACTICE;  
2.25" ROCKET MOTOR, 2.25" TARGET ROCKET;  
SCRAP FROM 3-LB MINIATURE PRACTICE BOMB  
(LOCATION: N 32°57'25.0" W 115°40'58.3"; PG 23109 47092)**

**APPENDIX J**

**HISTORICAL PHOTOGRAPHS  
(NOT USED)**

**APPENDIX K**

**HISTORICAL MAPS / DRAWINGS**





**APPENDIX L**

**SITE SAFETY AND HEALTH PLAN/  
SITE INSPECTION REPORT**

on site. A first aid kit will be on hand. The following three basic safety rules apply at all times:

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

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

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

5. SITE COMMUNICATIONS: The primary means of communicating with other team members will be by voice. Team members will always remain within sight of each other. Cellular telephones should be carried to facilitate and expedite calling for emergency medical services.

6. NATURAL HAZARDS: Desert Terrain with dry washes and desert plants such as cactus. Venomous creatures include rattlesnakes, scorpions, and spiders.

7. ORDNANCE HAZARDS: Parachute flares, 5" projectiles, blasting caps and fuses [SIC], .50-caliber ammunition, 25-lb. practice bombs.

8. HAZARD EVALUATION: Estimate the overall hazards using the following guidelines: (check appropriate item)

Low (small arms ammunitions)

Moderate (practice bombs with spotting charge)

High (high explosive munitions, toxic chemicals, WP)

Unknown

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

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

# SITE SPECIFIC SAFETY AND HEALTH PLAN (SSHP)

## OE/CWM Archives Search Site Inspection Visit

El Centro Rocket Target Range No. 2 (#93)

Imperial County, CA

Site #J09CA014701

### 1. REFERENCES:

- a. Safety Manual, CELMS-PM-M, 16 Sep 93 w/ Ch1.
- b. SOP for Reporting Ordnance and Unexploded Ordnance (UXO), CELMS-PM-M, 19 Jan 95.
- c. OEW Guidance Regarding Coordination with EOD Organizations, 10 Jan 95.

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

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

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

c. A minimum of two and a maximum of eight persons will be allowed on-site at any one time.

d. The property owner is not required to sign the SSHP, but should be politely asked to participate in the safety briefing.

3. MISSION: Reconnoiter, document, and photograph areas on El Centro Rocket Target Range No. 2 suspected to be contaminated with UXO and/or toxic chemical munitions.

4. SAFETY PRECAUTIONS: All team members will stay within sight of each other while

MANDATORY MINIMUM SAFETY GEAR

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

accomplishment of the mission. An example is allergic reactions to bee stings.

### Important Phone Numbers

Emergency medical service: 911  
Pioneers Memorial Hospital (619) 351-3333  
El Centro Regional Medical Center (619) 339-7100

Law enforcement agency: 911  
Non-emergency number: (619) 352-2111

Huntsville Safety: (205) 895-1582/1579  
(800) 627-3532, PIN 777-2534

Michael Dace, St. Louis District (314) 331-8036

SSHP reviewed by: H Counts  
H Counts Safety Spec

### SSHP Compliance Statement:

I acknowledge that I have read and will comply with the provisions of this SSHP:

Print name and organization	Signature
<u>GREGG E. ROBERT</u> CELMS-PM-M	<u>[Signature]</u>
<u>ROCHELLE ROSS</u> CELMS-PM-M	<u>[Signature]</u>
<u>JOHN DALY</u> CELMS-PDR	<u>[Signature]</u>
_____	_____
_____	_____

# SITE SURVEY SAFETY BRIEFING

(check subjects discussed)

Date 20 Feb 96

## GENERAL INFORMATION

- Purpose of visit
- Identify key personnel

## SITE-SPECIFIC INFORMATION

- Site description/past use
- Results of previous studies
- Potential site hazards
- OE safety procedures
- Site control and communications
- Emergency response
  - ( ) location of first aid kit
  - ( ) emergency phone numbers
  - ( ) map to hospital
- PPE
  - weather precautions
    - ( ) cold/heat
    - ( ) severe weather

### Safety Briefing Attendance

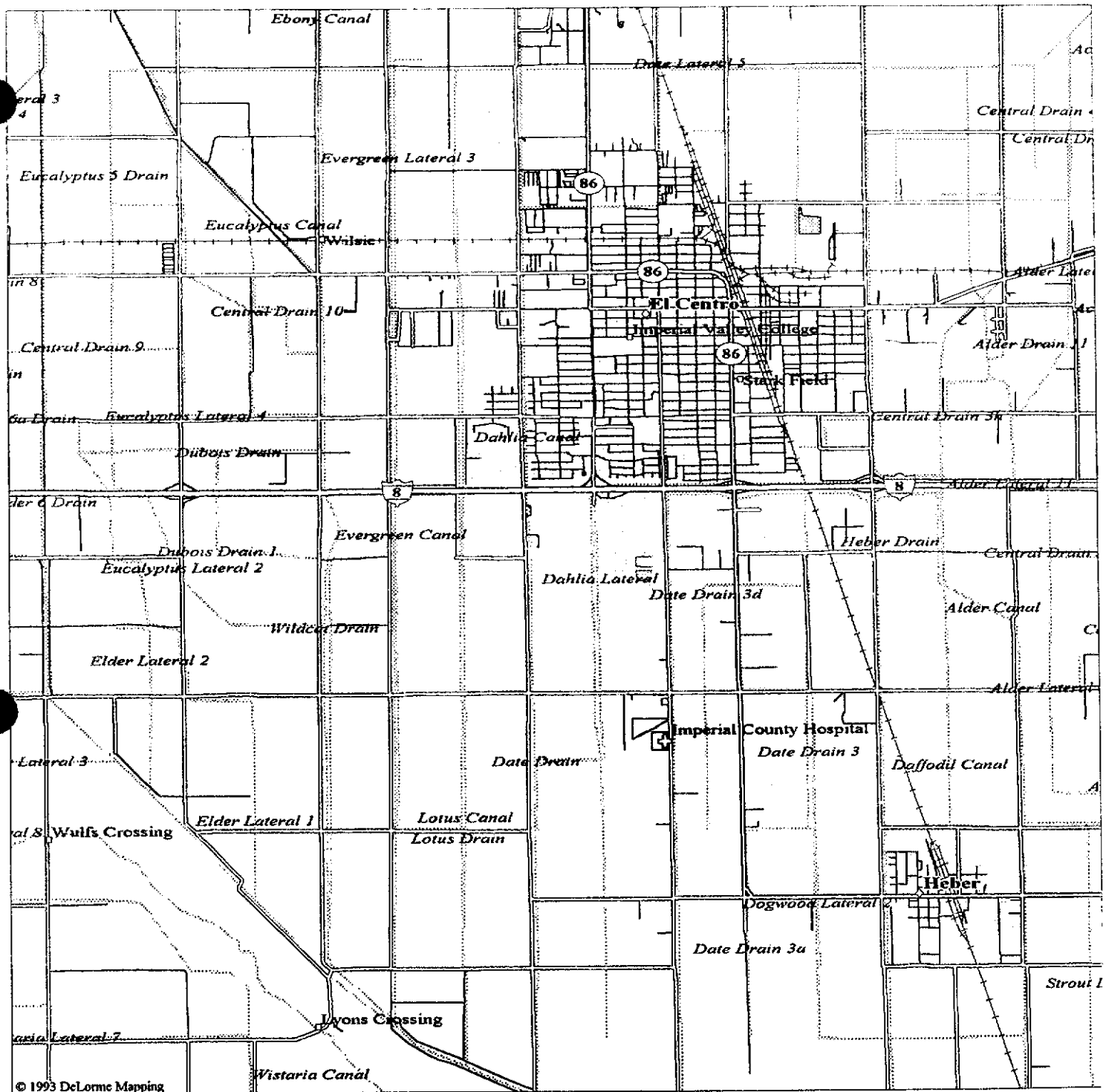
All team members and any accompanying personell will be briefed and sign this form:

