



**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

CADIZ LAKE SONIC TARGET # 5

SAN BERNARDINO COUNTY, CALIFORNIA

PROJECT NO. J09CA025901

DECEMBER 1995

Prepared by
**US ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT**

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REPORT PLATES

PLATE 1	VICINITY MAP
PLATE 2	SITE LOCATION MAP
PLATE 3	SITE INSPECTION MAP

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 Cadiz Lake Sonic Target # 5 is located approximately 39 miles northeast of 29 Palms, California in San Bernardino County (see Plates 1 & 2). The site consisted of 1,280 acres acquired from the Department of Interior (DOI) and 1,280 acres acquired by lease dated 11 February 1942 from Southern Pacific Company.

The site was used by March Field for bombing practice. The site is also within the former California-Arizona Maneuver Area (C-AMA).

Improvements consisted of the construction of aiming circles and may have included sonic scoring equipment.

The site was declared surplus on 2 August 1948. The 1,280 acres acquired from DOI were relinquished to DOI by letter dated 21 April 1949. The lease over 1,280 acres was terminated effective 16 January 1956.

The site is currently owned by the Cadiz Land Company.

1.3 Purpose

This Archives Search Report (ASR) compiles information obtained through historical research at various archives and records-holding facilities, air photo review, interviews with persons associated with the site, and a site inspection. All efforts were directed at determining the possible use or disposal of ordnance on the site.

1.4 Scope

This site had multiple use by DoD. It was a bombing target as well as being part of the Desert Training Center and the land used for Operation Desert Strike. All of these uses are discussed in this ASR in order to provide a complete picture of all the possible ordnance that could be on the site.

This ASR focuses primarily on the potential for HE bombs, practice bomb spotting charges, small arms ammunition, artillery rounds, and CWM to still be present on the site.

This report presents site history, description and characterization of the immediate surrounding area, real estate ownership information, and evaluation of potential ordnance contamination.

2.0 PREVIOUS INVESTIGATIONS

2.1 Corps of Engineers Documents

An Inventory Project Report (INPR) was prepared in June 1992 by the U.S. Army Corps of Engineers, Los Angeles District.

2.2 Other Documents

No other investigations were located pertaining to this project.

3.0 SITE DESCRIPTION

3.1 Land usage

3.1.1 Location

The former Cadiz Lake Sonic Target # 5 is located approximately 39 miles northeast of 29 Palms, California in San Bernardino County (see Plates 1 & 2).

3.1.2 Past Use

The site was used by March Field for bombing practice and was also within the former C-AMA.

3.1.3 Present Use

The site is currently owned by the Cadiz Land Company.

3.2 Climatic Data

Based on the climatological data at Victorville, rainfall is scant in all months. Precipitation occurs mainly in the winter. Summers are practically rain free. Measurable rain falls on about one day in four from late October into early April, but in three years out of four, traces or less are reported for the entire months of June, July and August. June is usually the month of minimum rainfall (0.04 inch) on the average. January is usually the month of maximum rainfall (1.01 inch) on the average. The total annual precipitation is about five inches at Victorville. Of this, 30% usually falls in April through September. Most of the rains fall during the winter and spring months. Summer rains are irregular and often occur as cloudbursts or thunderstorms which frequently cause considerable damage. Very small amounts of snow are recorded during the winter months. The average seasonal snowfall is about two inches at Victorville. The greatest snow depth at any one time during the period of record was 17 inches at Victorville. Days when there is snow on the ground are rare, and the number of such days varies from year to year.

The climate is normally desert type and mild during the winter months. Summers are long and very hot. Winters are quite warm despite an occasional series of days when the nightly temperature drops below freezing. In winter, the average temperature at Victorville is 45° F. The average daily minimum temperature during the winter months is 30° F. However a temperature equal to 17° F, was recorded in 1949. In summer, the average temperature is 77° F at Victorville. The average daily maximum temperature is 97° F. The highest recorded temperature in San Bernardino County was 116° F on July 14, 1972 at Barstow.

The average relative humidity in mid-afternoon is about 20%. Humidity is higher at night, and the average at dawn is about 50%. Percentage of possible sunshine is 90% of the time in summer and 60% in winter. The mean annual air temperature for nearby Adelanto is 62° F.

The prevailing wind is from the west. Average windspeed is highest, eight miles per hour, in summer. The highest recorded windspeed is 87.4 miles per hour. Strong dry winds come from varying directions throughout the year. A windspeed of more than 12 miles per hour is sufficient to lift and carry sand. A windspeed of more than 12 miles per hour occurs on an average of 22% of the year, at George Air Force Base in Victorville. Most of the erosive winds at George Air Force Base come generally from the south and west.

3.3 Geology and Soils

3.3.1 Geology/Physiography

This site is located in the western Mojave area of the Basin and Range Physiographic province. This area is characterized by great expanses of gentle surface with isolated knobs, buttes, ridges, and locally hilly areas. The western region also harbors several good-sized dry lakes like the Rosmond, Rogers, Mirage, and Cadiz. These lakes are on one of the flattest natural features on land, known as playas.

The region is bounded by mountains but is not a lowland. Much of the area is at elevations ranging from 2,000 to 2,500 feet above sea level. A great variety of lithologies make up the core of several of the mountain ranges. These rocks, reflected in the Quaternary alluvium, range in age from Mesozoic granitic intrusives to diverse pre-Cretaceous metamorphic and metasediments with some younger volcanics. These contrasting lithologies weather differently, develop distinctive surfaces, and thus affect the geometry, morphology, and photographic tonal expression of Quaternary landforms and soils.

3.3.2 Soils

The soil within the Cadiz Lake Sonic Target area is Holocene-age post pluvial sediments of active fluvial or eolian transport. Typically the surface is still sufficiently unstable so that neither desert pavement nor a stone-free vesicular silt have yet formed. The surface is also calcareous in places due to the continual influx of dust on the soils. These soils were weathered from easily weatherable metamorphic and volcanic rock. In some areas, disseminated lime occurs at a depth around 24 inches (Shlemon).

3.4 Hydrology

3.4.1 Ground Water

The Mojave Desert is a desert basin. Basins materials were derived from alluvial sediments from the surrounding mountains. These alluvial deposits form the only aquifers in the underlying region. The sedimentary units which compose the alluvial fill have different physical, geologic, and hydrologic characteristics.

3.4.2 Surface Water

Runoff from the site flows into the Mojave River. The Mojave River is sometimes called the "upside-down river" because through most of its course water generally flows underground; water flows above ground only after storms, yet miles downstream it surfaces and flows for a distance. Perennial flows occur near Victorville, in the vicinity of Camp Cady and in Afton Canyon. The perennial aboveground flows are caused by natural underground barriers, which force ground waters to the surface. The Mojave River at Hesperia near Victorville has a drainage area of 209 square miles. A maximum peak flow of 21,300 cfs corresponding to a stage of 7.61 feet occurred on February 8, 1993. A minimum flow equal to 107 cfs for a stage of 1.4 feet was recorded on February 21, 1990.

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 (NDDDB).

The USFWS reported that no Federally endangered, threatened, or candidate species occur in the vicinity of the Cadiz Lake Sonic Target # 5.

The NDDDB did not list any State protected species in the vicinity of the Cadiz Lake Sonic Target # 5.

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

Cadiz Lake Sonic Target # 5 is located near the City of 29 Palms, San Bernardino County, California.

3.6.2 Population Density

City:	29 Palms	County:	San Bernardino
Area:	54 sq. miles	Area:	20,064 sq. miles
Population:	14,837	Population:	1,556,300
Density:	274.76 persons / sq. mile	Density:	77.6 persons / sq. mile

3.6.3 Types of Businesses

The number of business establishments in San Bernardino County can be broken down by type as follows: manufacturing, 6.8%; agriculture, 1.7%; services, 31.0%; trade and finance, 38.7%; other, 21.8%. About 29.9% of the employed population in the county, are employed by service businesses. Also prominent are: retail trade businesses, approximately 25.2%; manufacturing businesses, approximately 16.0%; and finance, insurance, and real estate businesses, approximately 10.3%. Approximately 18.6% are unclassified. Foregoing percentages are at mid March 1990. The largest employers are: 29 Palms Marine Corps Base, the National Parks System, 29 Palms School District and Fader Brothers.

3.6.4 Types of Housing

Housing in 29 Palms is comprised of both single and multi-family dwellings. The median value of 5,958 specified owner-occupied housing units in 29 Palms is \$67,300.

3.6.5 New Development in the Area

Development in the 29 Palms area include residential dwellings, as well as the continued growth of more businesses, especially in tourism.

3.6.6 Typical Cross-Section of Population

The percentage of the population under the age of 18 is 30.4%, and over the age of 65 is 9.3%. The median age is 27.

4.0 HISTORICAL ORDNANCE USAGE

4.1 Historical Site Summary

4.1.1 Cadiz Lake Sonic Target # 5

The Army Ground Forces used parts of the area covering the Cadiz Lake Bombing and Gunnery Range and Sonic Targets in training, and then turned them over to the Fourth Air Force (Headquarters Fourth Air Force 1945a).

The Secretary of War requested withdrawal of land for the Cadiz Lake Air-to-Ground Gunnery Range and Sonic Targets from the Secretary of the Interior on July 25, 1946 for the training of graduates of March Field. On March 4, 1947, the Secretary of War stated that a necessity no longer existed for those areas and the request was withdrawn (Secretary of the Interior 1947).

The U.S. Air Force declared the Cadiz Lake Air-to-Ground Gunnery Range and Sonic Targets # 1 to # 9, inclusive, surplus to their needs in an August 2, 1948 Declaration of Excess (Headquarters U.S. Air Force 1948).

In September 1952, the Corps of Engineers, Los Angeles District, asked the Air Force to justify if Cadiz Lake property was still required, as they wished to dispose of it. The Air Force proposed reopening the area as the Cadiz Lake Bombing and Gunnery Range, to be used for radar demolition bombardment operations. By June 1953, the Air Force was still planning the range, but it was not yet underway. In September 1953, the Air Force decided that Cadiz Lake Bombing and Gunnery Range was no longer required, since the 15th Air Force was allowed to use a portion of El Toro Marine Corps Reservation for its training requirements. Headquarters 15th Air Force formally withdrew its request to establish the Cadiz Lake Bombing and Gunnery Range as a danger area at the Los Angeles Regional Airspace Subcommittee meeting held on September 24, 1953 (Headquarters U. S. Air Force 1953).

4.1.2 Cadiz Lake Usage

Units of the Fourth Air Force stationed at March Field reportedly began using scattered portions of a large area between Amboy, 29 Palms and Grommet, California in 1944. The Fourth Air Force was unsuccessful in its attempts to obtain authority to acquire this area, about 240,000 acres, and to be called the Bristol Lake Bombing and Gunnery Range. The area they eventually acquired was considerably reduced to scattered areas totalling about 50,000 acres and the title was changed to Cadiz Lake Air-to-Ground Gunnery Range and Sonic Scoring Targets. One document reports that the Fourth Air Force intensively used the range and bombing targets in 1944 and 1945 for bombing and gunnery training. Heavy bombardment crews at March Field used the M-1A1 or M-4 spotting charges for night or day bombing whenever the supply

permitted, and when necessary the crews used M-3 spotting charges. Documentation did not indicate which ranges were used for these spotting charges (Headquarters Fourth Air Force 1945b). The Fourth Air Force moved from March Air Force Base and by 1947 the training areas were no longer needed (Los Angeles District Corps of Engineers 1947). In April 1948, March Air Force Base conducted air-to-ground gunnery training at Muroc and over the Chocolate Mountains Range with the permission of the Navy (Air Inspector 1948).

4.1.3 Cadiz Lake Decontamination and Clearance

A Corps of Engineers memo dated June 18, 1948 stated that the Corps of Engineers inspected and dedudded the Cadiz Lake Air-to-Ground Gunnery Range and Sonic Targets. The memo does not elaborate on the munitions found nor how they performed dedudding. The memo also states that the extent of use by the Army Air Forces is unknown, and recommends that all areas be declared excess, after which the Corps would make a reconnaissance of the gunnery range and bombing targets, and additional dedudding would be performed, if necessary (Corps of Engineers South Pacific Division 1948).

The Corps of Engineers, Los Angeles District, inspected Cadiz Lake Sonic Targets # 1 to # 6 and the unnumbered target in 1948. All seven targets were reported to require dedudding, as black powder cans used as spotting charges for 100 pound practice bombs were found on each target. The inspectors also found evidence of usage of 500 pound General Purpose demolition bombs on Target # 2, by way of one found dud, craters, and bomb fragments. The inspectors estimated bomb scrap from Target # 1 to be 70 tons, from Target # 2 to be 60 tons, and from Target # 4 to be 40 tons (Los Angeles District Corps of Engineers 1948).

A document in Army Ground Forces records shows duds located in Cadiz Lake include 27 105mm high explosive Howitzer firing shells and in Cadiz Valley 117 4.5 inch high explosive firing shells (Army Ground Forces 1942).

A Clearance Report for Cadiz Lake Sonic Targets dated March 17, 1949 lists the duds found on Cadiz Lake Sonic Target # 5:

- 120 M38A2 with M4 bursters.
- 1 Grenade, hand, smoke.

(Los Angeles District Corps of Engineers 1949a).

The Corps of Engineers issued a Certificate of Clearance for Cadiz Lake Sonic Targets # 1 through # 6 and one unnumbered target on 23 February 1949. According to the Certificate, the targets were given a careful visual search, all materials of an explosive nature were destroyed, and all bombs and/or military scrap were removed from the areas. The entire areas were listed as safe for any purpose for which the land was suited (Los Angeles District Corps of Engineers 1949b).

4.1.4 The California-Arizona Maneuver Area/Desert Training Center

The Cadiz Lake Sonic Targets are within a huge area of the California desert that was used from April 1942 to April 1944 as the Desert Training Center (DTC). The area was also known as the California-Arizona Maneuver Area (C-AMA). The Army Ground Forces instituted the DTC for the purposes of training mechanized units to live and fight in the desert, to test and develop suitable equipment, and to develop tactical doctrines, techniques, and training methods. The C-AMA was dissolved on April 30, 1944. Desert Center Army Airfield and other airfields functioned as part of the DTC. Air operations provided tactical support of the ground forces. Planes flew support sorties for the maneuvers including reconnaissance, bombing, and strafing (Army Ground Forces 1946a). Until Desert Center Army Air Field was placed on inactive status in November 1944, it served as a landing ground for B-24 crews flying combat training missions from March Field (Headquarters Desert Center AAF 1944).

4.1.5 C-AMA/DTC Ordnance and Chemical Warfare Usage

The following list of munitions gives an idea of the type and quantity of munitions used in maneuvers at the DTC. The Chief of Ordnance was requested to issue credits for the following quantities of ammunition for the DTC for February 1943:

Cartridge, Carbine, Cal. .30	500,000 rounds
Cartridge, Ball, Cal. .30	5,000,000 rounds
Cartridge, Tracer, Cal. .30	500,000 rounds
Cartridge, Ball, Cal. .45	400,000 rounds
Cartridge, Ball, Cal. .50	600,000 rounds
Cartridge, Tracer, Cal. .50	150,000 rounds
Shot, TP, 37mm AT & T	25,000 rounds
Shell, Practice, 60mm Mortar	500 rounds
Projectile, M69, 60mm Mortar	500 rounds
Shell, Practice, 81mm Mortar	125 rounds
Shell, Smoke, 81mm Mortar	500 rounds
Shell, HE, 75mm Gun, Reduced Charge	8,000 rounds
Shell, HE, 75mm Gun, Super Charge	8,000 rounds
Shell, Blank, 75mm Gun	1,000 rounds
Shell, HE, 75mm Howitzer	2,000 rounds
Shell, HE, 105mm Howitzer	3,500 rounds
Shell, HE, 155mm Howitzer	2,000 rounds
Shell, HE, 155mm Gun	800 rounds
Grenade, AT, M11	1,000 each
Grenade, Hand, Offensive, MK III	1,000 each
Grenade, Hand, Fragmentation, MK II	1,000 each
40mm AA	10,000 each
Fuze, Mine, AT, Practice	1,000 each

(Headquarters Army Ground Forces 1943a).

The Chief of Chemical Warfare Service requested the reduction of DTC's Chemical Warfare Service training ammunition credit for HS (mustard gas), for September 1943 through November 1943, from 14,369 pounds to 1,800 pounds and to delete the credit for the item Chlorine. This indicates that at least 1,800 pounds of mustard gas was probably credited to the DTC to be used in Chemical Warfare Training. There is no indication of how much mustard gas was actually used or where it was used (Headquarters Army Ground Forces 1943b).

Another indication of the types of ordnance used in the C-AMA are the items stored at ammunition storage depots there. Ammunition storage records showing a list of suspended excess items to be returned to depots from several storage areas in the C-AMA included the following:

Gun, 75mm, M27A1, blank	1 ea gage
Fuze, Mine, AT (Anti-Tank), practice	200 each
Fuze	96 each
Cartridge, ball, cal. .30, M2	3,000 rounds
Cartridge, blank, cal. .22	3,000 rounds
Caps., breech bullet, cal. .22	2,000 rounds
Cartridge, Cal. .22, Long Rifle	12,500 rounds
Cartridge, Carbine, Cal. .30	10,000 rounds
Shell, HE, M48, w/fuze, PD, M54, 75mm Guns	300 rounds
Rocket, practice, 2.36 inch, M7	620 rounds

(Headquarters Army Ground Forces 1944a)

The size and desolation of the C-AMA afforded realistic training. Antiaircraft artillery units and units equipped with antiaircraft weapons could fire at towed targets, restricted only by the limited number of tow-target missions that were provided. Trainees used flamethrowers against pillboxes. Firing could be carried on without fear of intruders or trespassers being harmed. The training cycle included combat branches laying mine fields and removing them. In one maneuver, troops laid mines on the ground surface of Palen Pass. Troops with automatic weapons conducted night firing at aerial targets. Infantry troops conducted small arms practice firing at targets. Tanks, artillery, and planes coordinated in combat command firing exercises against a supposed hostile force. In some instances, airplanes dive-bombed with only flour bags as bombs (Army Ground Forces 1946b).

