



**US Army Corps  
of Engineers**

**HUNTSVILLE DIVISION**

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**Defense Environmental Restoration Program  
for  
Formerly Used Defense Sites**

**Ordnance and Explosive Waste  
Chemical Warfare Materials**

## **ARCHIVES SEARCH REPORT**

### **FINDINGS**

**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**

**RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA**

**PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801**

**JULY 1995**

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

ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
**ARCHIVES SEARCH REPORT**  
FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA  
  
DERP-FUDS PROJECT NUMBERS J09CA025401,  
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## 1.0 Introduction

### 1.1 Authority

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

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

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

The March 1990 National Oil and Hazardous Substances Pollution Contingency Plan given in 40 CFR part 300 is the latest version of the NCP. Paragraph 300.120 states that "DoD will be the removal response authority with respect to incidents involving DoD military weapons and munitions under the jurisdiction, custody, and control of DoD."

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

## 1.2 Subject

This is a combined report covering three of the ten Cadiz Lake Sonic Targets (targets) used by March AFB. The Cadiz Lake Sonic Target area is within the World War II California - Arizona Maneuver Area (C-AMA) and the Desert Strike Maneuver Area (1964). The targets addressed in this report are #1, #2, and #4. Targets #2 and #4 are located in San Bernardino County, California. Target #1 is located in Riverside County, California. Target #1 was part of the Iron Mountain Artillery Range during WWII.

The targets were acquired in accordance with a Real Estate Directive dated 3 July 1946 in which Special Use Permits were to be acquired from the Department of Interior. All three of the subject targets consisted of 2,560 acres. The targets were declared surplus on 2 August 1948 and were relinquished to the Bureau of Land Management (BLM) by letter dated 21 April 1949. All three of these sites are currently undeveloped desert land.

Target #1 was located approximately 45 miles east of 29 Palms (see Map 2). We have no evidence that the target was marked in any way or that there were any improvements to the site.

Target #2 was located approximately 60 miles east of 29 Palms (see Map 2). The target was marked with concentric oiled rings which are still visible and a slightly raised mound containing a hexagon made of railroad ties (see photographs). We have no evidence of any other improvements to the site.

Target #4 was located approximately 40 miles northeast of 29 Palms (see Map 2). The target was marked with concentric oiled rings which are still visible. We have no evidence of any other improvements to the site.

### 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 people associated with the sites, and site inspections. All efforts were directed at determining the possible use or disposal of conventional ordnance on these sites.

### 1.4 Scope

This archive search report focused primarily on the potential for unexploded ordnance 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 Site Investigations**

Inventory Project Reports (INPR's) for the Cadiz Lake Sonic Targets #1, #2, and #4 were prepared in September 1993 by the Los Angeles District, Corps of Engineers.

### **3.0 Site and Site Area Descriptions**

#### **3.1 Location of the Sites**

All three of the subject bombing targets are located east of 29 Palms, California (see Map 2).

#### **3.2 Past Uses of the Sites**

All three of the bombing targets were owned by the Department of Interior prior to DoD use. All of the land was undeveloped desert.

#### **3.3 Current Uses of the Sites**

All three of the bombing targets are currently owned by BLM. All of the land continues to be undeveloped desert.

#### **3.4 Demographics of the Sites**

##### **3.4.1 Center of Activity**

The City of 29 Palms, San Bernardino County, California has numerous centers of activity such as Joshua Tree National Monument, 29 Palms Historical Museum, 29 Palms Marine Corp Base, a drive-in, and various parks located throughout the community.

##### **3.4.2 Population Density**

City: 29 Palms	County: San Bernardino
Area: 54 sq.mi.	Area: 20,064 sq.mi.
POP: 14,837	POP: 1,556,300
PD: 274.76 persons per sq.mi.	PD: 77.6 persons per sq.mi.

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

### 3.4.3 Type of Businesses

A review of both telephone interviews and County Business Patterns (1990) assisted in developing a business profile of the area. The City of 29 Palms is diversified. The largest employers are: 29 Palms Marine Corp Base, National Parks System, 29 Palms school district, and Fader Bros.