**NAME (print)**

**ORGANIZATION**

**SIGNATURE**

NAME (print)	ORGANIZATION	SIGNATURE
G. KOCHER	CECOMS-PM-M	<i>[Signature]</i>
R. ROSS	CECOMS-PM-M	<i>[Signature]</i>
John DALY	CECOMS-PT-R	<i>[Signature]</i>



© 1993 DeLorme Mapping

**LEGEND**

- |   |                      |     |                    |
|---|----------------------|-----|--------------------|
| ○ | Population Center    | —   | Major Street/Road  |
| ○ | State Route          | —   | State Route        |
| □ | Geo Feature          | —   | Interstate Highway |
| ◇ | Town, Small City     | +++ | Railroad           |
| + | Hospital             | —   | River              |
| — | Interstate, Turnpike | —   | Airfield           |
| — | Street, Road         | ▨   | Open Water         |
| — | Hwy Ramps            |     |                    |

Scale 1:62,500 (at center)

1 Miles

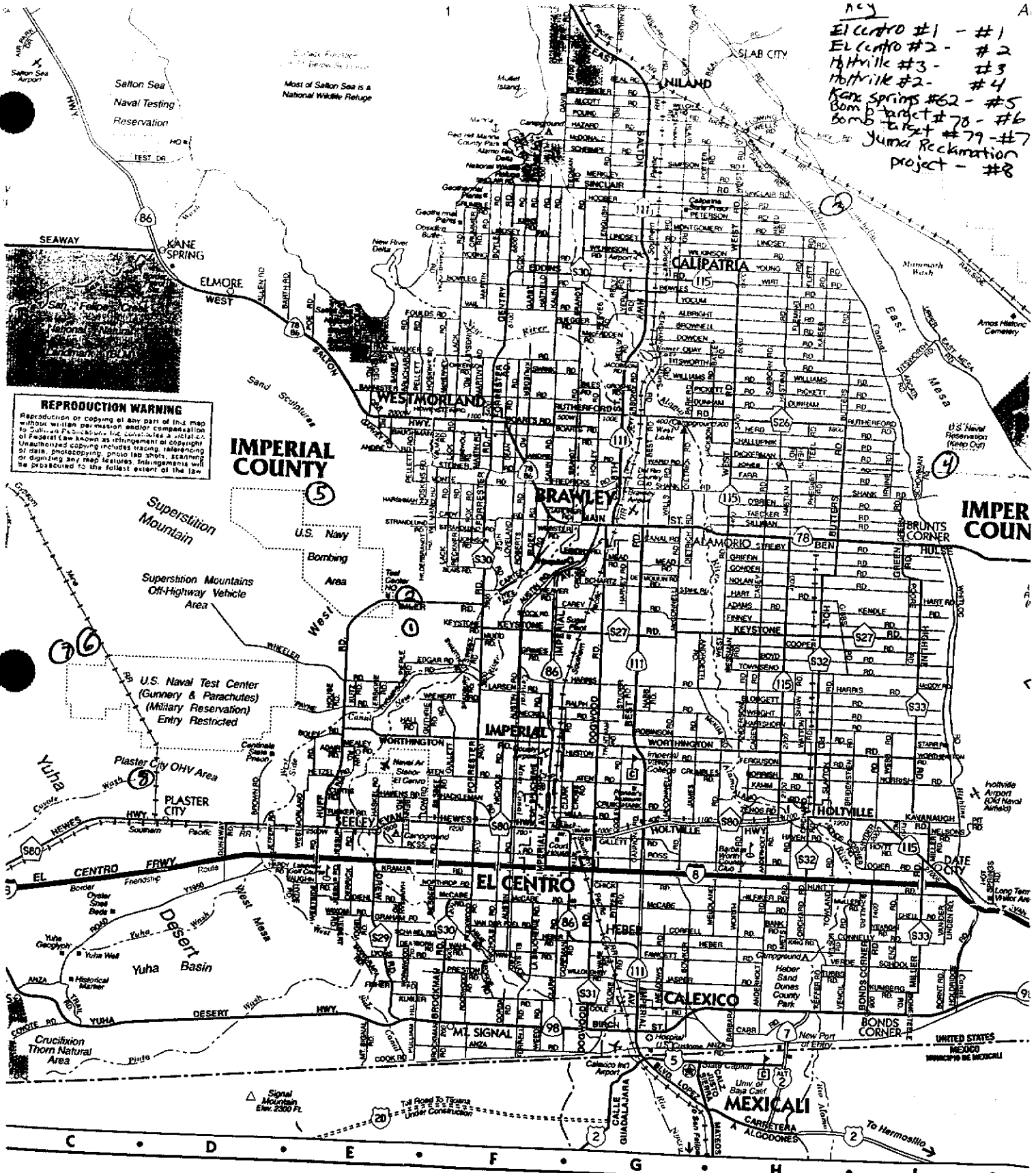
2 KM

Mag 13.00

Mon Feb 05 11:07:06 1996



ncy  
 El Centro #1 - #1  
 El Centro #2 - #2  
 Holtville #3 - #3  
 Holtville #2 - #4  
 Kane Springs #62 - #5  
 Bomb Target #78 - #6  
 Bomb Target #79 - #7  
 Yuma Reclamation  
 Project - #8



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808-323-8088  
 Imperial Ave. El Centro, CA 92227

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**SITE INSPECTION REPORT**

Several scattered MK 76's  
20mm Dummy; early 1970's  
manufacture, cartridge case marked Mk 5  
Mod 0 and projectile marked Mk 14 Mod 0

N 32°5'28.3" W 115°40'30.6"  
N 32°55'17.3" W 115°41'27.6"

After completing El Centro Rocket Target Range #1, we stopped by Range Control where we were given the dates and times we could go into Holtville Target #2 and the Yuma Reclamation Project. **We then drove to El Centro Rocket Target Range #2. We began on the southern boundary of the site, made a loop through the area and returned to the jeep after we found a 5" Rocket Warhead and what appeared to be the target center due to the abundance of ordnance debris. The description of items found and their location are:**

<u>Description</u>	<u>Location</u>
.50-caliber casing and link	N 32°56'57.8" W 115°40'26.3"
.50-caliber tracer bullet	N 32°57'17.4" W 115°40'47.7"
5" Rocket Warhead, MK 1 series	N 32°57'16.7" W 115°40'56.3" (PG 23164 46837)
Possible target center; 3.25" rocket motor, 2.25" rocket motor, 2.25" target rocket, 20mm projectile, TP-T, and scrap from 3-lb miniature practice bombs	N 32°55'25.0" W 115°40'58.3"

We also found, scattered throughout the range, 2-prong electrical connector plugs and nozzle closures for 2.25" and/or 3.25" rocket motors. We notified Range Control when we located the 5" Rocket Warhead. We marked this area and the possible target area and provided the GPS location and type of ordnance items found to the Range Control.