The U.S. Marine Corps Air Station at El Centro, California also used areas in the C-AMA for bombing and gunnery. The Commanding Officer of the Army Service Forces issued a permit for them to continue using the C-AMA area on March 27, 1944. No details were given on what areas of the C-AMA were used, the types of munitions used, or how long the areas were used (Headquarters U.S. Marine Corps Air Station 1944).

4.1.6 C-AMA/DTC Decontamination and Clearance

In 1944, G-4 requested the X Corps reconnoiter and mark all duds in the C-AMA, after which bomb disposal squads would dispose of all marked duds. The X Corps Chief of Staff responded that there was a lack of records available regarding firing in the C-AMA, and was certain that there had been firing for which there is no record available to determine location. This meant that a complete job would not be possible, and the Chief of Staff commented that it would probably be a matter of years for this area to be thoroughly policed (Headquarters Army Ground Forces 1944b).

When the C-AMA closed, depots in the combat zone were to be closed and stocks shipped to Base General Depot, Pomona Ordnance Base, or out of the area. For location and disposal of unexploded shells, the Army recognized that practically the entire maneuver area had been used for firing during a period of approximately one-and-a-half years. In a majority of cases no records were available detailing areas in which firing had actually been conducted. The training requirements and preparations for movement of troops prevented any extensive use of troops to search for duds. Headquarters and Headquarters Battery of the X Corps Artillery were to police the Iron Mountain Range. The task of restoring the fortified area of Palen Pass to its original condition exceeded the capabilities of the troops available, so it was to be left as it was and marked by appropriate signs. Troops were to collect and dispose of materials of various types which had not been incorporated into Palen Pass. From January 17, 1945 to April 15, 1945, troops turned in to the zone of interior the following ordnance material: 1,239 pieces of artillery, 43,708 small arms weapons, 6,110 tons of serviceable parts (automotive and weapons), 3,830 tons of reclaimable parts, 989 tons of scrap, and 13,604 vehicles (Army Ground Forces 1946b).

A newspaper article from 1973 reminded desert visitors of the dangers of the former C-AMA. Troops discovered an ordnance disposal area near one of the former camps which included artillery shells and a defused mine. Decontamination experts said that it was practically impossible to decontaminate the entire area. The newspaper article also said the BLM erected signs warning of possible unexploded ammunition near portions of the C-AMA in Imperial, San Bernardino, and Riverside counties (*Press Enterprise* 1973).

A local historian that has spent time studying military remnants in the former C-AMA also warns that there is still live ordnance in the desert. Visitors to the area have found artillery rounds, mortar rounds and live practice anti-tank land mines in recent years (Blake 1988).

4.1.7 Operation Desert Strike

In addition to being within the boundaries of the C-AMA, all of the Sonic Targets were within the boundaries of the maneuver area used in Operation Desert Strike in 1964 (U.S. Geological Survey 1986). From May 16, 1964 to May 30, 1964, the Army, Air Force, National Guard and Army Reserve units from several states used about 13 million acres of the desert in California, Arizona, and Nevada for a major exercise called Desert Strike. The exercise included the use of small arms, tanks (M-48A3 and M-60), self-propelled howitzers, fighter planes, fighter-bomber planes, artillery and mortars (Headquarters Desert Strike 1964).

4.1.8 Desert Strike Ordnance Usage

One report of the Operation Desert Strike exercise noted that planes were practicing target strikes with napalm on a road-rail intersection and 750 pound General Purpose bombs on a tank concentration (Ninth Air Force 1964). However, the purpose of exercise Desert Strike was to show the realities of combat to the greatest degree possible without the use of live ammunition. Items used in Desert Strike to simulate attacks included the M142 Atomic Simulator, which represented a nuclear strike. The M115 Projectile Simulator and the M74 Projectile Simulator represented tank, artillery, or mortar fire. The soldiers used star cluster flares at night to indicate a stoppage in action. Colored smoke simulated gas attacks (United States Strike Command 1964).

4.1.9 Desert Strike Clearance

A reference map used for Desert Strike shows areas as World War II Impact Areas and the legend cautions that duds are in these areas (U.S. Geological Survey c.1962)

No documents were found indicating that a decontaminating or clearance operation was conducted after the 1964 maneuvers of Desert Strike.

4.2 **Review of Historical Records**

**National Archives (I)
8th & Pennsylvania
Washington, DC 20408
(202) 501-5671**

Record Group 18 (Records of the Army Air Forces)

AAG Decimal File. June 1944 to 1946.

Box 2280 March and Muroc sonic targets.

Box 3191 Decimal 686. California. Cadiz targets.

- Entry 293 Central Decimal Files 1939-42, Bulky Files, declassified.
Box 310 March Field, CA 1941. Decimal 600.1. No pertinent information.
Box 324 Decimal 614 Bombing Ranges to 620 Housing; no pertinent information.
Box 331 Decimal 686, photos and charts of airfields by state, Alabama to California; no pertinent information.
- Entry 294 Bulky Files Oct. 1942-44.
Box 826 Cadiz Air Support Command Base.
Box 965 Topeka AAF.
Box 966 Topeka.
- Central Decimal Files 1939-42. Decimal 686.
Box 323 Leases to roads. No pertinent information.
Box 909 Three folders on misc. bomb ranges. Nothing for March or Cadiz.
Box 956 Proposals for Cadiz and Victorville.
Box 957 Correspondence for small airfields. Proposals.
Box 1521 March AFB civilian reports.
Box 1548 March Field. No pertinent information.
Box 1550 Folder on landing fields. No pertinent information.
Box 3192 March AFB and Victorville.
- Entry Central Decimal Files 1917-38, Project Files - Airfields.
Box 2067 McChord - March Field. Film making at March. No pertinent information.
Box 2068 Taxes. Reports of savings and loans. Construction projects. No pertinent information.
Box 2069 Cost records. No pertinent information.
Box 2070 Claims - Accounts against the Army. No pertinent information.
Box 2071 Service records. No pertinent information.
Box 2073 No pertinent information.
Box 2074 Promotions. No pertinent information.
Box 2075 Misc. details - Absences. No pertinent information.
Box 2076 Discharges to promotions. No pertinent information.
Box 2077 Enlisted assignments, discharges. No pertinent information.
Box 2078 Grades, ratings and retirements. No pertinent information.
Box 2079 Returns - Rates(officers). No pertinent information.
Box 2080 Rates of pay. No pertinent information.
Box 2081 Airfields to Admin. orders. No pertinent information.
Box 2082 March Field decimals 300.4 to 300.6; no pertinent information.
Box 2083 Drill regulations to activity reports. No pertinent information.
Box 2084 Activity reports. No pertinent information.
Box 2085 March Field decimals 321.9 to 331.4; no pertinent information.

Box 2086 Inspections, boards. No pertinent information.

Box 2087 Foreign officers. No pertinent information.

Entry Central Decimal Files 1939-42

Box 910 Decimal 614 bombing ranges; no pertinent information.

Box 911 Decimal 614 bombing ranges to 618.2 parade grounds; no pertinent information.

Entry Project Files Air Fields 1939-42

Box 1542 March Field decimals 000 to 210; no pertinent information.

Box 1543 March Field decimals 210 to 221; no pertinent information.

Box 1544 March Field decimals 230 to 300; no pertinent information.

Box 1545 March Field decimals 300 to 320; no pertinent information.

Box 1546 March Field decimals 320 to 327; no pertinent information.

Box 1547 March Field decimals 352 to 400; no pertinent information.

Box 1549 March Field decimals 470 to 631; no pertinent information.

Record Group 153 (Records of the Judge Advocate General)

Reservation File 1800-1950

Boxes 73-90: California airfields.

Record Group 160 (Records of the Headquarters Army Service Forces)

Entry 27 Correspondence Files 1942-46

Boxes 44, 48, 49 and 50: Camp Haan and C-AMA. 9th Service Command.

Entry 139 Surplus Industrial Facilities

Boxes 842, 843 and 845: Dispositions of airfields.

Record Group 337 (Records of the Army Ground Forces)

Entry 16 Army Field Forces 1942-52

Box 14 Decimal 353; no pertinent information.

Box 15 Decimal 353 to 353.02; no pertinent information.

Box 16 Decimal 353.8 to 354.2; no pertinent information.

Box 17 No pertinent information.

Box 18 Decimal 354.2; no pertinent information.

Box 45 Decimal 471.6 to 660.2; no pertinent information.

Entry 29A

Box 87 Subject Correspondence file 1942-44. No pertinent information.

Box 88 California - Arizona Maneuver Area 1942-44. Base General Depot. C-AMA - Commo Zone. No pertinent information.

Box 89 California - Arizona Maneuver Area 1942-44. Pomona Ordnance Base. No pertinent information.

Box 90 1942-44 California-Arizona Maneuver Area. Camp Young maps. Cherry Valley Hospital, Beaumont, CA. No pertinent information.

Box 91 California-Arizona Maneuver Area. Dud location list. Index to Impact Area Map (no map).
Box 92 III Corps. No pertinent information.
Box 93 IV Corps. No pertinent information.
Box 94 Subject Correspondence File 1942-44. No pertinent information.
Box 96 Subject Correspondence File 1942-44. No pertinent information.
Box 97 General Staff 1942-44. DTC maneuver reports. No pertinent information.

Entry 29C

Box 125 Desert Training Center. Decimal File 1942-43. Decimal 353./2. Training for Infantry Units. No pertinent information.
Box 126 Decimal File 1942-43, 353.01 to 353.8. Maneuvers - Desert Training Center.

Entry 29D

Box 127 Desert Training Center Histories 1942-43. No pertinent information.
Box 128 Desert Training Center Histories 1942-43.
Box 129 Desert Training Center History 1942-43. Maneuvers - Maps. Quad maps. No pertinent information.
Box 130 Desert Training Center Histories 1942-43. History of Desert Training Center. No bombing documents. No pertinent information.

Entry 40 General Staff Decimal File 1941-45.

Box 2 Decimal 323 to 334.34. No pertinent information.
Box 3 Decimal 353 to 400.1. Training at Fort Ord, supply records. No pertinent information.

Entry 51A Army Field Forces

Box 17 C-AMA. Camp Young finance records. Exercise reports. No pertinent information.

Entry 55 Decimal 681 - 684

Box 1121 Target Ranges.
Box 1122 General correspondence 1942-48. Decimal 684.
Box 1123 Firing ranges (nationwide). Decimal 684.

Entry 55A. Project Decimal File 1942 - 47

Box 1151 Antiaircraft.
Box 1169 Third Army Target & Bombing Ranges.
Box 1233 Army Air Forces.
Box 1268 California - Arizona Maneuver Area.
Box 1269 California - Arizona Maneuver Area.
Box 1270 California - Arizona Maneuver Area.
Box 1271 California - Arizona Maneuver Area.
Box 1272 All DTC camps with maps of ranges.
Box 1273 California - Arizona Maneuver Area.
Box 1274 California - Arizona Maneuver Area.
Box 1275 C-AMA.

Box 1276 C-AMA.
Box 1277 C-AMA.
Entry 56 Decimal File 1949-50
Box 158 Minor notes about various ranges under decimal 684.

Record Group 389 (Records of the Provost Marshal General)
Entry 457 Operations Branch, Subject Correspondence File 1942-46
Box 1428 Fort Washington, MD to Fort Devens, MA.

Record Group 407 (Records of the Adjutant General's Office)
Project Decimal File 1940-45
Box 4377 Construction projects at March Air Force Base.
Adjutant General File 1946-48
Box 1719 Folder Camp Chaffee. No pertinent information.

**National Archives at College Park
8601 Adelphi Road
College Park, MD 20740
(301) 713-6800**

Record Group 18 (Army Air Forces)
Entry 2 Air Adjutant General Unclassified Decimal File June 1944 to 1946
Box 2255 Decimal 686 Arizona to California 1946. No pertinent information.
Box 2277 Decimal 686 airfields, Arizona to California 1945; several items copied on Cadiz.
Box 2280 Decimal 686 - California 1945. One folder on March AFB. No pertinent information.
Box 2308 Decimal 686 airfields, Arizona to California 1944; document on AAA range in C-AMA.
Box 2309 Decimal 686. California 1944. No pertinent information.
Box 2310 Decimal 686 airfields, California 1944; folder on March Field; no pertinent information.
Box 2311 Decimal 686 airfields, California 1944; no pertinent information.
Box 2312 Decimal 686 airfields, California to Colorado 1944; no pertinent information.
Bulky Decimal File 1947
Box 2790 Decimal 601 to 620. Buildings and grounds. No pertinent information.
Box 2837 Decimal 463.7 to 700. Map - Wendover Bombing and Gunnery Range 1943.

Entry 2A Air AG Declassified Bulky Decimal File 1948

Box 866 Decimal 600.1 construction to 686.61 landing mats; no pertinent information.

Box 3183 Decimal 601 - 611. No pertinent information.

Box 3188 Decimal 680.4 to 684. Various Air Force bombing-gunnery ranges. No pertinent information.

Entry 2B Air AG Bulky Decimal File 1944-46

Box 2256 Decimal 686. California 1945. No pertinent information.

Box 2257 Decimal 686. California 1945. No pertinent information.

Box 2278 Decimal 686. California 1945. No pertinent information.

Box 2279 Decimal 686. California 1945. No pertinent information.

Box 2281 Decimal 686. California 1945. No pertinent information.

Box 2425 Decimal 602 to 726.5; no pertinent information.

Entry 2C Air AG Decimal File 1947

Box 2794 Decimal 684 to 686. Dead Man Lake proposal and Wilcox Dry Lake by March in desert.

Entry 292 Central Decimal Files October 1942 to May 1944

Box 1479 Decimal 600 construction Burbank to Camden; no Cadiz folder; no pertinent information.

Box 1536 Decimal 600. Marathon, Florida to Marietta, Georgia. No pertinent information.

Entry 294 Bulky Decimal Files October 1942 to 1944

Box 826 Decimal 686 airfields Cadillac to Calvert; two folders on Cadiz Air Support Command Base but not pertinent.

Box 901 Site Surveys and Site Board Reports. No pertinent information.

Record Group 77 (Office of the Chief of Engineers)

Security Classified Subject Files 1940-45

Box 259 Letter C. No California. Four folders on Camp Chaffee.

Box 545 March Field, California. Decimal 600.914. No pertinent information.

Box 546 March Field, California. Decimal 601.1. No pertinent information.

Record Group 92 (Office of the Quartermaster General)

Entry 1890 General Correspondence (Subject File 1936-45)

Box 122 Decimal 322.01 - 323.3. No pertinent information.

Box 684 Decimal 531.7 - 537. No pertinent information.

Box 729 Decimal 652. Cantonment construction 1941. No pertinent information.

Box 737 Target ranges. No pertinent information.

- Entry 1890A Formerly Classified General Correspondence (Subject File)
1936-54
Box 58 1946-52, decimal 354.2 Desert Rock to 354.2 Fafor; no pertinent information.
- Entry 1892 General Correspondence Geographic File 1936-45
Box 71 Camp Butler National Cemetery to California. No pertinent information.
Box 72 California (1 Folder). No pertinent information.

Record Group 107 (Records of the Chief of Engineers)

- Entry 43 Airfields-Airbases 1940-45
Box 204 California - Colorado. No pertinent information.
- Entry 74 Project Decimal File 1943-46
Box 127 Aviation Fields & Air Bombing ranges. Letters C and D. No Cadiz or Chaffee.
- Entry 211 (formerly entry 43) Airfields and Airbases 1940-45.
Box 203 Alabama to California. No pertinent information.

**National Archives
Suitland Reference Branch
4205 Suitland Road
Suitland, MD 20409
(301) 457-7010**

Record Group 72 (Bureau of Aeronautics)

- Entry 69A-2454 Records relating to inactive air stations ("Real Estate Files")
1943-59
Box 2 California stations Arcata Airport, Bidwell, Camp Beale AFB, El Segundo, Eureka Naval Air Field, Camp Gillespie, Haster Outlying Field, Hollister NAS, Naval Auxillary Air Station, NAS Livermore, Madera, Daggett Annex and Mojave.
Box 3 California stations NAS Oakland, Watsonville, Ventura-Oxnard, NAS Vernalis, 29 Palms, Santa Barbara, Santa Rosa, NAS Terminal Island.

Record Group 77 (Records of the Office of the Chief of Engineers)

- Entry 353
Box 138 No pertinent information.
Box 141 No pertinent information.
- Entry 391 Construction Completion Reports, 1917-43
Cadiz Lake Sonic Target.
- Entry 393 Historical Record of Buildings 1905-42
Cadiz Lake.

Entry 61A0277 General Correspondence with District, 1941-45

Box 140 Los Angeles District.

Accession A51-59 Records Relating to Airfields, 1945

Decimal 684 Bombing and Gunnery Ranges.

Accession A51-0277 District Files, 1945

Los Angeles District.

Decimal 400.44 Accidents by ordnance blast, gunfire.

Decimal 600 Building and Land Acquisition.

Record Group 175 (Chemical Warfare Service)

Entry 1 Chemical Warfare Service Correspondence File 1939-42

Box 220 Decimals 400.312/211 to 400.312/366, copied document on March Field 400.312/291.