### 3.4.4 Type of Industry

29 Palms is an economically diverse community. The community supports retail and service industries, along with light industries.

### 3.4.5 Type of Housing

Housing in 29 Palms is comprised of both single and multi-family homes.

### 3.4.6 New Development in the Area

Development in the 29 Palms area includes residential dwellings and continuing getting more businesses, especially in tourism.

### 3.4.7 Typical Cross-Section of Population

The ancestry in 29 Palms is diverse. The percent of those under the age of 18 is 30.4%, over 65 years is 9.3%. The median age is 27. Approximately 75.3% of the population is White, 8.7% Black, 10.3% Hispanic, 1.4% American Indian or Eskimo, and 4.3% Asian or Pacific Islander. There are approximately 5,958 housing units with a median value of \$67,300. The work force, based on the number of establishments, of San Bernardino County is broken down into the following: manufacturing, 6.8%; agriculture, 1.7%; services, 31.0%; trade and finance, 38.7%; other, 21.8%.

## **4.0 Physical Characteristics of the Sites**

### **4.1 Geology/Physiography**

The Cadiz Lake sites are 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.

### **4.2 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).

### **4.3 Hydrology**

#### **4.3.1 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.

#### **4.3.2 Surface Water**

Runoff from Target #1 flows into the Colorado River Aqueduct.

Runoff from Target #2 flows into the Danby Lake, and the Colorado River Aqueduct.

#### 4.4 Weather

The climate, in Riverside County, is characterized by hot summers, mild winters, and very little precipitation. Rainfall is scant in all months. Precipitation occurs mainly in the winter. Rainfall may be expected to reach 1.25 inches per 24 hours, with a frequency of about once in two years. Some points at intermediate elevations occasionally receive snow, although, amounts are usually light and the snow melts quickly.

Summers are long and very hot. Midsummer temperatures are quite hot. Daily maximum readings in July generally average in excess of 100° F at elevations below 1,200 feet. Winter conditions, as represented by the mean minimum temperature of January, give readings in the high 30's at most valley stations, and some protected areas average higher than 40° F. Winter freezes have been reported by all stations in the area although some stations do not experience freezing temperatures every year. On some occasions damaging low temperatures may occur relatively late in the spring or early in the fall, while the next year there may be no frost at all. Temperature readings of 32° F or lower occur as infrequently as once in four or five years in some parts of the area.

Midsummer readings of the relative humidity are low in the northwestern part of the area, dropping to around 25 percent in late afternoon, but they show little change in the valley areas and somewhat lower in the extensive nonirrigated area. In the mountains, summer humidities are probably around 50 percent.

Most airflow over the area is from the northwest quadrant, and about one-third as often from the southeast quadrant. The frequency of winds from other directions is very small. The average windspeed ranges from just under six miles per hour to just over seven miles per hour. In the northern part of the area, winds in excess of 25 miles per hour occur less than two percent of the time at all reporting points and less than one percent of the time at number of them. Most of the strongest winds are from a northerly or northwesterly direction. These north winds are associated with a pressure distribution that occurs only infrequently.

Rainfall, in San Bernardino County, is scant in all months. Precipitation occurs mainly in the winter. Summers are practically rainfree. 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 percent 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 midafternoon is about 20 percent. Humidity is higher at night, and the average at dawn is about 50 percent. Percentage of possible sunshine is 90 percent of the time in summer and 60 percent 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 an average of 22 percent of the year. Most of the erosive winds come generally from the south and west.

#### 4.5 Ecology

The information provided for these sites 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 the Federally threatened desert tortoise (Gopherus agassizii) occur in the vicinity of the Cadiz Lake Sonic Target #1 Site.

The USFWS reported that no Federally endangered, threatened, or candidate species occur in the vicinity of the Cadiz Lake Sonic Target #2 or #4 Sites.

The NDDDB listed the State threatened desert tortoise as the only species of state concern that occur in the Cadiz Lake Sonic Target #1 Site.

The NDDDB does not list any State protected species in the vicinity of the Cadiz Lake Sonic Target #2 or #4 Sites.

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.