Wednesday, February 21, 1996:

Greg Boghossian from the Los Angeles District Corps of Engineers joined us for the day. Our first stop was at Fred Rivera's office where we informed him of yesterday's findings and provided him with Greg's security letter. Mr. Rivera would like a copy of our trip report, maps of our sites, and a copy of the pictures we took. He will receive this information in a few weeks.

We stopped by the Range Control to find out what happened with the ordnance we found on Tuesday and to pick up a radio. Since the employees at the Range Control are contractors and cannot do anything outside of their contract, we contacted Chief Warrant Officer Durham and informed him of the items found the day before. Mr. Al Wilson faxed him a map with the GPS locations. He then would have someone from his office go to the site today.

MEMORANDUM FOR Mike Dace

SUBJECT: Trip Report for Site Visits to Bomb Target #78, Bomb Target #79, Holtville Target #2, Holtville Target #3, Kane Springs SBT #62, Yuma Target Reclamation Project, El Centro Rocket Target Range #1, and **El Centro Rocket Target Range #2** during the week of February 19, 1996.

Personnel on the trip:

- Rochelle Ross (PM-M)
- Gregg Kocher (PM-M)
- C. John Daly (PD-R)

Monday, February 19, 1996:

We departed St. Louis, MO and arrived in Yuma, AZ late afternoon. Due to problems with the airline, we stayed in Yuma for the night.

Tuesday, February 20, 1996:

We departed Yuma, AZ and drove to El Centro, CA for our 8:00 am meeting with the Operations Officer for El Centro Naval Air Facility, Chief Warrant Officer Durham. We discussed our plan of action for the week. A portion of a few of our sites are within the Naval Facility's boundaries, flight lines, and/or restricted air space. Because of this, it was necessary to coordinate our site visit with their training schedule. Chief Warrant Officer Durham would call Yuma for their schedule and inform us this afternoon when we can go into Holtville Target #2, southwest of their Target #95, and the Yuma Reclamation Project, south of their Target 103A. We then provided Mr. Fred Rivera, Naval Air Facility, Public Works Department, with our research information and our schedule for site visits. Before we started our site visits, we picked up a radio from Range Control and discussed our site visit schedule with Mr. Al Wilson, Range Control Contract Supervisor.

We began on El Centro Rocket Target Range #1 in the northwest corner of the range and criss-crossed through the area, covering a good portion of the property. We found several pieces of ordnance related items and scrap, including 2-prong electrical connector plugs and nozzle closures for 2.25" and/or 3.25" rocket motors which were scattered throughout the range. The description of these items and their location are:

<u>Description</u>	<u>Location</u>
Tail Boom from a 25-lb practice bomb, MK 76	N 32°55'31.7" W 115°40'24.9" (PG 24020 43613)
Tail Tube Assembly from 25-lb, MK 76	N 32°5'28.3" W 115°40'30.6"

Thursday, February 22, 1996:

We checked in at the Range Control. Mr. Al Wilson informed us that there wouldn't be any training on Target 103A, just north of the Yuma Reclamation Project, between 7:00 am and 11:30 am. Therefore, we could complete the site visit on this site first, Target #78 second, and Target #79 third. Target #78 is within the flight line for the Navy's current Target 103A. If the pilots become nervous about us walking on Target #78, range control would radio us and instruct us to move to Target #79.

After struggling through the sandy wash, we reached the middle of the eastern side of the Yuma Project. We began walking at this point and covered a good sampled portion of the site. We found a few pieces of ordnance related items and scrap. The description of these items and their location are:

<u>Description</u>	<u>Location</u>
.30-caliber bullet, full metal jacket	N 32°50'21.8" W 115°53'47.9" (PG 03262 33829)
Fragment from M38 100-lb practice bomb	N 32°50'25.6" W 115°53'56.3" (PG 03043 33946)
25-lb practice bomb, Mk 76, Mod 5, recent vintage	N 32°50'31.3" W 115°54'26.0" (PG 02269 34113)

We next drove to Bomb Target #78. A jeep trail crosses over the Mining Railroad and through the southern half of the site. From where we parked, we walked north a short distance when we came across what appeared to have been the target area. Scrap from M-38 practice bombs was scattered throughout this area. Also found scattered throughout the area were 2-prong electrical connector plugs and nozzle closures for 2.25" and/or 3.25" rocket motors, .50-caliber casings, .50-caliber armor piercing bullets, and 20mm. The description of other items and their location are:

<u>Description</u>	<u>Location</u>
Scrap from M38 100-lb practice bomb	N 32°55'43.1" W 115°55'32.1" (PG 00452 43695)
View of possible target, facing NE, several pieces of scrap from M38 100-lb practice bombs	N 32°55'51.3" W 115°55'34.3")
25-lb practice bomb w/o tail boom	N 32°55'56.6" W 115°55'8.6"
3-lb Miniature Practice Bomb, AN/MK 23	unknown location
Tail Section from unknown item	N 32°55'58.0" W 115°55'4.6"
Unidentified item; possible target drone	just SW of N 32°55'58.0" W 115°55'4.6"

After completing the site visit on Bomb Target #78, we continued along the jeep trail to the approximate center of Bomb Target #79. The Carizzo Wash runs

An eastern portion of Holtville Target #2 is within the Navy's current Target #95. Between 10:00 am and 11:00 am, when the target is closed for maintenance, we are allowed to do our site visit. We began our site visit just off of Schoneman Road, criss-crossed through the area, covering a good portion of the property. We found several pieces of ordnance related items and scrap, including 2-prong electrical connector plugs and nozzle closures for 2.25" and/or 3.25" rocket motors scattered throughout the area. The description of these items and their location are:

<u>Description</u>	<u>Location</u>
Box fin from M38 100-lb practice bomb	N 33°1'24.5" W 115°18'32.8"
2.25" Target Rocket Motor, 2.25" diameter, 26" long	N 33°1'28.8" W 115°18'31.1"
Scrap from M38 100-lb practice bomb	N 33°1'31.0" W 115°18'29.0"
Most likely, the tail section of MK 21 500-lb practice bomb	N 33°1'39.2" W 115°18'32.2"
Most likely, the nose section of MK 21 500-lb practice bomb	N 33°1'39.2" W 115°18'32.2"
Most likely, the body of MK 21 500-lb practice bomb	N 33°1'39.2" W 115°18'32.2"
Lanyard; top disk is 3¾" diameter; overall diameter is 4¼"; possibly from an aircraft flare	N 33°1'52.3" W 115°18'32.2"
Unidentified stem; possibly part of an aircraft flare or electronic fuze	unknown location

On our return to the jeep, we walked through the location of the circular target as identified on the aerial photos. We found scrap from M-38 practice bombs scattered throughout the area.