Box 267 Decimals 470.1/401 to 470.6/732; no pertinent information.

Entry 2 Index Briefs 1918 - 1942

Box 52 Bombs through Bon Air Coal & Iron Ore Company; no bombing ranges listed.

Box 55 Brigade through Browning; no Bristol Lake listed.

Box 63 Cadiz.

Box 64 Cabot through Camp Butner; no Cadiz listed.

Box 76 Certificate through Chaney, N.K.; no Camp or Fort Chaffee listed.

Box 240 Fort Benning through Fort Holabird; no Fort Chaffee listed.

Box 289 Mape thru Masks. No pertinent information.

Box 382 Bombing and Gunnery Ranges.

Box 497 Tin through Toxement; no Townsend listed.

Entry 4 Central Correspondence Files, 1918-42.

Box 38 General Correspondence.

Accession 67A4900 Station File, 1946-54

Box 46 Cadiz Lake Sonic Targets (related to March AFB).

Record Group 338 (U.S. Army Commands 1942-)

Entry 4th Army AG Section General Correspondence

Box 74 Decimal 380-381; no pertinent information.

Box 75 Decimals 451 through 461; no pertinent information.

Box 76 Decimals 400.7 thru 413.53; no pertinent information.

Box 77 Decimal 463 thru 472.8; no pertinent information.

Box 78 Decimals 483 through 580 (actually 474 through 475); no pertinent information.

Box 80 Decimals 602 through 660.02 (actually 600.03 through 601.53); no pertinent information.

Box 81 Decimal 671 - 800. San Diego, Yuma Arizona maps. No pertinent information.

Entry 4th Army and Western Defense Command AG Section General
Correspondence

Box 21 Decimals 660.42 through 662.1, various California and Alaska
sites; no pertinent information.

Record Group 341 (Records of the Headquarters of the U.S. Air Force)

Entry 494 Air Force Real Estate Facilities 1948-55.

Box 54 No pertinent information.

Box 99 March Field.

Record Group 407 (Adjutant General's Office 1917-)

Entry Decimal File 1940-45

Box 2707 Decimal 353, training; no pertinent information.

Box 2708 Decimal 353; no pertinent information.

Box 2709 Decimal 353 coast artillery training; no pertinent information.

Box 2710 Decimal 353 coast artillery and harbor defense training; no
pertinent information.

Box 2711 Decimal 353 firing training; no pertinent information.

Box 2712 Decimal 353; no pertinent information.

Box 3963 Decimal 614, various ranges; no pertinent information.

Box 3964 Decimal 614, various ranges; no pertinent information.

Box 3965 Decimal 614, various ranges; no pertinent information.

Box 4047 Decimal 681.1 to 686; no pertinent information.

Entry Decimal File 1946-48

Box 1234 Decimal 353.01; no pertinent information.

Box 1235 Decimals 353.02 to 353.5; no pertinent information

Box 1503 Decimals 611 to 619.4; no pertinent information.

Box 1519 Decimals 681 to 686, various bombing ranges and airfields;
no pertinent information.

Washington National Records Center
4205 Suitland Road
Suitland, MD 20409
(301) 457-7010

Record Group 291 (Records of the General Services Administration)

Accession 66A-2712

Box 31 Victorville: George AFB.

Record Group 341 (Records of the Headquarters of the U.S. Air Force)

Accession 61A-1464

Boxes 5 - 10 California.

Record Group 342 (Records of the U.S. Air Force Commands)

Accession 70A-0688

Box 1/15 15th AF publications, regulations, manuals, supplements, speeches 1961-67; no pertinent information.

Box 3/15 Operations, standardization, training, Combat Crew Training School; no pertinent information.

Box 4/15 March AFB general correspondence in 1967. No pertinent information.

Box 5/15 General correspondence 1967 for electric, water, heating systems.

Box 6/15 1967 operations and maintenance at March AFB with 15th AF; no pertinent information.

Box 7/15 1967 operations and maintenance correspondence with 15th AF bases; no pertinent information.

Box 8/15 MCP correspondence, family housing, safety, training; no pertinent information.

Box 9/15 1967 activities at March AFB such as laundry, BX, maintenance; no pertinent information.

Box 10/15 15th Air Force at March AFB. General correspondence records 1967.

Box 11/15 Training and medical reports in 1967 at March AFB (15th Air Force).

Box 13/15 1967 training, awards, leave, pay, disciplinary actions; no pertinent information.

Box 14/15 March Air Force Base (15th Air Force) 1967 pay and finance records.

Box 15/15 Accounting records at March AFB in 1967.

Accession 74-0034

Box 1/2 March Air Force Base finance and pay records.

Box 2/2 March AFB finance and fund reports.

Accession 75-0031

Box 1/55 Accidents and incidents in 1971 at March Air Force Base. No pertinent information.

Box 2/55 Accidents and incidents in 1971 at March Air Force Base. No pertinent information.

Accession 79-0216

Box 1/2 Management, publication, operations, training for 15th AF and 22nd Bomb Wing; no pertinent information.

Box 2/2 March AFB regulations and manuals. Bombing improvement program. No pertinent information.

Accession 85-0177

Box 1/2 Aircraft and missile incidents at 15th Air Force, March AFB 1978-82. No pertinent information.

Box 2/2 Aircraft and missile incidents at March AFB in 1982. No pertinent information.

Accession 86-0196

Box 1/2 15th Air Force 1982-83. Castle AFB and Grand Forks AFB. No pertinent information.

Box 2/2 15th Air Force 1983. Mather AFB, Beale AFB, Loring AFB, Fairchild AFB. Aircraft or missile incidents. No pertinent information.

Accession 86-0330

Box 1/2 Report of aircraft accidents and investigations; no pertinent information.

Box 2/2 Aircraft or missile incidents at March AFB in 1979 -84. No pertinent information.

Accession 88-0190

Box 1/2 Aircraft and missile incidents at March AFB, Valdez AFB, AK, Castle AFB, Malmstrom AFB, Montana.

Box 2/2 Aircraft and missile incidents at March AFB 1984-85. No pertinent information.

**National Personnel Records Center
Military Personnel Records
9700 Page Avenue
St. Louis, MO 63132-5100
(314) 538-4085**

Record Group 342

Accession 44A-6005 March AFB Installation Development 1941-42

Box 1/1 Roster and changes, training programs, student academic reports at Marana AAF; March 1948 decimal file 684, 600, 601, 602, 630, 623, 637 and 1947 decimals 680, 602 including Cadiz, 684 including Cadiz.

Accession 46A-4057 Training School Construction Projects 1944

Box 1/1 Form 12-B bombing charts from pilots based at Langley Field - records of impacts; Big Springs TX bomber training school; Blythe AAB bombing flight record; Midland TX bomber training school; Laredo AAF Central School for Flexible Gunnery decimals 600 through 673.

Accession 50F-4003 Western Flying Training Command Installation
Development 1940-45

- Box 1/31 Decimal 600. Roswell, Lemoore, Mather, Las Vegas, Luke sites. No pertinent information.
- Box 2/31 Decimal 600. Marfa, Mather, Luke, Las Vegas sites. No pertinent information.
- Box 3/31 Decimal 600. Minter, Oxnard, Pecos, Roswell, 29 Palms, Victorville. No pertinent information.
- Box 4/31 Decimal 600.1 - 600.05. Several folders (and maps) on Minter Field. Kingman and LaJunta sites. No pertinent information.
- Box 5/31 Victorville, Las Vegas, Luke, Ajo, Blythe sites. No pertinent information.
- Box 6/31 Decimal 600.1. Las Vegas, Kingman, La Junta, Hobbs sites. No pertinent information.
- Box 7/31 Decimal 600.1. Las Vegas, Lemoore, Luke Field, Marana, Marfa sites. No pertinent information.
- Box 9/31 Arizona, California, Nevada, and New Mexico sites; no pertinent information.
- Box 10/31 Decimal 601. Acquisition of lands. West coast bomb targets. No pertinent information.
- Box 11/31 Decimal 601.53. No pertinent information.
- Box 12/31 Decimal 601.53, 602, 602.3, 602.7, 611, Victorville. No pertinent information.
- Box 13/31 Decimal 611, 612, 615, 616, 617 ,618 ,618.34. No pertinent information.
- Box 14/31 Decimal 618.34 - 619.4. Dust control and parking lot construction. No pertinent information.
- Box 15/31 Decimal 620 and 632. Barracks-quarters and hospital construction. No pertinent information.
- Box 16/31 Decimal 634 - 636. Mess halls and barracks. No pertinent information.
- Box 17/31 Decimal 673. Air conditioning, ventilation and refrigeration. No pertinent information.
- Box 18/31 Decimal 673. Air conditioning, ventilation and refrigeration. No pertinent information.
- Box 21/31 Decimal 686 general and various 1941-45 and auxiliary fields; 684 Yuma, Buckingham FL, Kingman, Carlsbad; no pertinent information.
- Box 22/31 Reports on CAA airports and military use of municipal airports. No pertinent information.
- Box 23/31 Report of inspections for Flying Schools in 1941. No pertinent information.
- Box 24/31 Community bulletins for areas in California, Arizona, Montana and New Mexico. No pertinent information.

Box 25/31 Decimal 686 Hobbs through Las Vegas; no pertinent information.

Box 27/31 Mather to Phoenix; no pertinent information.

Box 29/31 Decimal 686. 1940. Muroch, Tonopah, Safford Airport, AZ, Tucson, Visalia. No pertinent information.

Box 31/31 686.2 Marfa through Western Flying Training Command; 686.61, 686.62, and 686.63; no pertinent information.

Accession 57C3001 Fourth Air Force.

Boxes 1 - 10 Organizational Planning.

Accession 57H-3001

Boxes 1, 2 and 21 (of 23) Decimal 684 Bombing & Gunnery Ranges.

Accession 57I-3001 Fourth Air Force Installation Development 1940-47

Box 1/1 Decimal 686 to 721.5, HQ Air Defense Command to and from HQ 4th Air Force mostly, including deactivation status and airfield inspection cover letters 1946; various sites 1946; also decimals 686.61, 696.63, 721.5.

Accession 62A-4293 March Studies 1943-46

Box 1/1 HQ 15th Air Force stationed at March, mostly 1958-59 data; reorganization case files 1959-59: Biggs, Castle, Davis-Monthan, Dyess, Ellsworth, Fairchild, Malmstrom, March, Mather, Mountain Home, Travis, Schilling, Vandenberg, F. E. Warren, Walker.

**U.S. Air Force Historical Research Agency
Maxwell Air Force Base
Montgomery, AL 36112**

145.91-569 Bombing and Gunnery ranges 11/36 - 1/41
172.1-10 Desert Training Center C-AMA
286.11-1 March Field, CA. History 420th AFBU 1918-1943.
286.11-1A March Field, CA. History of 1918 - 1940.
286.11-3 March Field, CA. History Jan. - Mar. 1944.
444.01 Desert Maneuvers of 1942, w/76th Tac. Recon. Grp.
450.01-4 Fighter Training in the 4th Air Force, 1942-45.
450.01-5 Bombardment Training in the 4th Air Force, 1942-45.
450.01-18 History of Fighter Control Squadrons 1942-45.
450.01-18B History of 4th Prov. Tow Target Grp & Squadrons 1941-44.
450.273 4th Air Force Station List, 1942 and 1943-49.
450.804 4th Air Force Ordnance Activity Reports.
670.01-1 Fifteenth Air Force. 1943-45.
670.052-1 Fifteenth Air Force. Aug 1942 - October 1944. History.
670.306-2 15th Air Force Historical summary. First year of operations.
Nov. 1943 - Oct 1944.
670.308-2 15th Air Force. Statistical story Nov 1943-45.

670.3084 15th Air Force. Targets - duty sheets. Nov. 1943 - 45.
 670.308-7 15th Air Force. Targets. Tons dropped. Nov. 1943 - 45.
 785.110-1 X Corps C-AMA 1942-45.
 K-WG-5-HI Desert Strike 5th Bomb Wing History May 1964.
 K553.01-3 Ninth Air Force History Jan to June 1964, after action report
 CPX Desert Strike.
 K650.01-27 12th AF History Jan-June 1964, final report Desert Strike.
 K-WG-22-HI History Apr-Jun 1964, 22nd Bomb Wing in Desert Strike.
 K-WG-27-HI 27th Tac Fighter Wing History, Jan - June 1964, Desert Strike.
 WG-22-HI History 22nd Bomb Wing - March AFB Jun - Nov 1949.
 WG-22-HI (Bomb) 22nd Bomb Wing - 1943.
 K-WG-22-HI (S) 22nd Bomb Wing. History 1940-52.
 GP-30-SU-RO 30th Bomb Group - 1943.
 WG-106-HI (Bomb) History 106 Bomb Wing - 1943.
 WG-317-HI 317th Wing - 1943.
 K-WG-366-HI 366th Tac Fighter Wing History, Jan- June 1964, Desert Strike.
 K-GP-Eval-4450-HI 4450th Std. Eval. Grp. - Desert Strike Report.
 K239.309, v.16-1 Air Univ. Review, Nov-Dec 1964.
 K239.309, v.16-5 Air Univ. Review, Umpiring Desert Strike.
 K177.952 Daily Newspaper, Needles, CA.
 K670.01 Fifteenth Air Force Nov. 1943 - Sept. 1963.

Squadron Histories - March Air Force Base.

SQ-Bomb-21-HI 21st Bomb Squadron 1941, 1944 & 1945.
 SQ-Bomb-21-SU 21st Bomb Squadron 1943.
 SQ-Bomb-27-HI 27th Bomb Squadron 1941, 1944 & 1945.
 SQ-Bomb-27-SU 27th Bomb Squadron 1943-44.
 SQ-Bomb-38-HI 38th Bomb Squadron 1941-44.
 SQ-Bomb-38-SU 38th Bomb Squadron 1943-45.

Accession A51-59 Corps of Engineers Records

Box 273 March AFB.
 Box 274 March AFB.
 Box 274A March AFB.

**U.S. Army Center of Military History
1099 14th Street, N.W.
Washington, DC 20005-3402**

File Drawer: Camps, Forts and Posts.
Folder: Exercises, Training.
Exercise Bristol Cone.
Exercise Clear Water.
Exercise Desert Strike.

**National Archives and Records Administration
Pacific Sierra Region
San Bruno, CA 94066**

Record Group 175 (Records of the Chemical Warfare Service)
Box 1 General Records 1940 - 50.

**National Archives and Record Administration
Pacific Southwest Region
Laguna Niguel, CA 92677**

Record Group 77 (Records of the Chief of Engineers)
Accession Los Angeles District.
Boxes 44 - 48 and 60 Military construction project log books 1948-70.
Accession Los Angeles District
Boxes 54-59 George AFB construction 1950 - 60.
Maps: Military construction March AFB for land fields and additional training facilities during World War Two.

Record Group 181 (Naval Districts and Shore Establishments)
11th District. General Correspondence 1925-52.
Box 34 Camp Pendleton and San Diego Marine Corps Base.
Box 39 C-AMA.

Record Group 270 (Records of the War Assets Administration)
Real Property Disposal Case Files
Box 15 29 Palms Air Academy.
Box 41 Desert Center AAF.
Box 42 Desert Center AAF.

**Federal Records Center - San Francisco
Pacific Sierra Region
1000 Commodore Drive
San Bruno, CA 94066**

Record Group 95 (Records of the Forest Service)
Accession 71-0372
Special Use 1970.
Accession 71C-0675
Box 1 Historical 1962.

**Federal Records Center - Laguna Niguel
Pacific Southwest Region
Laguna Niguel, CA 92677**

Record Group 77 (Records of the Chief of Engineers)
Accession 70A1819
Boxes 1-5 Desert Strike, George AFB and March AFB.
Accession 70A1364
Box 1 Desert Center AAF correspondence and map.
Box 2 No pertinent information.
Accession 82-0045
Box 15 Victorville.

**Mojave Desert and Cultural Association
Goffs Schoolhouse
37198 Lanfair Road
Essex, CA 92332-0007**

Folder: The Desert Training Center. Maps and reports.

4.3 Summary of Interviews

4.3.1 Max Proudfoot, 29 Palms Historical Society

Mr. Proudfoot was contacted information about the California Arizona Maneuvers or Desert Strike. He was not able to provide written information but said from his own experience, there was no live fire associated with Desert Strike except in areas where live fire is a routine function, e.g. Fort Irwin.

4.3.2 Sgt. Al White, San Bernardino County Sheriff's Dept, Joshua Tree Station

Sgt White was contacted to see if his office had received reports of ordnance found in the vicinity of the Cadiz Lake Sonic Targets. He described incidents of ordnance taken from 29 Palms Marine Corps Base and the area near the base, but knew of no incidents in the subject area. He has been with the Sheriff's Dept. for 18 years.

4.3.3 Sgt. Bob Hall, San Bernardino County Bomb and Arson Squad

Prior to our site visits to the Cadiz Lake targets, we contacted the various sheriff's stations in the area. Each one advised us to contact the San Bernardino County Bomb and Arson Squad. Our initial contact was with Lt. Larry Swope. He was to call me back with more information.

The return call was made by Sgt Hall. We described the areas of concern and he said they answer a lot of calls about ordnance taken from active installations in the area. He said they may have some information on ordnance incidents and he would let me know. He was not able to find any ordnance incidents.

4.3.4 Sgt. Hopkins, Riverside County Bomb and Arson Squad

Sgt. Hopkins was contacted to see if his department had responded to any reports of ordnance on the Cadiz Lake bombing targets or any other Desert Training Center sites near the bombing targets. He said their experience has been that BLM is the first responder to ordnance incidents and that his office gets called after BLM has already picked up the piece of ordnance. He said the bomb and arson squad has been in existence for about 15 years. He has been in charge of the unit for about one year.