After we completed the site visit we met with Mr. Chuck Phillips and his daughter, Mrs. Mathews of the Combat Heritage Museum at the former Holtville Army Air Field. A previous phone call led us to believe that he and his daughter had a list of veterans names, information on the base's history, and inert ordnance. Unfortunately, the documents they had were already looked at when we visited the Pioneers Museum in Imperial. There was no other pertinent information available.

We continued on to Holtville Target #3. By the time we reached the site, it was too late to begin the site visit, therefore, we returned to Range Control to turn in the radio. **We spoke to Pete, Range Control contract employee, who informed us that the Marine EOD out of Yuma, AZ were called in to detonate the 5" rocket warhead we located the day before. We were also told that there were two detonations, one of the rocket and one of an item located among the scattered ordnance items at the possible target center.**

**APPENDIX M**  
**REPORT DISTRIBUTION LIST**

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT  
FINDINGS

FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

APPENDIX M

REPORT DISTRIBUTION LIST

<u>Addressee</u>	<u>No. Copies</u>
Commander, U.S. Army Engineering and Support Center Huntsville, ATTN: CEHNC-OE-PM P.O. Box 1600 Huntsville, Alabama 35807-4301	2
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Commander, U.S. Army Chemical & Biological Defense Command ATTN: AMSCB-CIH, Bldg. E5183 Aberdeen Proving Ground, Maryland 21010-5423	1
U.S. Army Technical Center for Explosives Safety ATTN: SIOAC-ES Savanna, Illinois 61074-9639	1
Commander, U.S. Army Corps of Engineers, Los Angeles District ATTN: CESPL-EN-MI (Clinton Chien) P.O. Box 2711 Los Angeles, California 90053-2325	1
CELMS-ED-G	1
CELMS-ED-H	1
CELMS-PD-R	1
CELMS-PM-M	1



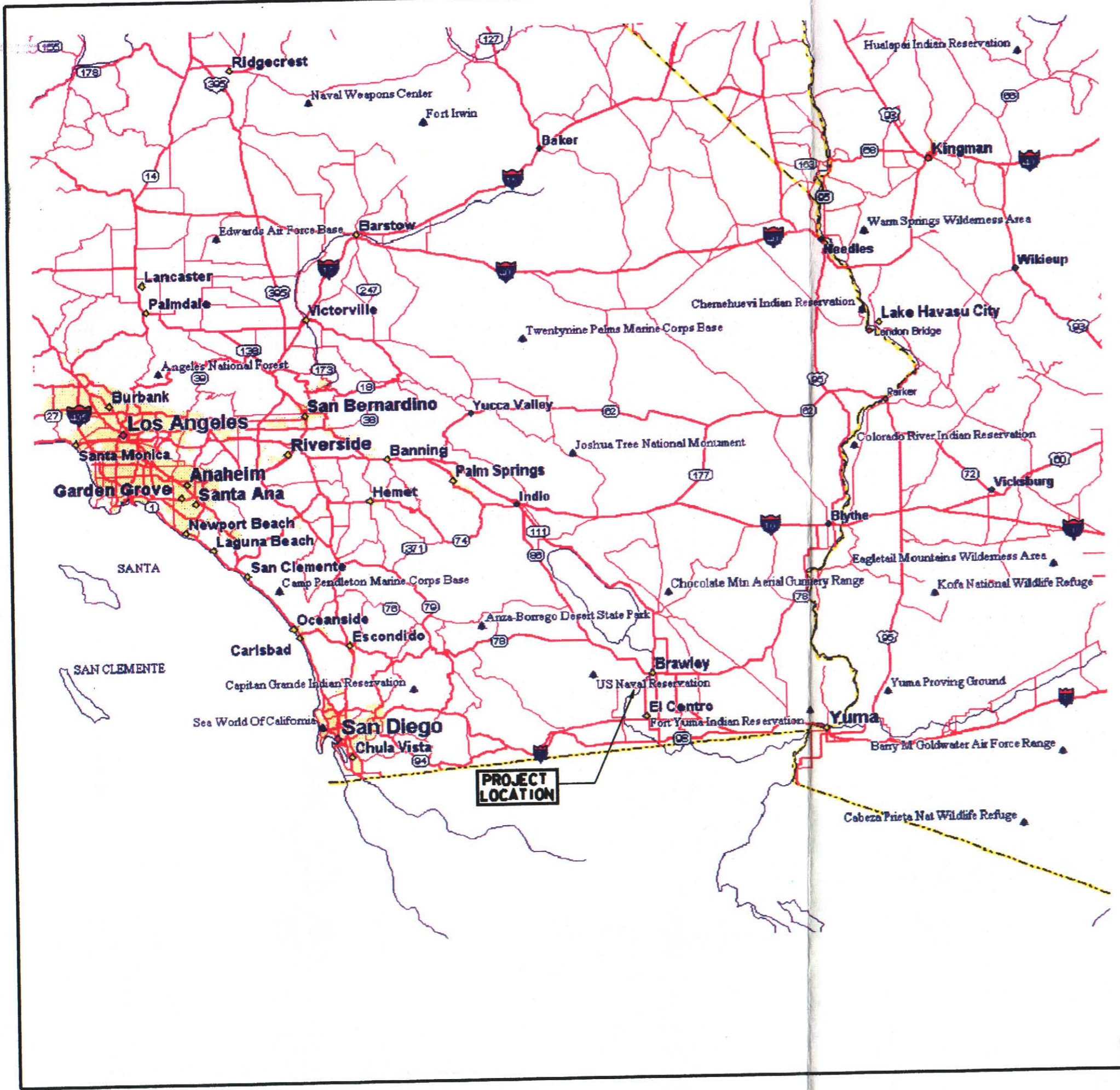
**REPORT PLATES**

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVE SEARCH REPORT  
FINDINGS  
FOR  
EL CENTRO ROCKET TARGET RANGE NO. 2 (#93)  
EL CENTRO, CALIFORNIA  
IMPERIAL COUNTY