4.4 Aerial Photography Interpretation and Map Analysis

4.4.1 Interpretation of Aerial Photography/Photographic Sources

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

<u>Photography Date</u>	<u>Approximate Scale</u>	<u>Source</u>	<u>Frame Identifiers(s)</u>
11 Dec 1943	1"=3,250'	NATIONAL ARCHIVES	33 thru 35 87 thru 89
07 Jul 1948	1"=5,417'	EROS	21 thru 23
18 Dec 1954	1"=5,417"	EROS	5741 thru 5742
13 Oct 1977	1"=2,500'	BLM	CALD-77 21-51 thru 53 CALD-77 22-47 thru 49
24 Jun 1981	1"=2,000'	EROS	VFBO-4 12 thru 15 VFBO-3 74 thru 77

The photography was referenced using the 1985 Provisional editions of the Cadiz and Calumet Mine USGS 7.5' quadrangles.

Photography from 1943 was analyzed and no evidence of bombing was detected during the photo analysis.

The photography from 1948 and 1954 indicates a bombing target, but no evidence of bombing was evident, due to the scale of the photography.

The 1977 photography was analyzed. A bombing target with two circular rings was seen. The approximate measurement is 350 feet across. No evidence of bombing was apparent during the photographic analysis.

Photography from 1981 indicates the bombing target. Two rings and one pointer were seen, but no evidence of bombing was apparent during the photographic analysis.

4.4.2 Map Analysis

Map analysis was performed using the 1985 Provisional editions of the Cadiz and Calumet Mine USGS 7.5' quadrangles.

Planimetric and topographic features are apparent on the quadrangle. The planimetric features include loose surface roads, levees, and few buildings. The topography of the area ranges from flat terrain to rugged hills. There are many disappearing streams and wadis in the area.

No other areas of OE were detected during the photographic or map analysis.

5.0 REAL ESTATE

5.1 Confirmed DoD Ownership

The site consisted of 1,280 acres acquired from the DOI and 1,280 acres acquired by lease dated 11 February 1942 from Southern Pacific Company.

Improvements consisted of the construction of aiming circles and may have included sonic scoring equipment.

The site was declared surplus on 2 August 1948. The 1,280 acres acquired from DOI were relinquished to DOI by letter dated 21 April 1949. The lease over 1,280 acres was terminated effective 16 January 1956.

5.2 Potential DoD Ownership

No areas in addition to the 2,560 acres were found.

5.3 Significant Past Ownership other than DoD

No significant past ownership other than DoD was found.

5.4 Present Ownership

The site is currently owned by the Cadiz Land Company.

6.0 SITE INSPECTION

6.1 General

This site visit was performed on 7 December 1995. The area inspected is shown on Plate 3.

Corps of Engineers Participants:

Ted Moore	Project Manager
Hank Counts	UXO Specialist and Safety Officer
Jim Luebbert	Historian

Others Participants:

Rick Hartman	Local individual
Jerry Theaker	Local individual

This site visit was performed in conjunction with other Cadiz Lake Sonic Targets and the Cadiz Lake Air-to-Ground Gunnery Range.

6.2 Analysis of Ordnance Activities

We found aiming circles on the air photos for this site, so we were able to walk directly to the marked target area. The aiming circles are deteriorated but still visible. The center of the target is marked by wooden stakes. We found practice bomb debris scattered over the target area. We did not find HE fragments or unexploded ordnance.

6.3 Current Site Characterization

The former bombing target is desert land and is located about two miles from Cadiz. There is a large grape and orange orchard about 1/2 mile from the target center. There is an all weather gravel road that runs within 0.1 mile of the marked target. 4-W-D transportation is not required.

7.0 EVALUATION OF ORDNANCE PRESENCE

Air photos indicate there were aiming circles. The aiming circles are deteriorated but still visible. The center of the target is marked with wooden stakes. During the site inspection we found practice bomb debris.

Although the historical documents indicate that CWM (mustard) was present at the Desert Training Center, the likelihood of CWM being used on this bombing target is small. The historical documents do not provide details regarding if or where the CWM was actually used. We did not find evidence of CWM during our site inspection.

8.0 TECHNICAL DATA OF ORDNANCE AND EXPLOSIVES

8.1 Ordnance Related Mission

The ten Cadiz Lake Sonic Targets were inspected primarily for their use as bombing targets. The Air to Ground Gunnery Range was inspected primarily for its use as a gunnery range and possibly as a bombing range. However, all of these sites were part of the C-AMA and the Desert Strike training area. Ordnance found during the inspection of these sites included 100 pound practice bomb debris, live .50 cal. ammunition and .50 cal ammunition debris, .30 cal. ammunition debris, blank .30 cal. ammunition, 37mm HE fragments, 37mm practice projectiles, HE bomb fragments (bomb size unknown), possible HE artillery fragments (size of round unknown), and practice land mines. Not all of these ordnance items were found on all of the sites and on some sites no ordnance was found during the inspection. It is possible that any of these ordnance items could be found during a more thorough inspection of the sites.

Only practice bomb debris was found during the inspection of Target # 5.

8.2 Description of Ordnance

Bomb, Practice, 100-pound, M-38A2 used for target practice and training of bomb crews, and are designed to simulate service bombs. The bomb body is constructed of light sheet metal, approximately 22 gauge. The body is formed by rolling a rectangular sheet of metal into the form of a cylinder eight inches in diameter, and spot welding the seam. The rounded nose is pressed from the same metal, as is the tail which is formed in the shape of a cone. Inside of the smaller end of the conical tail section is welded the spotting charge receiver. It extends about seven inches into the cone and projects about two inches out of the tail end. The bomb utilizes the M1A1, M3, or M4 spotting charge. Two suspension lugs are bolted to the bomb body during fabrication. The tail portion ends in a box type fin assembly. The overall length of the bomb body is 47.5 inches. When empty the bomb weighs approximately 14 pounds. When completely loaded with sand and spotting charge, the weight of the bomb is approximately 100 pounds.

Shot, T.P., M51 w/TRACER, target practice shot is for use in target practice and general field practice. The projectile is the same as that for the APC, M51, Service Round except that the body and cap of the shot are made in one piece of steel that is not heat-treated.

Small Arms Ammunition, Caliber .50 is a complete round of ammunition referred to as a cartridge. It includes cartridges of the following types: ball, armor-piercing, tracer, incendiary, blank dummy, and high pressure test. The cartridge, Ball, Caliber .50, M2 is the standard cartridge for all caliber .50 machine guns. This cartridge does not have any identification markings and the tip of the bullet is not painted. The complete round consists of a cartridge case, primer, propelling charge, and bullet. The complete assembly weighs 1,800 grains. The bullet consists of three parts: a gliding metal jacket, a soft steel core, and a point filler of lead hardened with antimony. The over-all length of the bullet is 2.29 inches.

Small Arms Ammunition, Caliber .30 is a complete round of ammunition referred to as a cartridge. It includes cartridges of the following types: armor-piercing, ball tracer, incendiary, blank, dummy, guard, rifle grenade, and high pressure test. It is readily identified since it has no bullet, and furthermore, a cannellure is present in the neck of the cartridge case. The cartridge consists of a cartridge case, primer, propelling charge, and a paper cup or wad of thin paper. The complete assembly weighs 207 grains

Mine, Antitank, Practice, M1, this mine consists of three components, an empty mine body, the spider, and a fuze. These parts are similar in construction to the corresponding parts of the high-explosive mine except that the body has five 1-inch holes equally spaced around the side.

See related drawings located in Appendix C.

9.0 EVALUATION OF OTHER SITE INFORMATION

We found no HTRW or building debris concerns.

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Demographic References

U.S. Census report as listed below:

- 1990 Census of Population and Housing, San Bernardino County, California
- 1990 Census of Population and Housing, 29 Palms, California
- 1988 COUNTY AND CITY DATA BOOK, Land and Area Population,
San Bernardino, California
- 1988 COUNTY AND CITY DATA BOOK, Land and Area Population,
29 Palms, California
- COUNTY BUSINESS PATTERNS-1991 San Bernardino County, California
- 29 Palms Chamber of Commerce (619) 367-3445
- U.S. Department of Commerce. Bureau of the Census. California. 1990.

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Air Inspector

1948 Memo from Maj. J. C. Wing, USAF to DCS Operations Division and DCS Air Installations Directorate on Bombing and Gunnery Ranges, dated 8 April 1948. Record Group 341, Entry 494, Box 54, folder Bombing and Gunnery Ranges. National Archives - Suitland Reference Branch, Suitland, MD.

Army Ground Forces

1942 Duds located in areas. A lengthy and detailed list of duds located at various sites. Undated. Record Group 337, Entry 29A, Box 91, National Archives, Washington, D.C.

Army Ground Forces

1946a Summary & Index, Vol. 1, The Desert Training Center and C-AMA, Study No. 15, by Sgt. Sidney L. Meller, Historical Section, Army Ground Forces. From History Desert Training Center, Record Group 337, Headquarters Army Ground Forces, General Staff G-3 Section, D.T.C. Histories 1942-43, Box 127, National Archives, Washington, D.C.

Army Ground Forces

1946b The Desert Training Center and C-AMA, Study No. 15, by Sgt. Sidney L. Meller, Historical Section, Army Ground Forces. Record Group 337, General Staff G-3 Section, DTC Histories 1942-43, Box 127, National Archives, Washington, D.C.

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Blake, Francis G.

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Corps of Engineers South Pacific Division

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Headquarters Army Ground Forces

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Headquarters Army Ground Forces

1943b Memo from Maj. R. A. Meredith to Chief of Chemical Warfare Service, subject Chemical Warfare Service Credit No. 2133, dated 5 September 1943. Record Group 337, Entry 55A Project Decimal File, Box 1275, National Archives, Washington, D.C.

Headquarters Army Ground Forces

1944a Memo for record, chain of correspondence from 30 October 1943 to 18 February 1944. Record Group 337, Entry 55A Project Decimal File, Box 1275, National Archives, Washington, D.C.

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1944b Memo for record, G-4 Section dated 9 March 1944, subject Telephone call by Col. Bryan to Col. Roper, C/S X Corps. Record Group 337, Entry 55A Project Decimal File, Box 1275, National Archives, Washington, D.C.

Headquarters Desert Center AAF

1944 History of the 1st, 2nd, & 3rd Airdrome Detachments from Their Activation on 1 August 1943 to March 1944, with appendix Historical Data Pertaining to Desert Center Army Air Field, California (formerly Desert Center Airdrome), U.S. Air Force Historical Research Agency, Maxwell Air Force Base, Montgomery, AL.

Headquarters Desert Strike

1964 *Desert Strike* Exercise Daily Newspaper, May 18-21, 1964. K177.952, U.S. Air Force Historical Research Agency, Maxwell Air Force Base, Montgomery, AL.

Headquarters Fourth Air Force

1945a Record Copy of memo from 4AFES-8 to Commanding General Army Air Forces, subject Bombing Range near Bristol Lake, California, dated 26 April 1945. Accession 342-57H-3001, Box 21 of 23, Folder 684 (General), National Personnel Records Center, St. Louis, MO.

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Headquarters U.S. Marine Corps Air Station

1944 El Centro Air Station memo to Commandant, Eleventh Naval District, subject Use of areas for bombing and gunnery in California-Arizona Maneuver Area, dated 13 March 1944. Record Group 181, 11th Naval District, Box 39, N1/9KV - N3-1. National Archives Pacific Southwest Region, Laguna Niguel, CA.

Los Angeles District Corps of Engineers

1947 Memo from Chief H. E. Spickard, Real Estate Sub-Office to Division Engineers, South Pacific Division, Corps of Engineers, subject Cadiz Lake, California, dated 10 April 1947. Real Estate Office, Los Angeles District Corps of Engineers. Contained in Inventory project Reports for these sites.

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Los Angeles District Corps of Engineers

1949a Clearance Report , Cadiz Lake Sonic Bomb Scoring Target, Calif. dated 17 March 1949. Real Estate Office Files, Los Angeles District Corps of Engineers. Contained in the Inventory Project Report for this site.

Los Angeles District Corps of Engineers

1949b Realty Control File Summary 2750, 2751, and 2753, ENG Form 1603. Real Estate Division, Los Angeles District, U. S. Army Corps of Engineers.

Ninth Air Force

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Press Enterprise

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c.1962 Map of Maneuver Area, from base map USGS with updates listed at 1962. Map case, Needles Branch, San Bernardino County Library, CA.

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1986 Map Showing Areas of Visible Land Disturbances Caused by Two Military Training Operations in the Mojave Desert, California, by D. V. Prose, 1986. U.S. Geological Survey, Federal Center, Denver, CO.

United States Strike Command

1964 Desert Strike Information Handbook, USCINCMEAFSA, MacDill AFB, Florida. Vertical File on Military Operations in the Desert, San Bernardino County Library, Needles Branch, CA.

INPR References

US Army Corps of Engineers

1992 Inventory Project Report (INPR), for Site No. J09CA025900, Cadiz Lake Sonic Target No. 5, U.S. Army Corps of Engineers, Los Angeles District

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TM 9-1940, Land Mines, July 1943

TM 9-1325-200, Bombs and Bomb Components, April 1966

OP 1664, U.S. Explosive Ordnance, Vol 1 & 2, May 1947

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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
CADD	Computer-Aided Design/Drafting
Cal	Caliber
C-AMA	California - Arizona Maneuver Area
CBDA	Chemical and Biological Defense Agency
CBDCOM	Chemical and Biological Defense Command
CE	Corps of Engineers
CEHND	Corps of Engineers, Huntsville Division
CELMS	Corps of Engineers, St. Louis
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations

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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
DTC	Desert Training Center
EE/CA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EOD	Explosives Ordnance Disposal
EPA	Environmental Protection Agency
ERDA	Environmental Restoration Defense Account
F	Fahrenheit
FDE	Findings and Determination of Eligibility
FFMC	Federal Farm Mortgage Corporation
FLCH	Flechette
FS	Feasibility Study
FUDS	Formerly Used Defense Sites

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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
HS	Mustard Gas
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
mph	Miles Per Hour
MT	Mechanical Time
MTSQ	Mechanical Time Super Quick
NARA	National Archives and Records Administration
NAS	Naval Air Station
NCDC	National Climatic Data Center
NCP	National Contingency Plan
NDDB	California Department of Fish and Game Natural Diversity Data Base
NFS	National Forest Service
NG	National Guard
NGVD	National Geodetic Vertical Datum

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NOAA	National Oceanic and Atmospheric Administration
NOFA	No Further Action
NPRC	National Personnel Records Center
NRC	National Records Center
OEW	Ordnance and Explosive Waste
OSHA	Occupational Safety and Health Act
PA	Preliminary Assessment
PBR	Precision Bombing Range
PD	Point Detonating
PIBD	Point Initiating, Base Detonating
PL	Public Law
QASAS	Quality Assurance Specialist Ammunition Surveillance
RA	Removal Action
RAC	Risk Assessment Code
RD	Remedial Design
RG	Record Group
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SARA	Superfund Amendments and Reauthorization Act
SCS	Soil Conservation Service
SLD	St. Louis District, Corps of Engineers
SSHO	Site Safety and Health Officer
SSHP	Site Specific 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

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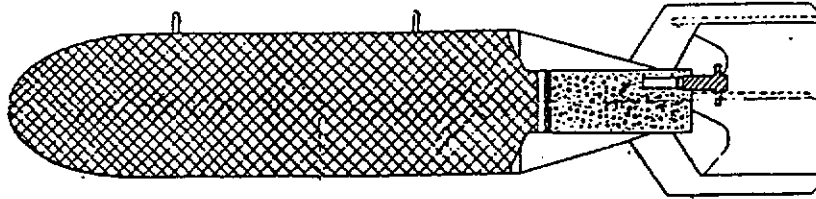
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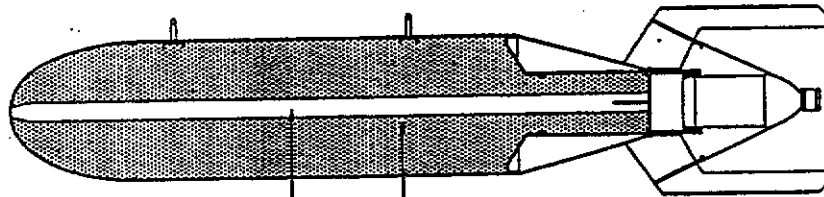
USACE	U.S. Army Corps of Engineers
USADACS	U.S. Army Defense Ammunition Center and School
USAED	U.S. Army Engineer District
USAEDH	U.S. Army Engineer Division, Huntsville, AL
USATHMA	U.S. Army, Corps of Engineers, Toxic and Hazardous Materials Agency
USC	United States Code
USDA	U.S. Department of Army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

APPENDIX C
TEXT / MANUALS

BOMB, PRACTICE, 100-POUND, M38A2



With M3 spotting charge



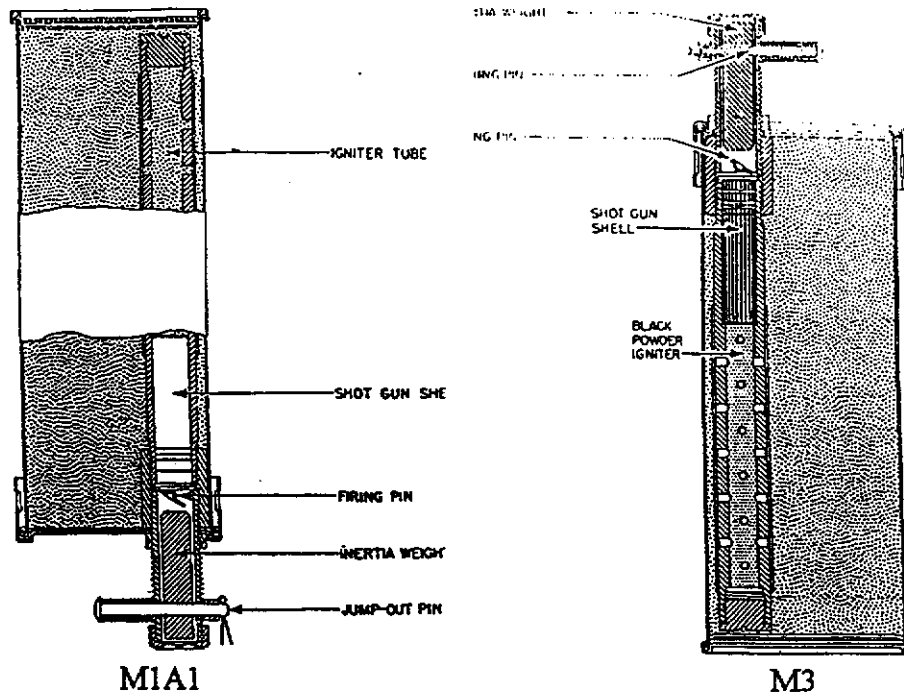
WOODEN
SUPPORT
ROD
SAND
FILLING
With M4 spotting charge

Description: This bomb simulates a General Purpose (GP) bomb of the same size. The bomb is constructed of light sheet metal with the box type fins welded to the bomb body. The spotting charge is assembled in a sleeve at the base of the bomb, within the fin box. Authorized spotting charges are the M1A1, M3, and M4. When using the M4 spotting charge a wooden support rod is installed in the bomb. The bombs are sand filled.