PROJECT NO. J09CA014701

REPORT PLATES

<u>PLATE</u>	<u>DESCRIPTION</u>
1	LOCATION MAP
2	SITE MAP
3	LOCATION OF FOUND ORDNANCE
4	PHOTO LOCATIONS
5	AERIAL PHOTO INTERPRETATION - 1949
6	AERIAL PHOTO INTERPRETATION - 1953
7	AERIAL PHOTO INTERPRETATION - 1973



**PLATE I**

**EL CENTRO ROCKET TARGET NO.2 (#93)  
CALIFORNIA  
IMPERIAL COUNTY  
DERP-FUDS# J09CA014701  
LOCATION MAP**

NOT TO SCALE

PROJ. DATE: MARCH 1996	DATE OF MAP: 1996
20-MAY-1996 13:34	n:\oew96b\j6\map\cent2_96.dgn



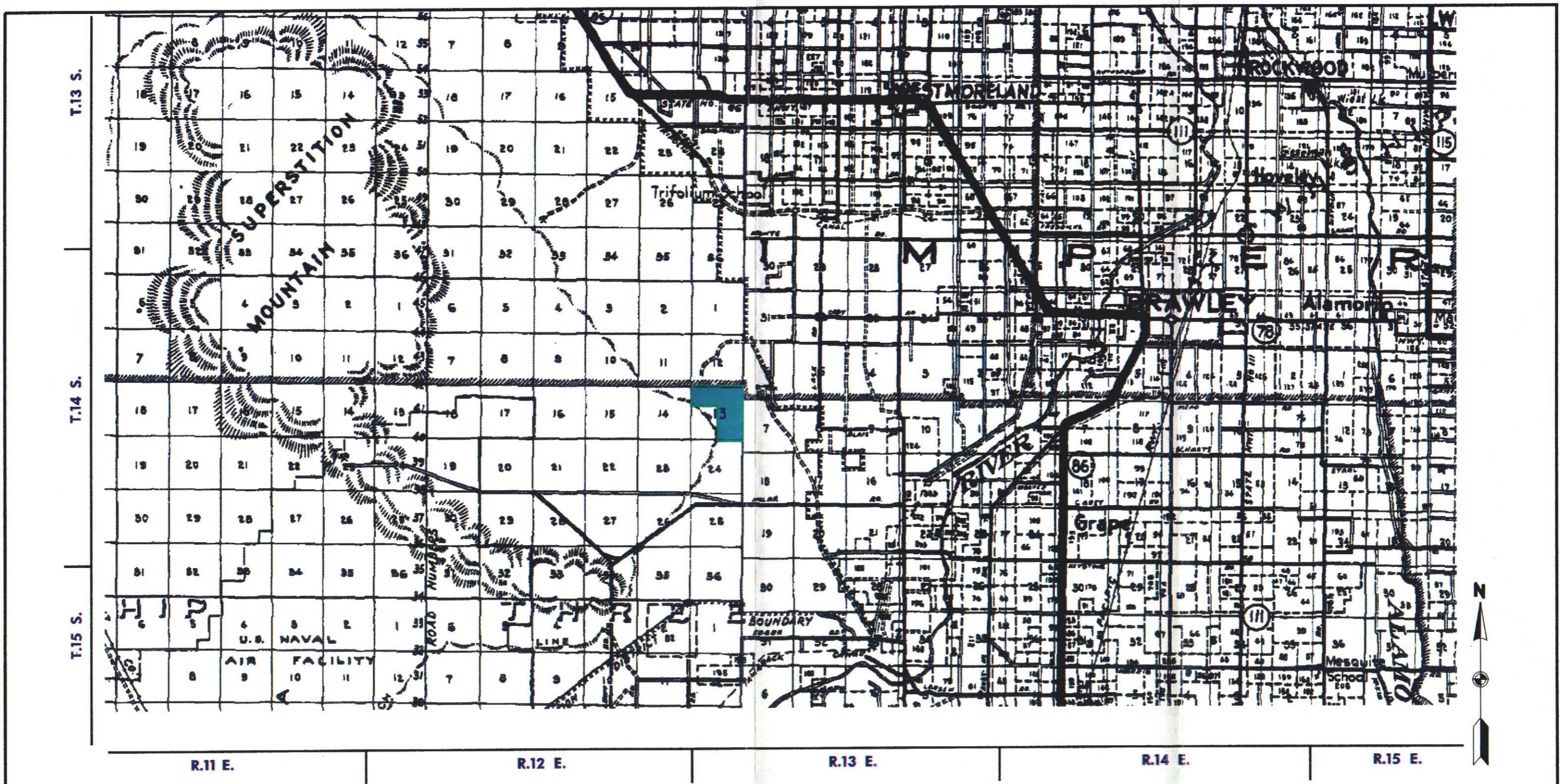


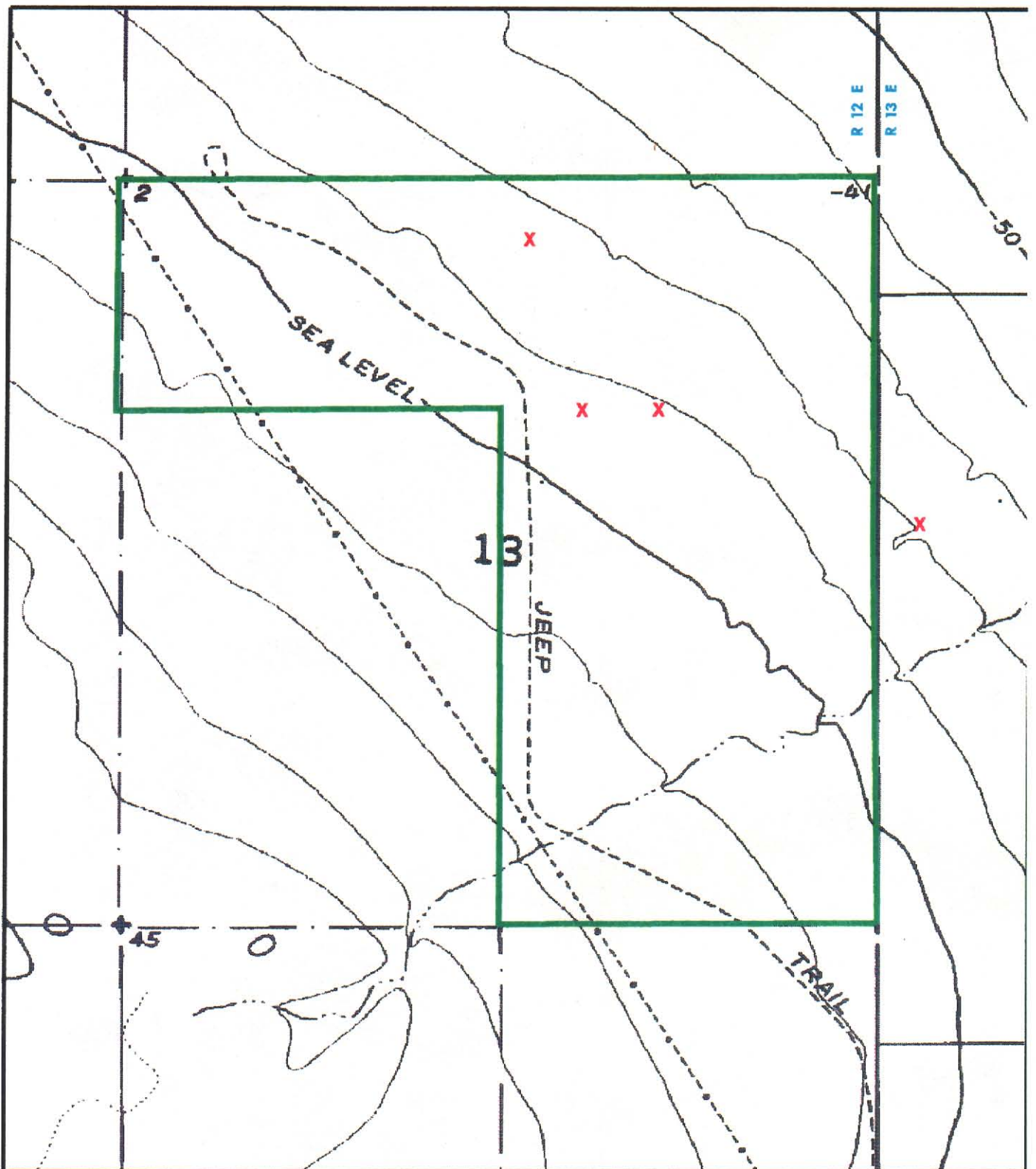
PLATE 2

EL CENTRO ROCKET TARGET NO.2 (#93)  
 CALIFORNIA  
 IMPERIAL COUNTY  
 DERP-FUDS\* J09CA014701  
 SITE MAP

NOT TO SCALE

PROJ. DATE: MARCH 1996	DATE OF MAP: UNKNOWN
20-MAY-1996 13:44	n:\oew96b\j6\map\ant2\nty.dgn





**LEGEND**

**X** ORDNANCE LOCATION



NOT TO SCALE

**PLATE 3**

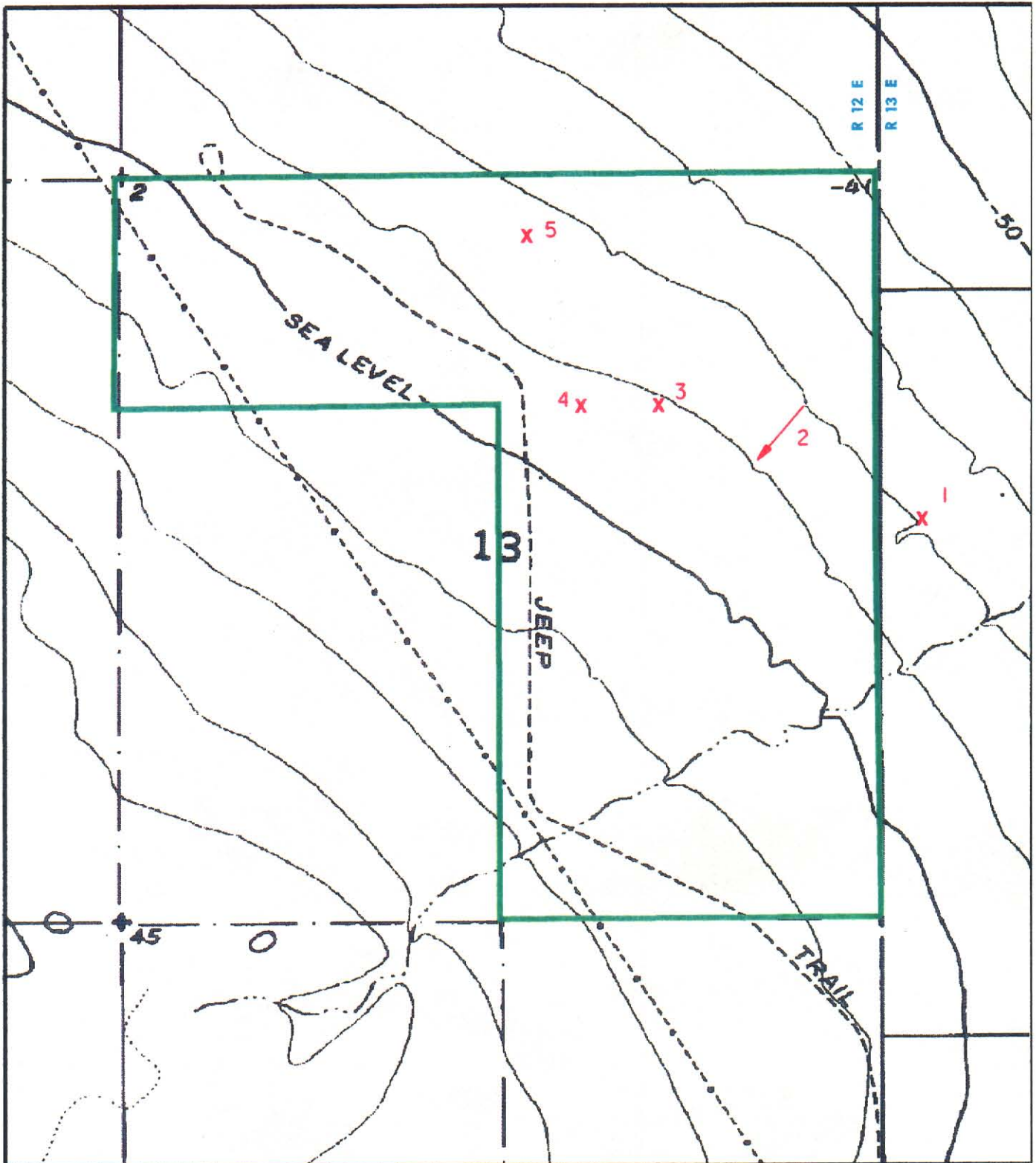
**EL CENTRO ROCKET TARGET NO. 2 (#93)  
 CALIFORNIA  
 IMPERIAL COUNTY  
 DERP-FUDS# J09CA014701  
 LOCATION OF FOUND ORDNANCE**