Over-all Length 47.5 inches
Diameter 8.13 inches
Weight empty 15.7 pounds
Weight sand loaded & spotting charge 100 pounds

Reference OP 1664, Feb 54
 Complete Round Chart #5981,
 Oct 44

SPOTTING CHARGE, M1A1, M3



Description: The M1A1 fits in the after end of the 100-pound Practice Bomb, M38A2. It produces a flash of flame and white smoke for observation of bombing accuracy. When assembled in the bomb, the can of the charge protrudes two to three inches out of the bomb body. The fuze is an integral part of the spotting charge assembly. On impact, the inertia weight drives the firing pin into the shotgun-type primer, which, in turn, ignites the black powder.

M3 spotting charge has a 2 1/3 pound dark smoke filler and a black powder igniter. It is 5/8 inch longer than the M1A1, but otherwise is like it. The M3, with its dark smoke filler, is well adapted for bombing practice over snow-covered terrain. The black powder igniter charge contains approximately 425 grains.

Over-all length

M1A1 11.18 inches
 M3 11.71 inches

Diameter 3.43 inches

Weight 4.25 pounds

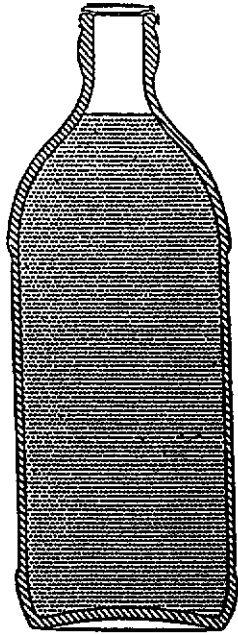
Filler

M1A1 Black Powder Charge, 3.0 pounds
 M3 Black Smoke Mixture, 2.33 pounds

Fuze Integral, inertia-type

Reference OP 1664, Feb 54

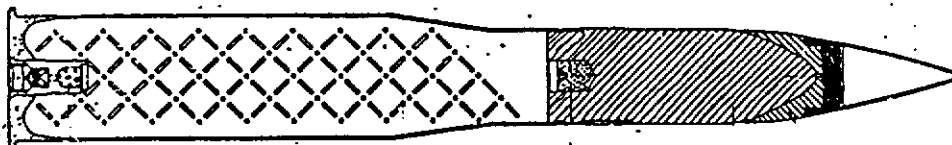
SPOTTING CHARGE, M4



FS smoke mixture

Description: The Spotting Charge M4 consists of a glass bottle filled with FS smoke mixture. An ordinary bottle cap seals the mixture. The bottle is held to the Practice Bomb M38A2 by a wire twisted around the neck of the bottle and attached to the tail vanes. The charge assembly weighs 2.54 pounds.

Over-all length	7.37 inches
Diameter	2.95 inches
Material	Glass
Weight	2.54 pounds
Filler	FS smoke
Filler weight	14.4 ounces
Fuze	Integral, inertia-type
Reference	OP 1664, Feb 54



SHOT, APC, M51

SHOT, T.P., M51 w/TRACER.

Target practice shot is for use in target practice and general field practice. The M51, T.P., Shot is listed as standard for issue and manufacture in SNL R-1. A T.P. Shot M51A1 is also listed in SNL R-1 and is standard for issue only. The A1 modification does not have a windshield.

Cartridge cases. Cartridge Case M16 is "Standard," M16B1 is "Substitute Standard" (cartridge cases, page 345).

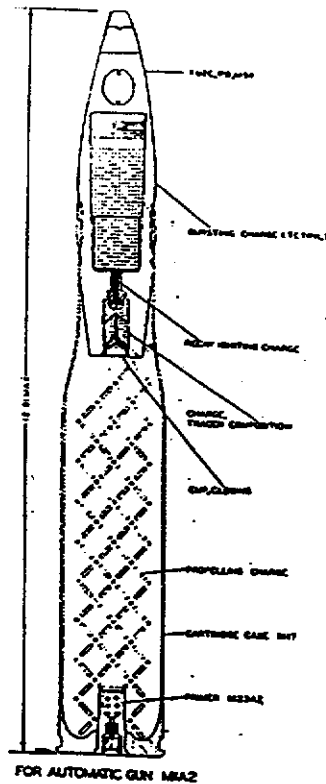
Primer. M23A2, 20-grain, Percussion Primer is standard. Some primers designated M23A1 are on hand (primers, page 331).

Propelling charge. 6.6 ounces of FNH powder are poured loosely into the cartridge case.

Projectile. The projectile is the same as that for the APC, M51, Service Round except that the body and cap of the shot are made in one piece of steel that is not heat-treated. The Complete Round Chart carries the notation "Approximately 50,000 of unheat-treated shot in accordance with Drawing 75-1-73 have been manufactured for target practice purposes. Future requirements will be met by supplying the standard AP round in accordance with Drawing 75-1-70." However, SNL R-1, which is of a later date than the Complete Round Chart, lists T.P. M51A2 (Drawing 75-1-73) as standard for issue and manufacture. The T.P. M51A2 is similar to the T.P. M51 and also has a windshield.

Identification. Except for blue painting and white stencil, the T.P. M51 Round has the same appearance as the Service Round APC M51.

PROJECTILE, HIGH EXPLOSIVE, 37-MM, M 54

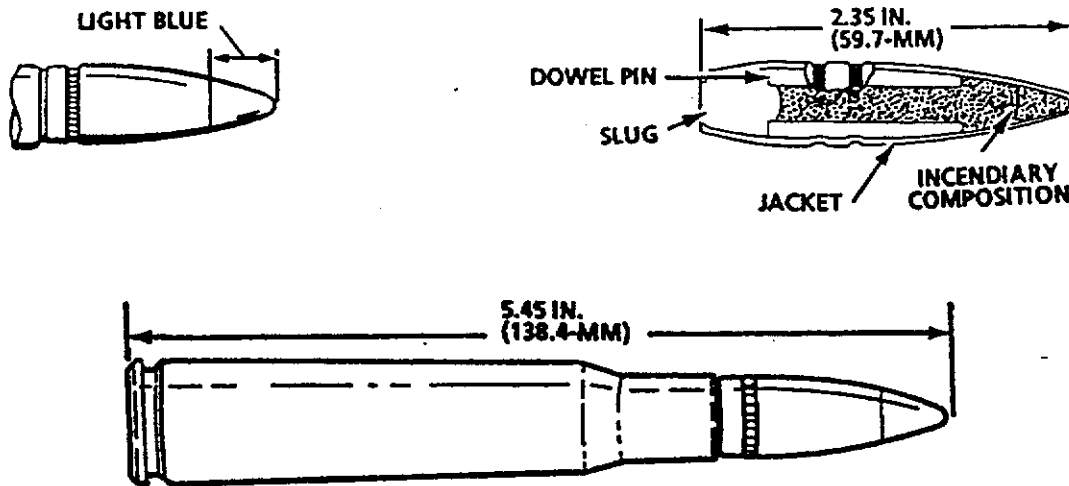


Description: This projectile is machined from bar steel. It is fuze with a Point Detonating Fuze and a tracer with a self destruct element. Max vertical range is 6,200 yards and max horizontal range is 8,875 yards. Self destruct will function at 3,500 yards vertical or 4,000 yards horizontal distance.

Length	5.9 inches
Diameter	
Color	
Weight	1.34 pounds
Filling	Tetryl
Weight of filling	0.1 pounds
Fuze	M56 Point Detonating

Reference	TM 9-1904, Ammunition Inspection Guide, Mar 1944
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CARTRIDGE, CALIBER .50, INCENDIARY, M1



Use: Machine Guns, Caliber .50, M2 and M85.

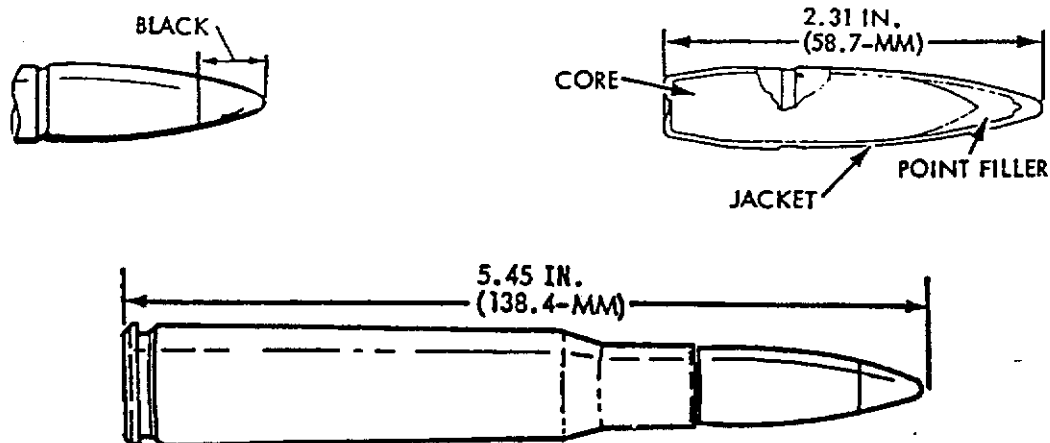
Description: The cartridge is identified by a blue bullet tip.

Purpose: Upon impact with a hardened or armored target the incendiary composition bursts into flame and will ignite any flammable material.

DODAC	1305-A562
Weight	1744 grain
Length	5.45 inch
Primer	Percussion
Incendiary	IM-11
Weight	34 grain
Propellant	IMR 5010
Weight	240 grain

Reference TM 43-0001-27, Jun 81

CARTRIDGE, CALIBER .50, BALL, ARMOR PIERCING, M2



Use: Machine Guns, Caliber .50, M2 and M85.

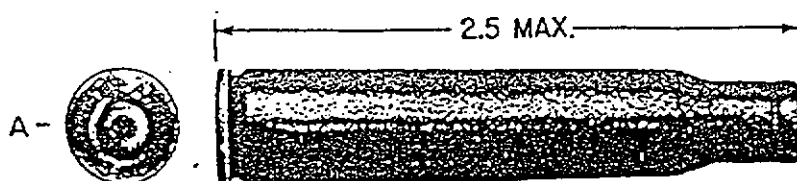
Description: The cartridge is identified by a black bullet tip.

Purpose: This cartridge is for use against light-armored or unarmored targets; concrete shelters and similar bullet resisting targets.

DODAC	1305-A526
Weight	1744 grain
Length	5.45 inches
Primer	Percussion
Incendiary	IM-11
Weight	34 grains
Propellant	IMR 5010
Weight	240 grain

Reference TM 43-0001-27, Jun 81

AMMUNITION INSPECTION GUIDE

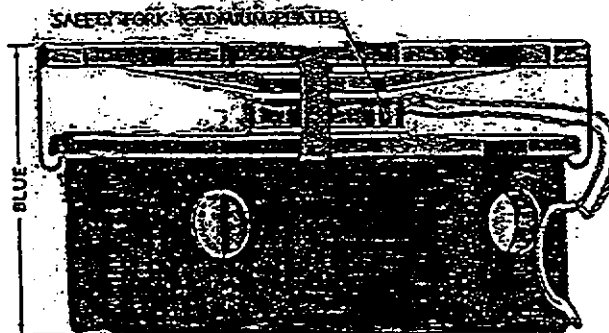
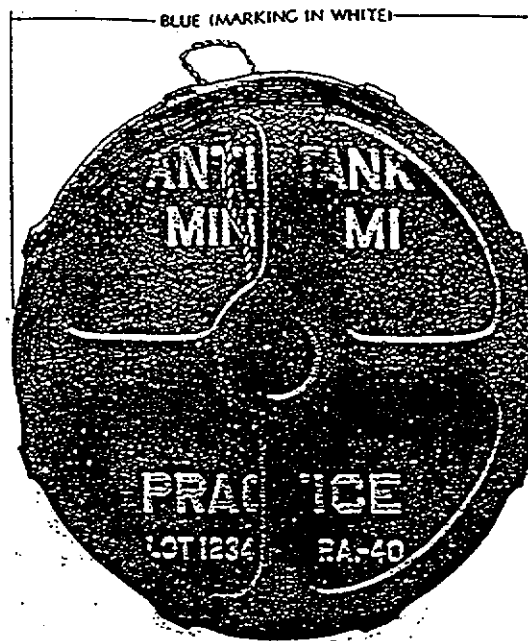


A- CARTRIDGE, BLANK, CAL..30, M1909

Components. The cartridge consists of a cartridge case, primer, propelling charge, and a paper cup or wad of thin paper. Prior to January, 1925, a felt wad was used but was discontinued due to accidents caused by the clogging of gas escape holes in the blank firing attachment of machine guns and automatic rifles. The complete assembly weighs approximately 207 grains.

REFERENCE: TM 9-1904

LAND MINES



RA PD 53884A

Figure 7 — MINE, Antitank, Practice, M1

a. MINE, Antitank, Practice, M1.

(1) **GENERAL.** This mine with principal data and markings is shown as a complete round assembly in figure 7. The complete round consists of three components, an empty mine body, the spider, and a fuze.

(2) **BODY AND SPIDER.** These parts are similar in construction to the corresponding parts of the high-explosive mine except that the body has five 1-inch holes equally spaced around the side.

REFERENCE: TM 9-1940

APPENDIX D
REPORTS / STUDIES

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

CADIZ LAKE SONIC TARGET NO. 5
CADIZ, CALIFORNIA
SITE NO. J09CA025900

FINDINGS OF FACT

1. The records reflect a Real Estate Directive dated 3 July 1946 to acquire 2,560 acres of which 1,280 acres were transferred by Special Use Permit from the Department of Interior (DOI), and 1,280 acres were obtained by lease from Southern Pacific Company dated 11 February 1942 for use by the Army Air Force as a sonic target area. This site lies within the boundaries of the former California-Arizona Maneuver Area (CAMA), located 1 mile southeast of Cadiz, Riverside County, California. A copy of the Special Use Permit could not be found, however, it was referred to in the retransfer letter dated 21 April 1949.
2. The site was used by the Fourth Air Force stationed at nearby March Field, California, and was known as Cadiz Lake Sonic Target No. 5. The site was located within the confines of the Desert Training Center (later called CAMA) and therefore may have been used by DOD for other types of maneuvers. Some of the training involved the use of live ordnance. No improvements were constructed by DOD. The property was under DOD control during the period of DOD's use.
3. The site was declared surplus on 2 August 1948. 1,280 acres were relinquished to DOI, Bureau of Land Management (BLM), by letter dated 21 April 1949. The DOI still has jurisdiction of the property. The lease for 1,280 acres were terminated effective 16 January 1956.

DETERMINATION

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

Date

MILTON HUNTER
Brigadier General, US Army
Commanding

SITE SURVEY SUMMARY SHEET
FOR
DERP-FUDS SITE NO. J09CA025900
CADIZ LAKE SONIC TARGET NO. 5, CALIFORNIA
29 JUNE 1992

SITE NAME: The former Cadiz Lake Sonic Target #5, was within the boundaries of the Desert Training Center (DTC). The DTC was later called the California-Arizona Maneuver Area (CAMA). This site may have been referred to by any of these names. Currently, the site is unnamed.

LOCATION: The site is located in San Bernardino County, California.

SITE HISTORY: Department of Defense (DOD) use officially began in 1946 with the acquisition of 2,560 acres. It is likely that DOD began using the site as early as 1942. The site was used by the Fourth Air Force stationed at March Field, California. It probably was used by General Patton's Armored Divisions for training in desert warfare in preparation for Operation Torchlight (the Allied invasion of North Africa). Some of this training may have involved the use of live ordnance. No known DOD improvements to the site have documented. The site was declared surplus in 1948. Half of the site was retransferred to the Bureau of Land Management and the lease with Southern Pacific Company for the other half was terminated.

SITE VISIT: A site visit was conducted by Dan Ahern, CEMRK-ED-TD on 20 April 1992.