PROJ. DATE: MARCH 1996

DATE OF QUAD: 1957

20-MAY-1996 13:45

n:\oew96b\j6\quad\lont2.57.dgn



**LEGEND**

- X    ORDNANCE LOCATION
- PHOTO LOCATION



NOT TO SCALE

**PLATE 4**

EL CENTRO ROCKET TARGET NO. 2 (#93)  
 CALIFORNIA  
 IMPERIAL COUNTY  
 DERP-FUDS\* J09CA014701  
 PHOTO LOCATIONS

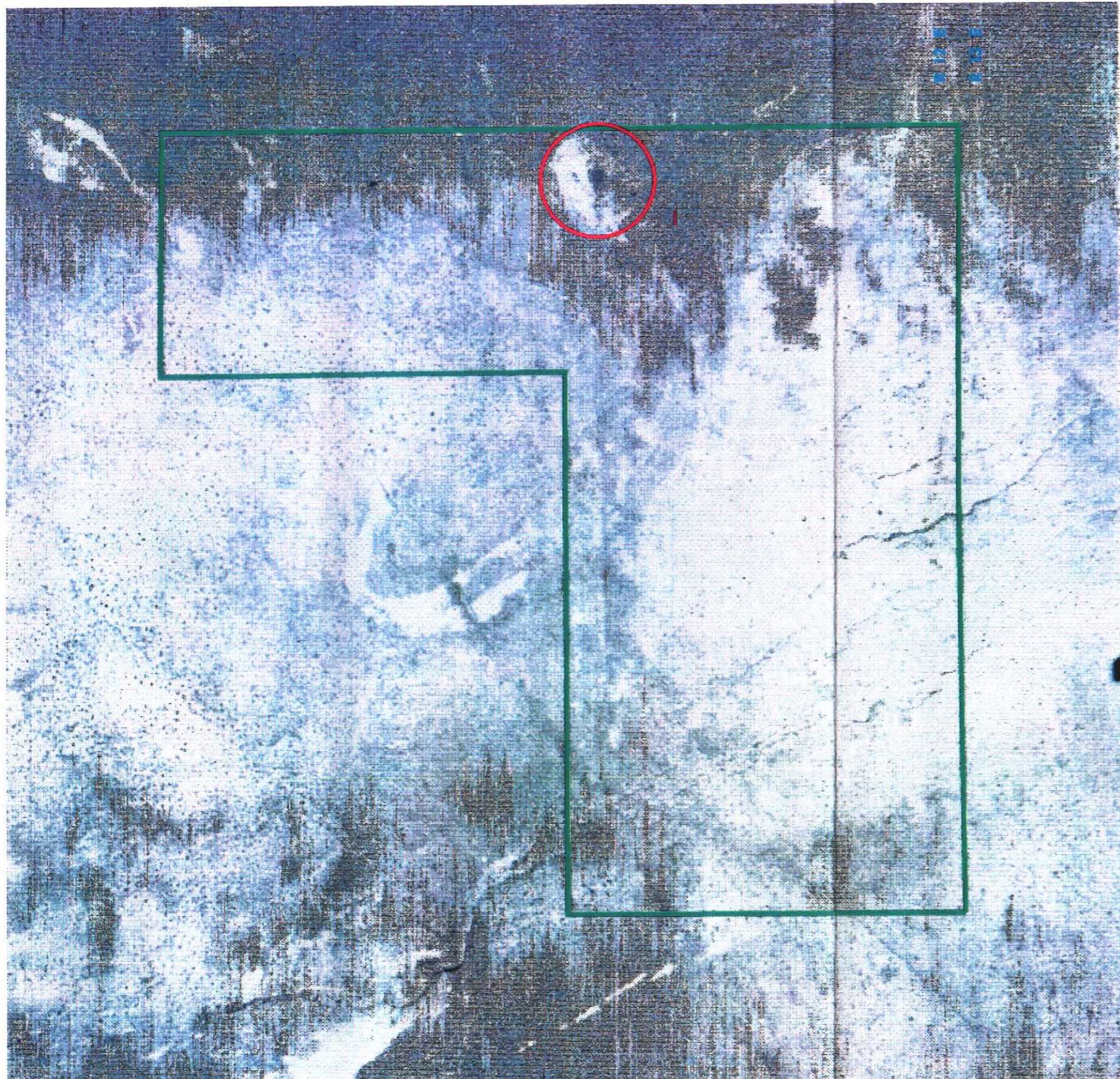
PROJ. DATE: MARCH 1996

DATE OF QUAD: 1957

20-MAY-1996 13:48

n:\oew96b\j6\quad\2crt2.57.dgn





<u>FEATURE NUMBER</u>	<u>FEATURE DESCRIPTION</u>
1.	CIRCULAR SHAPED FEATURE.

NOTE:  
NO VISIBLE EVIDENCE OF ORDNANCE AND  
EXPLOSIVE (OE) ACTIVITY.

**LEGEND**

-  SITE BOUNDARY
-  FEATURE LOCATIONS



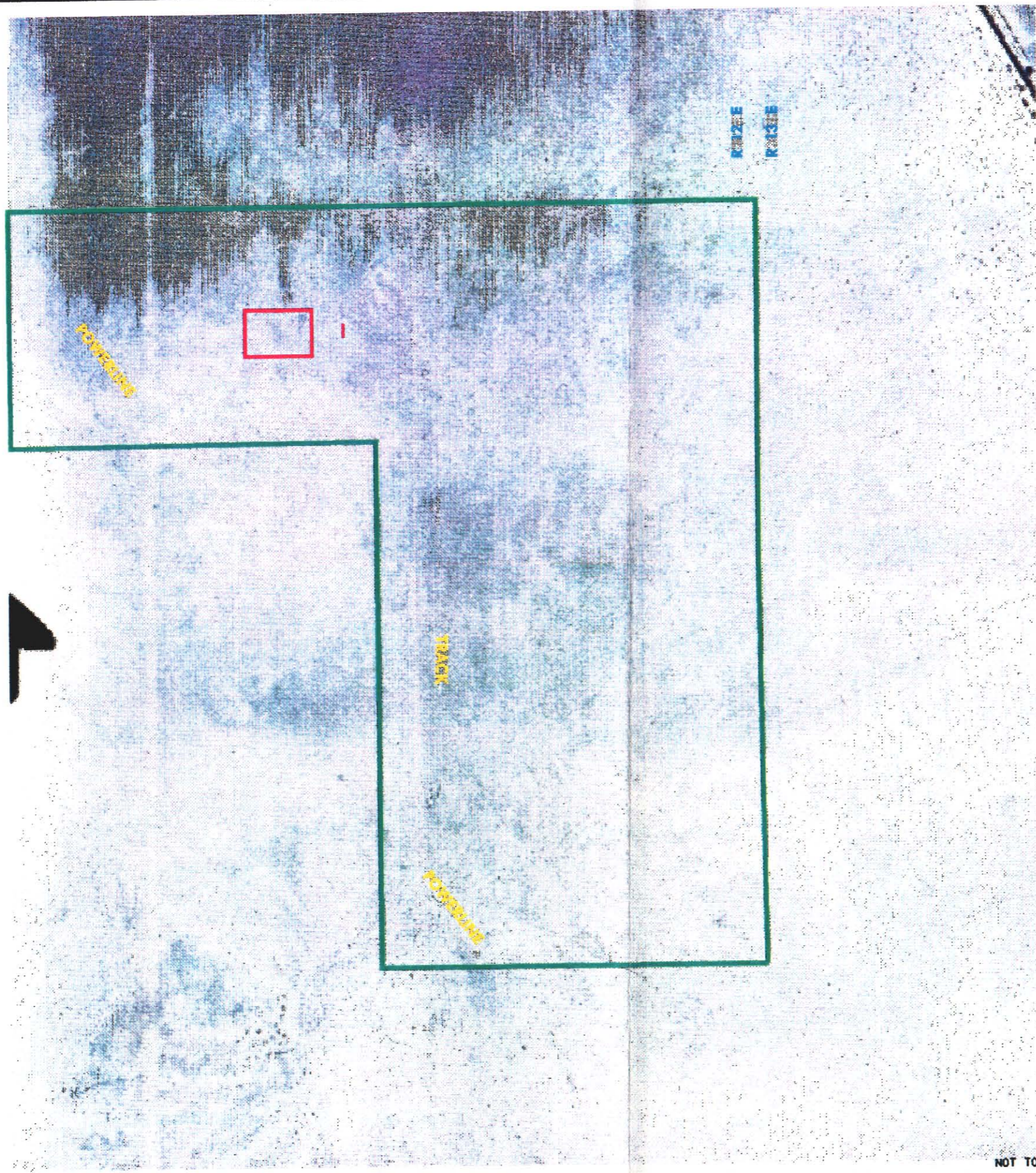
**PLATE 5**

EL CENTRO ROCKET TARGET NO.2(\*93)  
CALIFORNIA  
IMPERIAL COUNTY  
DERP-FUDS\* J09CA014701  
AERIAL PHOTO INTERPRETATION  
1949 PHOTO

NOT TO SCALE

PROJ. DATE: MARCH 1996	DATE OF PHOTO: 22 JAN 1949
20-MAY-1996 13:37	n:\oew96b\j6\photo\cent2_49.dgn





**FEATURE NUMBER**      **FEATURE DESCRIPTION**

- I. TWO SMALL MOUNDS OF DIRT IN AN EAST-WEST DIRECTION.

NOTE:  
NO VISIBLE EVIDENCE OF ORDNANCE AND EXPLOSIVE (OE) ACTIVITY.

**LEGEND**

-  SITE BOUNDARY
-  FEATURE LOCATIONS



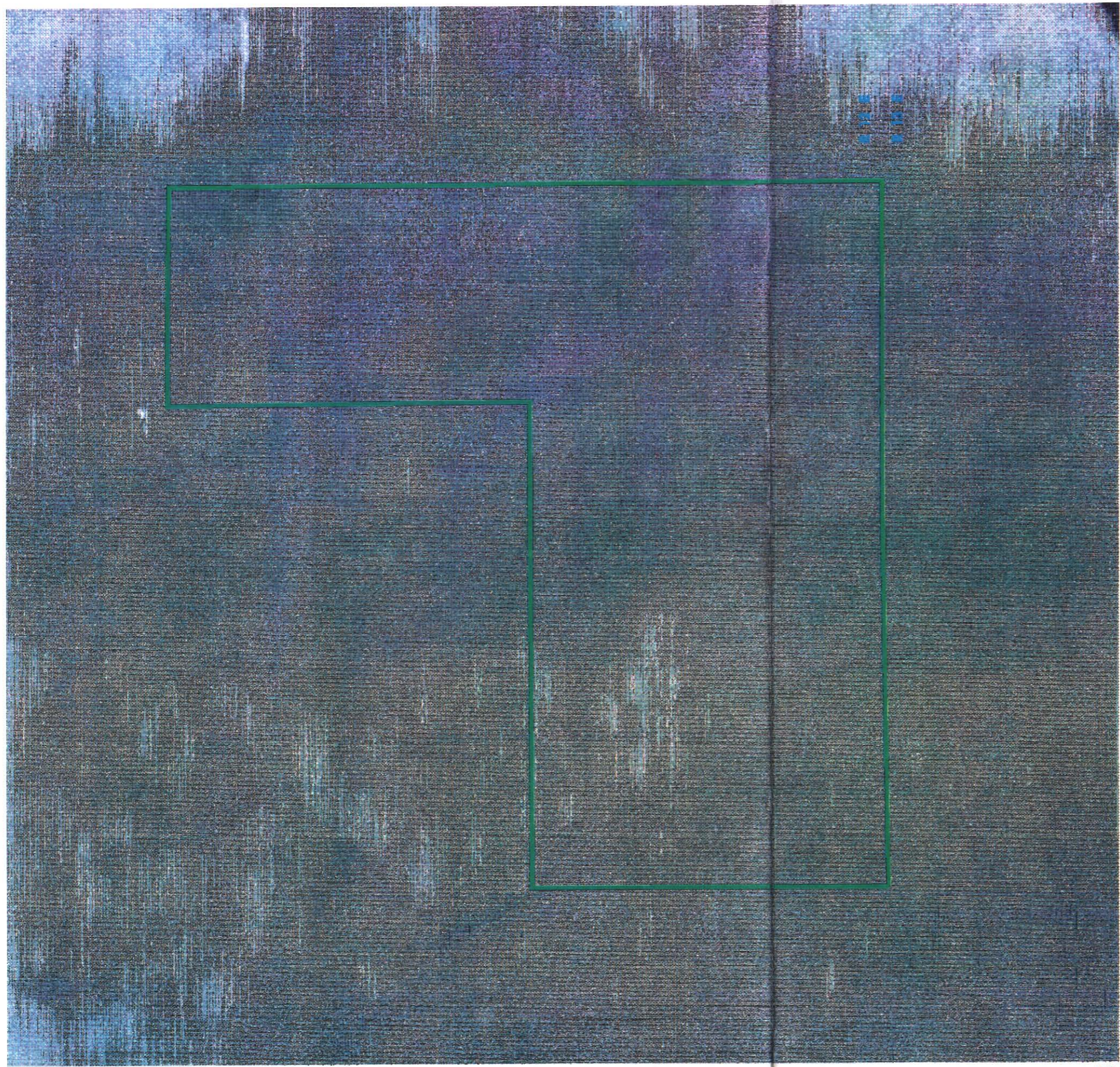
**PLATE 6**

EL CENTRO ROCKET TARGET NO.2(\*93  
CALIFORNIA  
IMPERIAL COUNTY  
DERP-FUDS# J09CA014701  
AERIAL PHOTO INTERPRETATION  
1953 PHOTO

NOT TO SCALE

PROJ. DATE: MARCH 1996	DATE OF PHOTO: 3 APRIL 1953
20-MAY-1996 13:39	nz:toew96btj6+photo+cent2.53.dgn





NOTE:  
NO VISIBLE EVIDENCE OF ORDNANCE AND  
EXPLOSIVE (OE) ACTIVITY.

**LEGEND**



SITE BOUNDARY



**PLATE 7**

EL CENTRO ROCKET TARGET NO.2(#93)  
CALIFORNIA  
IMPERIAL COUNTY  
DERP-FUDS# J09CA014701  
AERIAL PHOTO INTERPRETATION  
1973 PHOTO

NOT TO SCALE

PROJ. DATE: MARCH 1996	DATE OF PHOTO: 26 MAR 1973
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