CATEGORY OF HAZARD: OEW

PROJECT DESCRIPTION: Recommend that the Corps' Mandatory Center of Expertise (MCX) for OEW at the Huntsville Division make a determination if further investigation is appropriate.

AVAILABLE STUDIES AND REPORTS: 1) The real estate records of the Los Angeles District are on file. 2) The preliminary determination phase report of ordnance found and removed by the Fort Rosecrans Explosive Ordnance Disposal teams and other bomb disposal units is on file.

PA POC: Debra Castens, at 213-894-2865, Los Angeles District.

LIVE ORDNANCE LIST

<u>DATE</u>	<u>LOCATION</u>	<u>ORDNANCE DESCRIPTION</u>	<u>NUMBER</u>	<u>REPORT BY</u>
[ORDNANCE FOUND DURING THE 1948 - 1949 SWEEP SUPERVISED BY THE ARMY CORPS OF ENGINEERS]				
17 March 49	Target No. 1	M28A2, W/M4 Bursters	290	Clearance Report for Cadiz Lake Sonic Bomb Scoring Targets, California Report Dated 17 March 1949
		Shell, 155 MM HE	2	
		Shell, 105 MM HE	6	
		Shell, 75 MM HE	2	
		Shell, 37 MM	1	
		Mines,	2	
17 March 49	Unnumbered Later Target No. 10	M28A2 W/M4 Bursters	71	Clearance Report for Cadiz Lake Sonic Bomb Scoring Targets, California Report Dated 17 March 1949
17 March 49	Target No. 2	M38A2 W/M4 Bursters	184	Clearance Report for Cadiz Lake Sonic Bomb Scoring Targets, California Report Dated 17 March 1949
17 March 49	Target No. 3	M38A2 W/M4 Bursters	219	Clearance Report for Cadiz Lake Sonic Bomb Scoring Targets, California Report Dated 17 March 1949
		Fuzes, Mine, Anti-Tank	400	
17 March 49	Target No. 4	M38A2 W/M4 Bursters	140	Clearance Report for Cadiz Lake Sonic Bomb Scoring Targets, California Report Dated 17 March 1949
17 March 49	Target No. 5	M38A2 W/M4 Bursters	120	Clearance Report for Cadiz Lake Sonic Bomb Scoring Targets, California Report Dated 17 March 1949
		Grenade, Hand, Smoke	1	
17 March 49	Target No. 6	M38A2 W/M4 Bursters	86	Clearance Report for Cadiz Lake Sonic Bomb Scoring Targets, California Report Dated 17 March 1949
		Grenade, Hand, Smoke	1	

<u>DATE</u>	<u>LOCATION</u>	<u>ITEM</u>	<u>#</u>	<u>REPORT BY</u>
17 March 49	All sites	Metal Scraps	370 Tons	Clearance Report for Cadiz Lake Sonic Bomb Scoring Targets, California Report

[A SAMPLE OF ORDNANCE DESTROYED BY THE BOMB AND SHELL DISPOSAL TEAM IN CONJUNCTION WITH THE U.S. ARMY]

27 October 47	Skip Bombing Target	100 lbs. M38A2 Practice Bomb	21	The Bomb and Shell Disposal Team-Report Dated 27 October 1947
27 October 47	"Area No. 7" Assumed to be Target #7	155 MM HE Shell	3	The Bomb and Shell Disposal Team-Report Dated 27 October 1947
6 June 47	All Sites	100 lbs. HE Bomb	2	The Bomb and Shell Disposal Team-Report Dated 6 June 1947
6 June 47	All Sites	100 lbs. M38A2 Practice Bomb	17	The Bomb and Shell Disposal Team-Report Dated 6 June 1947
9 May 47	All Sites	100 lbs. HE Bomb	2	Dwight P. Jones Colonel, CE Acting Division Engineer
9 May 47	All Sites	100 lbs. M38 Practice Bomb	4	Dwight P. Jones Colonel, CE Acting Division Engineer

[A SAMPLE OF ORDNANCE DESTROYED BY THE ARMY EXPLOSIVE ORDNANCE DISPOSAL TEAM STATIONED OUT OF FORT ROSECRANS] ★

March 1986	Palen Pass	Land Mines	6	Unknown
March 1986	Palen Pass	Land Mines	1	Unknown
Sept. 1986	Unknown	Smoke Grenades	3	Riverside County Sheriffs' Office
Sept. 1986	Unknown	20 MM Rounds	12	Riverside County Sheriff's Office
11 January 86	Ford Lake	Mark 82 Practice Bomb	1	Unknown
11 January 86	Ford Lake	500 lb. Bomb	1	Unknown

<u>DATE</u>	<u>LOCATION</u>	<u>ITEM</u>	<u>#</u>	<u>REPORT BY</u>
11 January 86	Granite Pass	2.75 in Rocket Mortars	4	Unknown
14 Aug. 87	Thermal	M23 Ignitor	1	Unknown
25 March 87	Rubidoux	1HBDU 33 Practice Bomb	1	Riverside County Sheriffs' Office
8 April 87	Thermal	5" Rocket W/Warhead	1	Unknown
13 April 87	Thermal	5" Rocket W/Warhead	1	Unknown
2 March 87	Blythe Road	60 MM Mortor Round	1	Unknown
2 March 87	Blythe Road	M-6 Heat Rockets	2	Unknown
23 March 87	Unknown	5" Rocket W/Warhead	1	Riverside County Sheriff's Office

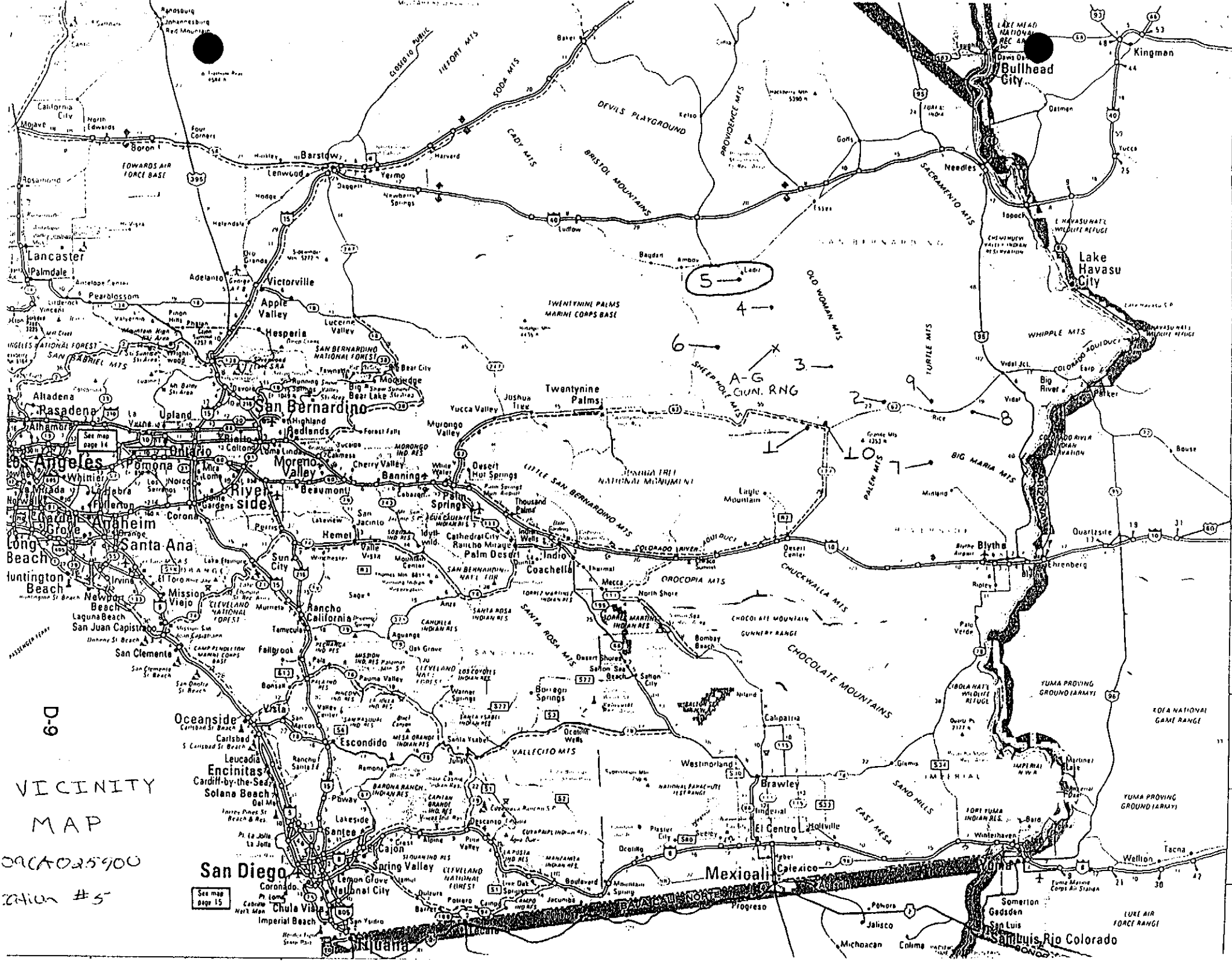
[ORDNANCE REPORTED BY RIVERDIDE COUNTY SHERIFF'S DEPARTMENT]

9 January 84	Mecca	M-76 25 lb. Practice Bomb W/Spotting Charge	1	Posey and Medford
8 May 84	20860 Box Springs #3	Mk-2 Grenade	1	Posey and Medford
16 July 84	Norco	90-105 MM Projectiles		Posey and Caldwell
23 July 84	Hemet	5" Rocket Motor	3	Posey and Caldwell
		Mk 16 MOD3	1	
		Parachute Flare	1	
		Mk 45 MOD	1	
4 Aug. 84	Indio	Military Projectile	1	Posey
		Blast Simulator	1	
5 Aug. 84	Edgemont	Mortar Round approx. 60 mm	1	Posey and Caldwell
2 April 84	Soboba Indian Reservation (Hemet)	Components of M.L. (Involved explosion of some type) (Report)	Unknown	Medford and Posey

<u>DATE</u>	<u>LOCATION</u>	<u>ITEM</u>	<u>#</u>	<u>REPORT BY</u>
17 January 85	Moore St. (Meade Valley)	Grenade Fuses (M201A1) Smoke Grenades Violet Yellow HC Simulator Projectile Ground Burst	34 17 16 5 13	Posey Posey Posey Posey Posey
27 Feb. 85	Banning	JATO Unit	1	Posey Crabtree
5 March 85	Indio (Lake C)	50 Caliber Aircraft Rounds Tracer Ammunition 50 Caliber Cartridgeges Empty	9 14	Crabtree and Posey Crabtree and Posey
8 May 85	Clark & Box Springs	M-69 60 mm Mortar Practice Round	1	Posey, Crabtree Worley
11 June 85	238 W.L St. Calimesa	30 Caliber Tracer Ammunition Round	517	Grath, Posey and Crabtree
1 July 85	Chiriaco Indio	Anti-Tank Mine	1	Grath and Posey
11 July 85	43785 Citrus View, Hemet	3.26 mm Mortar Round	1	Posey
31 January 86	269 Myrtlewood Calimesa	7.62 mm NATO Linked Ammunition 50 Caliber NATO Linked Ammunition M-18 Armored Grenade	59 Rounds 89 Rounds 1	Posey and Crabtree Posey and Crabtree Posey and Crabtree
5 February 86	32040 River- side Drive Lake C	MK 2 Flag Hand Grenade	1	Posey and Crabtree
22 March 86	Hemet Area	M 118 Booby Trap Simulator	1	Posey and Crabtree
27 May 86	Rancho California	105 Cannon Round	1	Crabtree and Posey
9 July 86	93850 Ave 70 Mecca	2.75 Aircraft Rocket Tube	1	Posey and Ferguson

<u>DATE</u>	<u>LOCATION</u>	<u>ITEM</u>	<u>#</u>	<u>REPORT BY</u>
28 July 86	910 N. State St., Hemet	20 mm Round	1	Posey and Crabtree
18 Nov 86	24690 Morning Glory, Moreno Valley	Mk 76-MOD5	1	Posey and Carter
18 January 87	24887 Eucalyptus, Moreno Valley	2.36 Anti-Tank Round	1	Posey
16 February 87	Rancho California	60 mm Mortar Illuminating Round	1	Posey
1 March 87	32530 Ascot Sun City	WWII 2 Star Rifle Launched Illuminating Grenade	1	Posey
7 April 87	Avenue 6185-951 Thermo	155 mm Cannon Round	1	Posey and Crabtree
9 June 87	27857 Jefferson, Romoland	81 mm Illuminating Projectile	1	Posey
10 June 87	Lake Matthews	105 Canon Projectile	1	Posey
13 August 87	Hemet	Mk-2 Fragmentation Grenade	1	Posey
20 August 87	Goodhope	81 mm Mortar Round	1	Posey
28 August 87	23871 Hutlen Norco	20 mm Cannon Round	1	Crabtree
28 August 87	Indio	20 mm Cannon Round	1	Nichols
20 Sept. 87	Box Springs and Hwy. 60	60 mm Practice Round	2	Posey
10 November 87	Glenn Oaks Rd. Sage Area	20 mm HEI Cannon Round	1	Posey and Nichols
30 November 87	Corona	60 mm Illumination Mortar Round	1	Unknown
24 December 87	Sun City	Electrical Military Ordnances	1	Unknown

<u>DATE</u>	<u>LOCATION</u>	<u>ITEM</u>	<u>f</u>	<u>REPORT BY</u>
2 February 88	Moreno Valley	Mk 76 Mod 2 25# Practice Bomb	1	Unknown
29 February 88	Nuevo	Mk-2 Fragmentation Hand Grenade	1	Posey
4 March 88	Moreno Valley	M 118 Yellow Smoke Grenade	1	Posey and Crabtree
22 March 88	Beaumont	105 mm Rocket Projectile	1	Posey and Crabtree
14 May 88	El Cerrito	Fragmentation Grenade	1	Posey
25 May 88	Moreno Valley	155 mm Cannon Projectile Powder Container	1	Posey and Crabtree
14 June 88	11277 Weber Moreno Valley	20 mm Explosive Round	1	Posey
		M-18 Smoke Grenade	1	Posey
		Nose Plug for 1000 lb. Conventional Bomb	1	Posey
24 June 88	Vultes and Alessandro, Moreno Valley	M K-2 Fragmentation Grenade	1	Posey



VICINITY
MAP

09CA025900

24100 #5

See map page 15

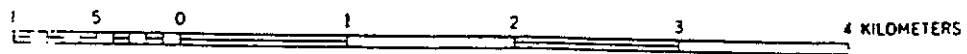
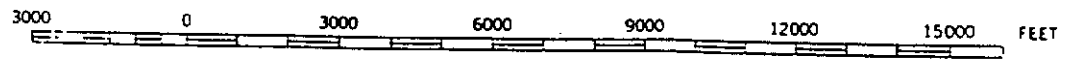
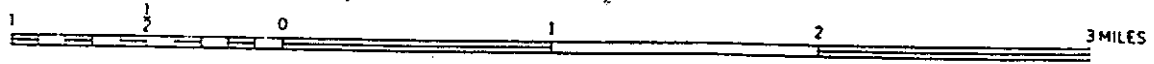
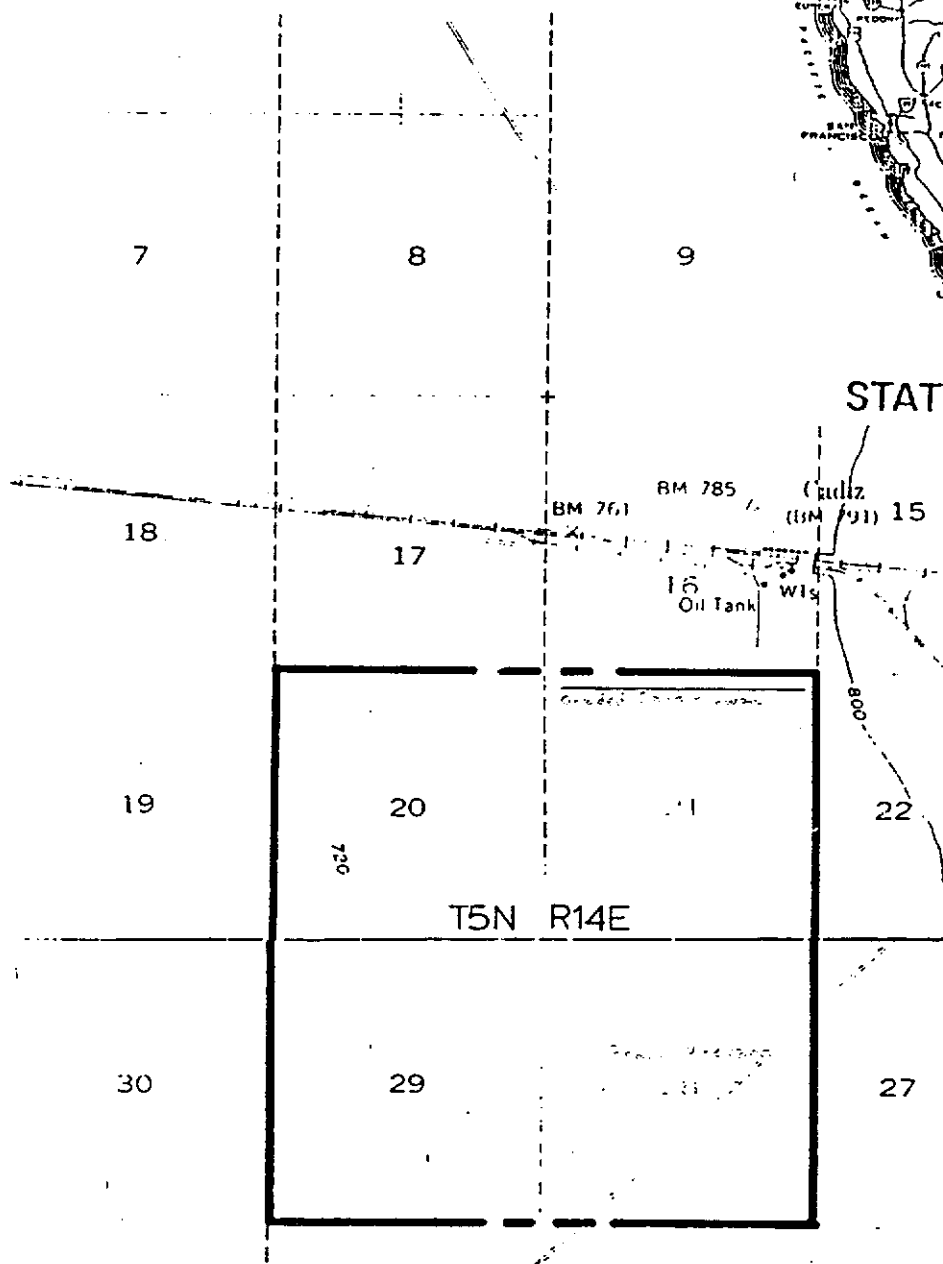
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5

A-G
QU. RNG



STATE INDEX



CONTOUR INTERVAL 80 FEET
DOTTED LINES REPRESENT HALF-INTERVAL CONTOURS
DATUM IS MEAN SEA LEVEL

SITE MAP

CADIZ LAKE SONIC TARGET #5
CADIZ, CALIFORNIA

PROJECT NO. J09CA025900

APPENDIX E

LETTERS / MEMORANDA / MISCELLANEOUS ITEMS

(NOT USED)

APPENDIX F
REAL ESTATE DOCUMENTS

ORDNANCE AND EXPLOSIVES
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT

FINDINGS

CADIZ LAKE SONIC TARGET # 5
SAN BERNARDINO COUNTY, CALIFORNIA
PROJECT NO. J09CA025901

APPENDIX F

REAL ESTATE DOCUMENTS

The archive search did not locate any real estate information that contradicted or modified the information contained in the INPR for Cadiz Lake Sonic Target # 5 furnished in Appendix D.

APPENDIX G
NEWSPAPER / JOURNALS
(NOT USED)

APPENDIX H
INTERVIEWS

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE 29 NOVEMBER 1995

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

SUBJECT OF CONVERSATION Cadiz Lake Sonic Target #5		
OUTGOING CALL		
PERSON CALLING Cyndee Ward	ADDRESS CELMS PM-M	PHONE NUMBER AND EXT. (314) 331-8313
PERSON CALLED Ted Dutton Vice President	OFFICE Cadiz Land Co., Inc. 10470 Foothill Blvd Ste 200 Rancho Cucamonga CA 91730	PHONE NUMBER AND EXT. (909) 980-2738

SUMMARY OF CONVERSATION:

I called Mr. Dutton to obtain permission to perform a site inspection of property formerly the Cadiz Sonic Target #5 (T5N/R14E - Sections 20, 21, 28 & 29).

Mr. Dutton is aware this property was formerly part of General Patton's Training Area. He stated there are still tank tracks and trails in the area.

Mr. Dutton stated Cadiz Land Co., Inc. owns "thousands of acres of land" in San Bernardino County, some of which are planted with crops (currently about 1,800 acres planted with grapes, citrus & lettuce). He stated they have about a dozen wells in this area. Mr. Dutton wanted to pinpoint the area I was inquiring about before granting permission for a site inspection and said he would call me back.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE 30 January 1995

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

SUBJECT OF CONVERSATION Cadiz Lake Sonic Targets		
OUTGOING CALL		
PERSON CALLING Ted Moore	ADDRESS CELMS PM-M	PHONE NUMBER AND EXT. (314) 331-8849
PERSON CALLED Sgt. Al White	OFFICE San Bernardino County Sheriff's Dept., Joshua Tree Station	PHONE NUMBER AND EXT. (619) 367-9546

SUMMARY OF CONVERSATION:

I called Sgt. White to see if his office had received reports of ordnance found in the vicinity of the Cadiz Lake Sonic Targets. He described incidents of ordnance taken from 29 Palms Marine Corps Base and the area near the base, but knew of no incidents in the subject area. He has been with the Sheriff's Dept. for 18 years.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE 14 February 1995

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

SUBJECT OF CONVERSATION		
Victorville Precision Bombing Ranges and Cadiz Lake Sonic Targets		
INCOMING CALL		
PERSON CALLING	ADDRESS	PHONE NUMBER AND EXT.
Sgt. Bob Hall	San Bernardino County Sheriff's Dept., Bomb and Arson Detail	(909) 387-3601 (909) 422-9038 (pager)
PERSON CALLED	OFFICE	PHONE NUMBER AND EXT.
Ted Moore	CELMS PM-M	(314) 331-8849

SUMMARY OF CONVERSATION:

Prior to our site visits to the Victorville PBR's and the Cadiz Lake Sonic Targets, I called the San Bernardino County Bomb and Arson Squad. As I called the various sheriff's stations, I was advised by each one to contact the bomb and arson squad. My initial contact was with Lt. Larry Swope. He was to call me back with more information.

The return call was made by Sgt. Hall. He indicated that ordnance was being found by road crews working at the intersection of I-10 and I-15. I asked him to FAX information about the ordnance to me so that I can pass it on to the Los Angeles Corps of Engineers office. I then described the areas of concern related to Victorville and Cadiz Lake and he said they may have some information on ordnance incidents. I promised to provide maps of the two areas so that he can be precise about the ordnance incidents. He indicated they answer a lot of calls about ordnance taken from active installations in the area.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE 30 November 1995

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

SUBJECT OF CONVERSATION Cadiz Lake Sonic Targets		
OUTGOING CALL		
PERSON CALLING Ted Moore	ADDRESS CELMS PM-M	PHONE NUMBER AND EXT. (314) 331-8849
PERSON CALLED Sgt. Hopkins	OFFICE Riverside County Bomb and Arson Squad	PHONE NUMBER AND EXT. (909) 275-8750 (office) (909) 819-6803 (pager)

SUMMARY OF CONVERSATION:

I called Sgt. Hopkins to see if his department had responded to any reports of ordnance on the Cadiz Lake bombing targets or any other Desert Training Center sites near the bombing targets. He said their experience has been that BLM is the first responder to ordnance incidents and that his office gets called after BLM has already picked up the piece of ordnance.

I asked if we can call him if we find live ordnance. He said his department would appreciate the opportunity to respond.

Sgt. Hopkins said the bomb and arson squad has been in existence for about 15 years. He has been in charge of the unit for about 1 year.

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE 29 NOVEMBER 1995

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

SUBJECT OF CONVERSATION Cadiz Lake Sonic Target #5		
OUTGOING CALL		
PERSON CALLING Dave Peterson Vice President	ADDRESS Cadiz Land Co., Inc. Salinas, CA	PHONE NUMBER AND EXT. (408) 455-1103
PERSON CALLED Cyndee Ward	OFFICE CELMS-PM-M	PHONE NUMBER AND EXT. (314) 331-8313

SUMMARY OF CONVERSATION:

Mr. Peterson called me after talking with Mr. Dutton (Cadiz Land Co., Inc/Rancho Cucamonga) about the proposed site inspection of Cadiz Lake Sonic Target #5 scheduled for the week of Dec 4th.

After identifying himself, Mr. Peterson asked the purpose of our site inspection. I gave him a brief overview of our mission, what the site inspection normally consists of and approximately how many people would participate (I told him our team would consist of approx four people - I gave him the name and phone # of the project mgr., Ted Moore - and explained our team would probably be accompanied by someone from BLM). I explained the site inspection would be performed the afternoon of Monday, December 4, 1995.

Mr. Peterson granted his permission for our team to perform a site inspection of this property. His only stipulation was that upon arrival to this area, and prior to our inspection, the team contact the ranch manager, Mr. Randy Ramey (Ofc # 619-733-4458, Mobile # 619-774-7232) to advise him of their presence.

Mr. Peterson gave the following directions to the ranch office:

From 29 Palms to Amboy Road, from Amboy Road to Old Rte 66, at this intersection - turn right, you will be going east on Old Rte 66. Landmark to look for at/in Amboy, Roy's Cafe. You will go approx. 12 miles west of Roy's Cafe. Look for a sign for PAX Trailer Park on the left hand side of the road, just past this sign you should see a 7' X 10' black & white sign for Cadiz Land Co., turn left onto dirt road (if you come to a barricade in the road, you have passed the dirt road). The ranch office will be a one-story, all white RR house surrounded by palm trees.

Mr. Peterson stated that he will most likely be at this location Monday, please touch base with him if he is there, he may wish to participate in the site inspection.

Cadiz Land Co., Inc. has a helicopter landing pad that Mr. Peterson said the team could use if they were flying into the area, I told him the team would be driving to the site, but mention it here for informational purposes.

APPENDIX I
PRESENT SITE PHOTOGRAPHS

ORDNANCE AND EXPLOSIVES
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT

FINDINGS

CADIZ LAKE SONIC TARGET # 5
SAN BERNARDINO COUNTY, CALIFORNIA
PROJECT NO. J09CA025901

APPENDIX I

PRESENT SITE PHOTOGRAPHS

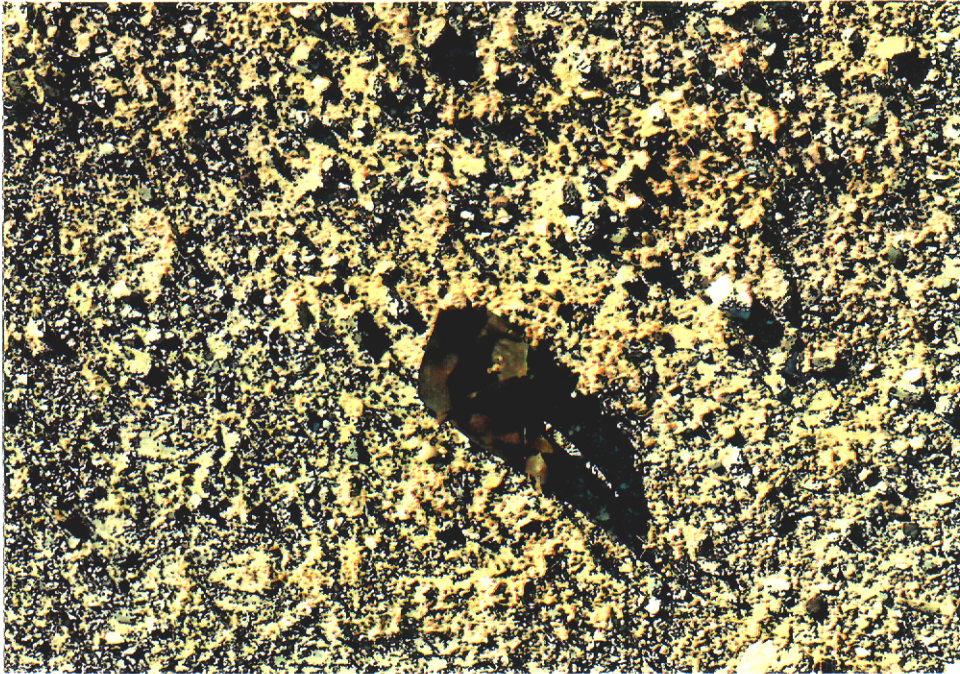
<u>Page/Photo #</u>	<u>Description</u>
Page I-2	
Photo # 1	General View of Target # 5
Photo # 2	Target Center
Page I-3	
Photo # 3	Practice Bomb Debris
Photo # 4	Practice Bomb Debris
Page I-4	
Photo # 5	Practice Bomb Debris
Photo # 6	Arrow Points to Practice Bomb "Dimples"



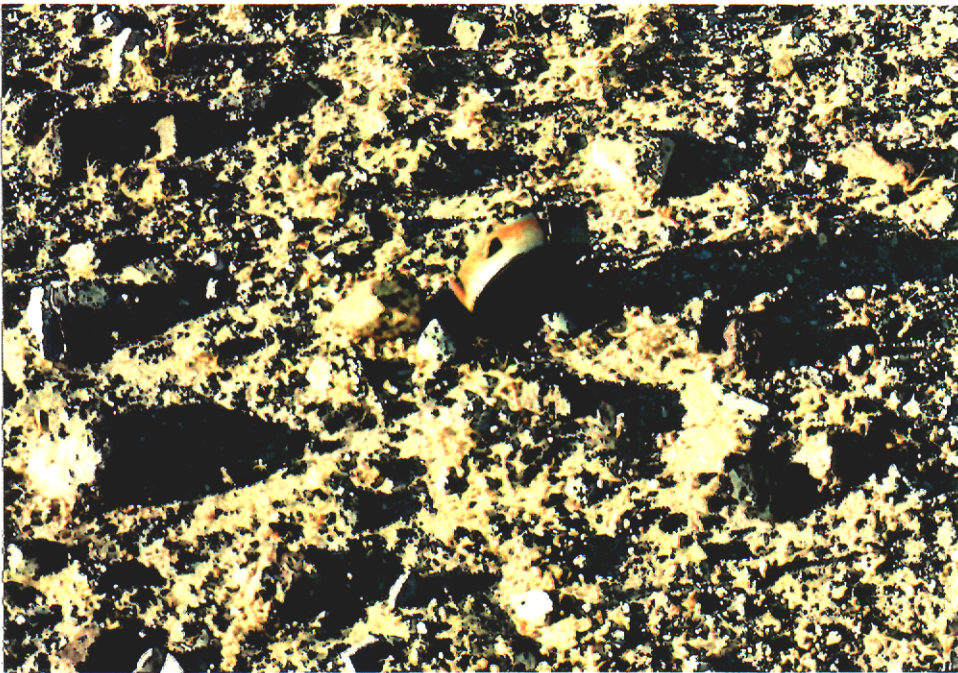
PHOTO # 1
GENERAL VIEW OF TARGET # 5



PHOTO # 2
TARGET CENTER



**PHOTO # 3
PRACTICE BOMB DEBRIS**



**PHOTO # 4
PRACTICE BOMB DEBRIS**



**PHOTO # 5
PRACTICE BOMB DEBRIS**



**PHOTO # 6
ARROW POINTS TO PRACTICE BOMB "DIMPLES"**

APPENDIX J
HISTORICAL PHOTOGRAPHS
(NOT USED)

APPENDIX K
HISTORICAL MAPS / DRAWINGS
(NOT USED)

APPENDIX L

SITE SPECIFIC SAFETY AND HEALTH PLAN /
SITE INSPECTION REPORT

SITE SPECIFIC SAFETY AND HEALTH PLAN (SSHP)
OE/CWM Archives Search Site Inspection Visit
CADIZ LAKE SONIC TARGET #5
San Bernardino County, California
Site # J09CA025901

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 Cadiz Lake Sonic Target #5 suspected to be contaminated with UXO and/or toxic chemical munitions. Entire range area.

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

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

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

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

5. SITE COMMUNICATIONS: 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: Rolling desert, wildlife, and poisonous plants could be encountered.

7. ORDNANCE HAZARDS: Practice bombs, artillery projectiles, small arms ammunition, as well as other miscellaneous ordnance items might be found in the area.

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

Important Phone Numbers

Emergency medical service: Dial 911
Law enforcement agency: (619) 326-9200
Huntsville Safety: (205) 895-1582/1579
(800) 627-3532, PIN 777-2534
Non-emergency number:

SSHP reviewed by:


Gregg E. Kocher

UXO Specialist

Encls

1. Safety Briefing Attendance
2. Safety gear

SITE SURVEY SAFETY BRIEFING

PPE

Work Clothing
 Gloves
 Hardhat
 Hearing protection
 Safety shoes
 Safety glasses

Site Hazards

OEW
 CSM
 HTW
 Slips, falls, trips
 Wildlife
 Vegetation

Weather Precautions

Cold/Heat
 Severe Weather

Safety Briefing Attendance

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

Print name and organization

Signature

Hank Counts CELMS-PM-M

Hank Counts

RICHARD W. HARTMAN L.A.P.D.

[Signature]

JEROME N. THEAKER L.A.P.D.

[Signature]

JAMES LUEBBERT CELMS-PD

James L. Luebbert

Ted Moore CELMS PM-M

Ted Moore

MANDATORY MINIMUM SAFETY GEAR

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

MEMORANDUM FOR: Mike Dace

SUBJECT: Cadiz Lake Sonic Target # 5 - Site Visit

Corps of Engineers Participants:

Ted Moore	Project Manager
Hank Counts	UXO Specialist and Safety Officer
Jim Luebbert	Historian

Other Participants:

Rick Hartman	Local individual
Jerry Theaker	Local individual

This site visit was performed in conjunction with other Cadiz Lake Sonic Targets and the Cadiz Lake Air-to-Ground Gunnery Range.

Thursday, 7 December 1995

The former bombing target is desert land. The site is about two miles from Cadiz. There is a large grape and orange orchard about 1/2 mile from the target center. There is an all weather gravel road that runs within 0.1 mile of the target. 4-W-D transportation is not required.

We found aiming circles on the air photos for this site. We walked directly to the marked target area. The aiming circles are deteriorated but still visible. The center of the target is marked by wooden stakes. We found practice bomb debris scattered over approximately a 0.4 mile radius. Most of the bomb debris were small pieces. It appeared that the target had been cleaned. We did not find HE fragments or unexploded ordnance. There were many small dimples where the bombs impacted. There were at least 200 bombs dropped on this target.

APPENDIX M
REPORT DISTRIBUTION LIST

ORDNANCE AND EXPLOSIVES
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT

FINDINGS

CADIZ LAKE SONIC TARGET # 5
SAN BERNARDINO COUNTY, CALIFORNIA
PROJECT NO. J09CA025901

APPENDIX M

REPORT DISTRIBUTION LIST

<u>Addressee</u>	<u>No. Copies</u>
Commander, U.S. Army Engineering Support Center Huntsville, ATTN: CEHNC-OE-PM P.O. Box 1600 Huntsville, AL 35807-4301	2
Project Manager Chemical Demilitarization, Non-Stockpile ATTN: SFAE-CD-NM Aberdeen Proving Ground, MD 21010-5401	1
Commander, U.S. Army Chemical & Biological Defense Command ATTN: AMSCB-CIH, Bldg E5183 Aberdeen Proving Ground, MD 21010-5423	1
U.S. Army Technical Center for Explosives Safety ATTN: SMCAC-ESM Savanna, IL 61074-9639	1
Commander, U.S. Army Corps of Engineers Los Angeles District, ATTN: CESPL-ED-MI 300 North Los Angeles Street, Room 6003 Los Angeles, CA 90012-3375	1
CELMS-ED-G	1
-ED-H	1
-PD-R (O'Donnell)	1
-PM-M	1

REPORT PLATES

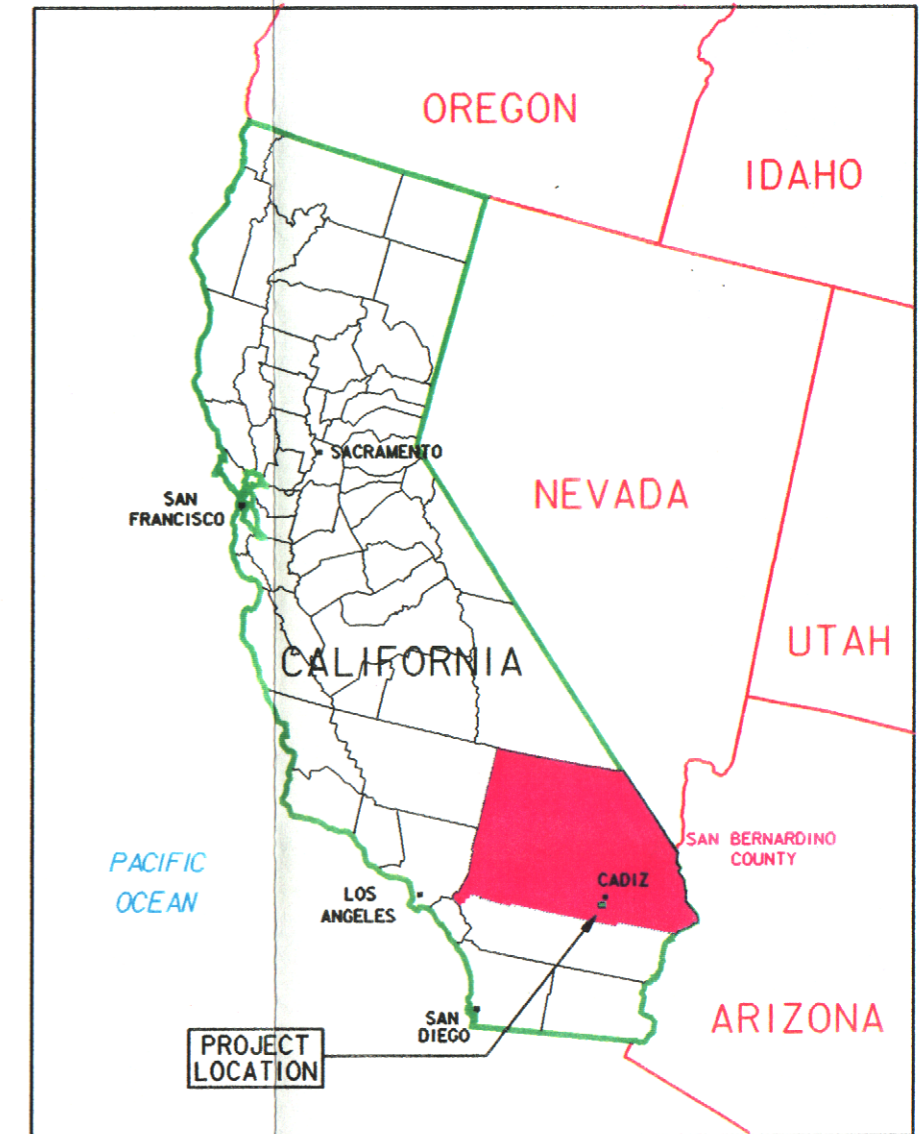
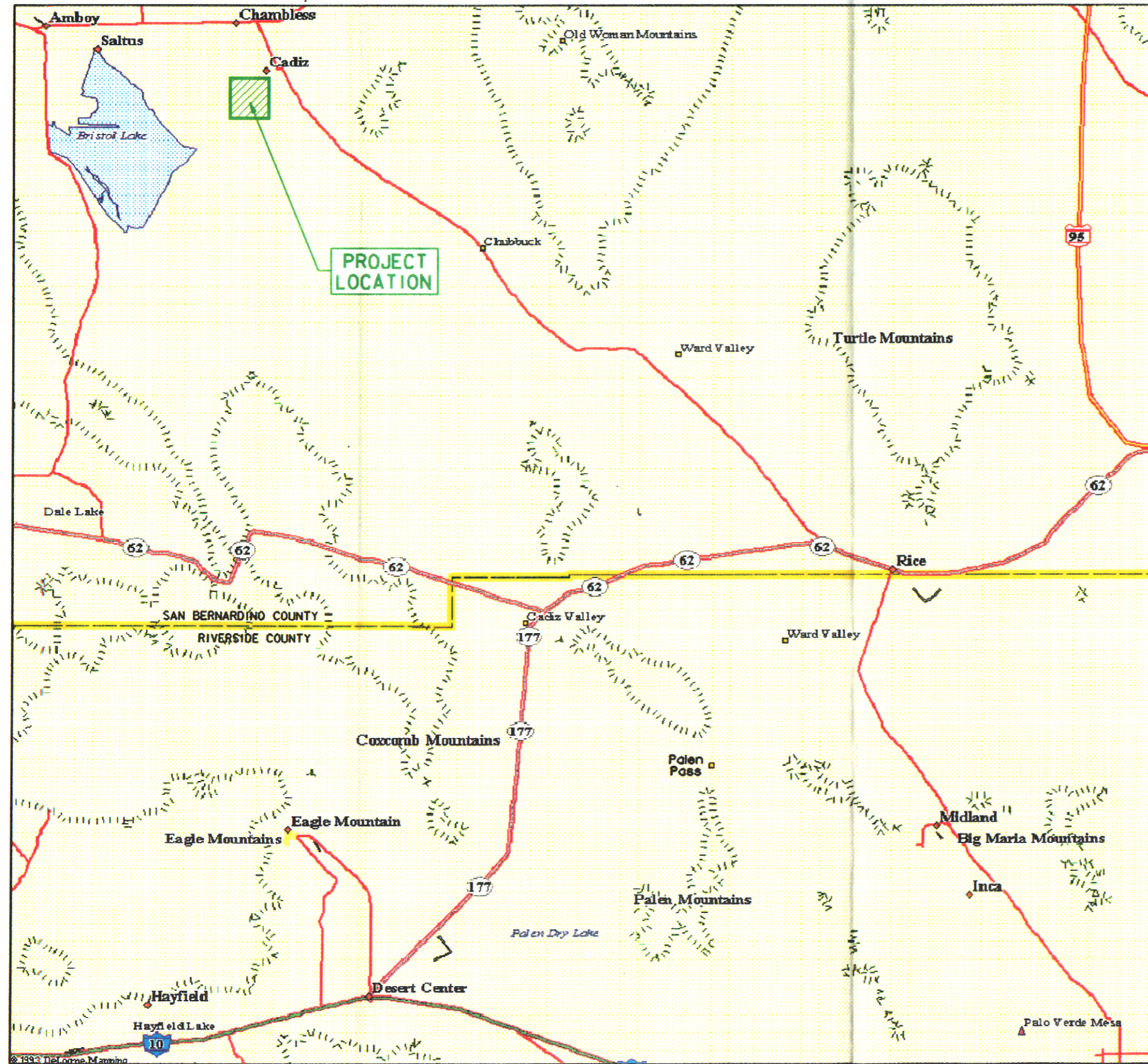
ORDNANCE AND EXPLOSIVES
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT

FINDINGS

CADIZ LAKE SONIC TARGET # 5
SAN BERNARDINO COUNTY, CALIFORNIA
PROJECT NO. J09CA025901

REPORT PLATES

PLATE 1	VICINITY MAP
PLATE 2	SITE LOCATION MAP
PLATE 3	SITE INSPECTION MAP



NOT TO SCALE

PLATE I
CADIZ LAKE
SONIC TARGET #5
SAN BERNARDINO COUNTY,
CALIFORNIA
DERP-FUDS #J09CA025901
VICINITY MAP

PROJ. DATE: DEC 1995	DATE OF MAP: 1993
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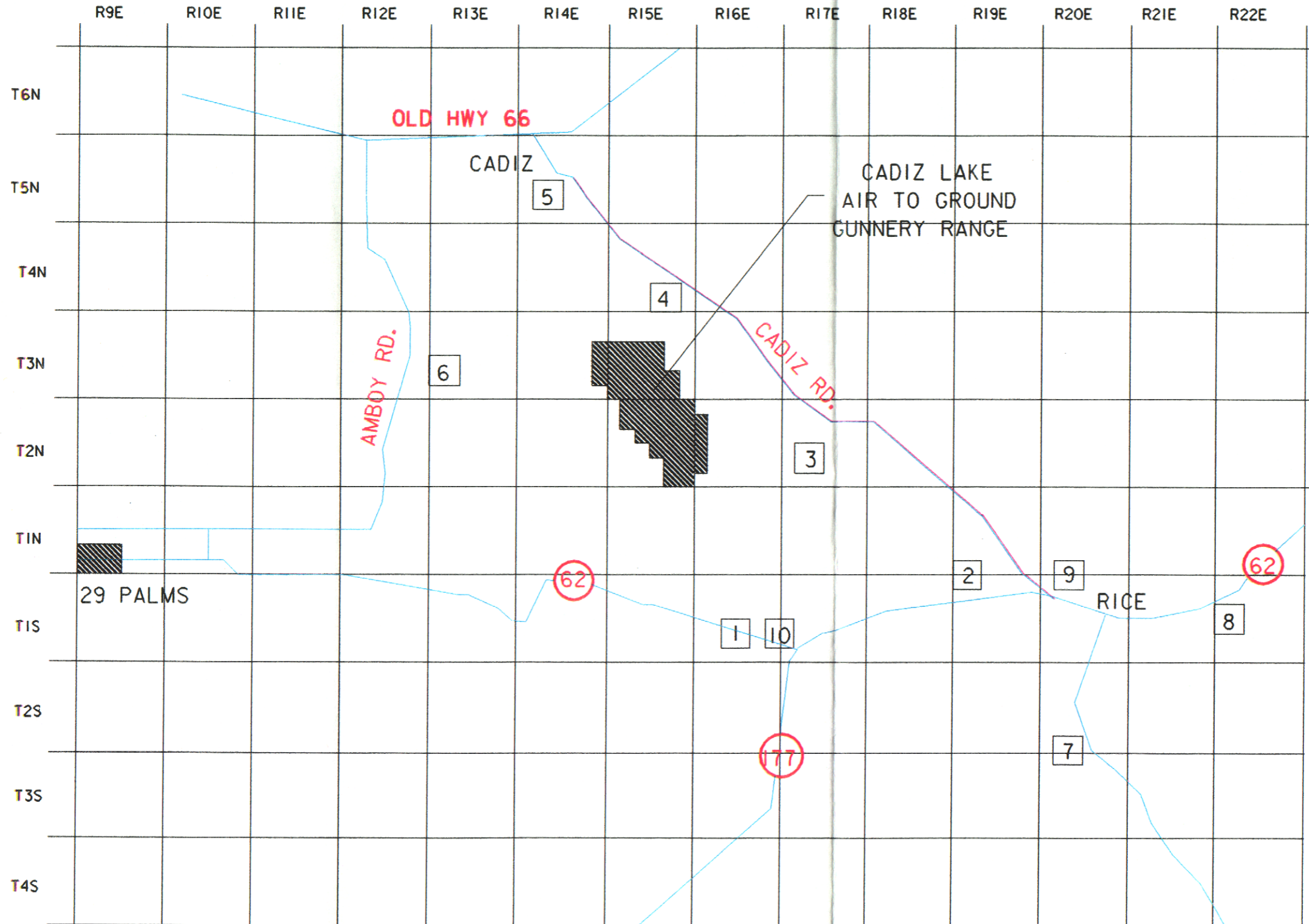
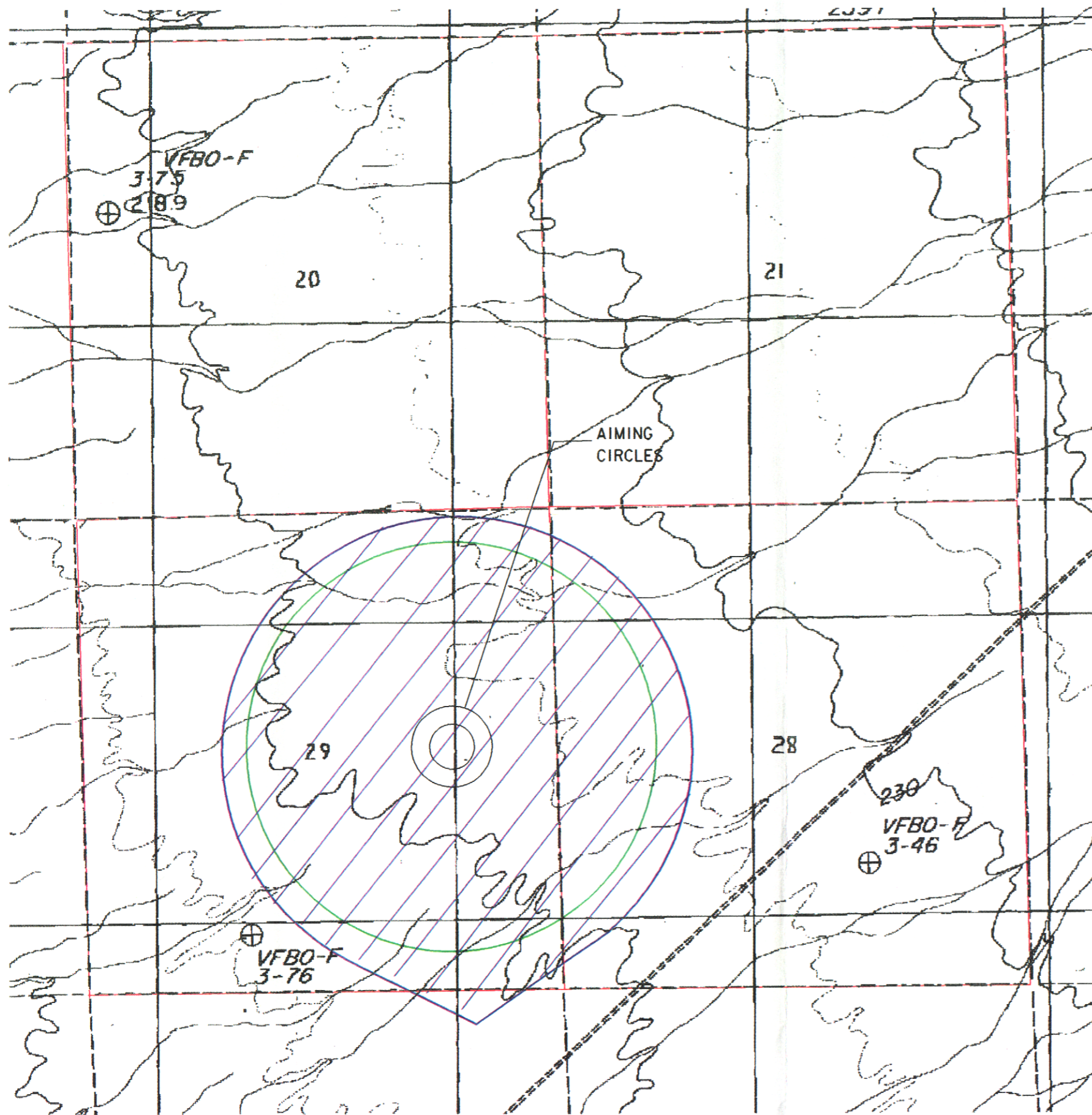




PLATE 2
CADIZ LAKE
SONIC TARGET #5
SAN BERNARDINO COUNTY,
CALIFORNIA
DERP-FUDS #J09CA025901
SITE LOCATION MAP

NOT TO SCALE

PROJ. DATE: DEC 1995	DATE OF MAP: 1993
19-JAN-1996 07:40	N:\OE\96A\M3\QUAD\CADT5PL2.DGN



LEGEND

-  CONTAMINATED AREA
-  AREA INSPECTED



NOT TO SCALE

PLATE 3
CADIZ LAKE
SONIC TARGET #5
SAN BERNARDINO COUNTY,
CALIFORNIA
DERP-FUDS #J09CA025901
SITE INSPECTION

PROJ. DATE: DEC 1995	DATE OF MAP: 1993
19-JAN-1996 07:48	N:\OE96A\M3\QUAD\CADIZST5.DGN & CIT