## **5.0 Real Estate**

The targets were acquired in accordance with a Real Estate Directive dated 3 July 1946 in which Special Use Permits were to be acquired from the Department of Interior. All three of the subject targets consisted of 2,560 acres. The targets were declared surplus on 2 August 1948 and were relinquished to BLM by letter dated 21 April 1949. All three of these sites are currently undeveloped desert land.



## **6.0 History of Cadiz Lake Sonic Targets #1, #2, and #4**

### **6.1 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 DTC was instituted under the Army Ground Forces 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 were conducted in 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).

### **6.2 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).

A request was made to reduce 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 each, 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. Flamethrowers were used 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).

### 6.3 C-AMA/DTC Decontamination and Clearance

In 1944, G-4 requested the X Corps reconnoitre 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, it was 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. Palen Pass is about 15 miles south of Target #2. Materials of various types which had not been incorporated into Palen Pass were to be collected and disposed of. From January 17, 1945 to April 15, 1945, the following ordnance materiel had been turned in to the zone of interior: 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. An ordnance disposal area was found 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, even though they found a lot of ammunition to dispose. The newspaper article also said that portions of the C-AMA in Imperial, San Bernardino, and Riverside counties had danger signs posted for miles warning of the possibility of unexploded ammunition (*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. Artillery rounds, mortar rounds and live practice anti-tank land mines have been found in recent years (Blake 1988).

#### 6.4 Cadiz Lake Sonic Targets #1, #2 and #4

Parts of the area covering the Cadiz Lake Bombing and Gunnery Range and Sonic Targets had been used by the Army Ground Forces in training and were turned over to the Fourth Air Force (Headquarters Fourth Air Force 1945).

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 Cadiz Lake Air-to-Ground Gunnery Range and Sonic Targets #1 to #9, inclusive, were declared surplus to the needs of the U. S. Air Force 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 range was still being planned but 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).

#### 6.5 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 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. 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).

#### 6.6 Cadiz Lake Decontamination and Clearance

A Corps of Engineers memo dated June 18, 1948 states that Cadiz Lake Air-to-Ground Gunnery Range and Sonic Targets were inspected and dedudded. The memo does not elaborate on the munitions found nor how dedudding was performed. 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 Los Angeles District, Corps of Engineers 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 Clearance Report for Cadiz Lake Sonic Targets dated March 17, 1949 lists the duds found on each target, which are as follows:

Target #1: 290 Bomb, Practice, 100 pound, M38A2, w/M4 Burster  
2 Shell, 155mm HE  
6 Shell, 105mm HE  
2 Shell, 75mm HE  
1 Shell, 37mm  
2 Mines, Practice, Anti-Tank

Target #2: 184 Bomb, Practice, 100 pound, M38A2, w/M4 Burstern

Target #4: 140 Bomb, Practice, 100 pound, M38A2, w/M4 Burstern

The duds were placed into small piles and blown up in place using C2 or C3 explosives. The M38A2 practice bomb duds were disposed of in groups of ten. Practice anti-tank mines or mine fuzes were disposed of in large quantities at various points of concentration. A hole was dug in the ground, layers of explosives were placed between layers of mines and fuzes and detonated. The high explosives were

detonated where found. The clearance report states that the entire area is safe for any purpose for which the land is suited (Los Angeles District Corps of Engineers 1949a).

Cadiz Lake Sonic Targets #1 through #6 and one unnumbered target were issued a Certificate of Clearance 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).

### 6.7 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, about 13 million acres of the desert in California, Arizona, and Nevada were used for a major exercise called Desert Strike. This exercise involved units from both the Army and the Air Force as well as National Guard and Army Reserve units from several states. 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).

### 6.8 Desert Strike Ordnance Usage

One report of the 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. Star cluster flares were used at night to indicate a stoppage in action. Colored smoke simulated gas attacks (United States Strike Command 1964). Beyond this, we found very little information concerning ordnance usage in Desert Strike.

### 6.9 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 (USGS c.1962)

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

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Box 826: Cadiz Air Support Command Base.

Box 965: Topeka AAF.

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Box 956: Proposals for Cadiz and Victorville.

Box 957: Correspondence for small airfields. Proposals.

Box 1521: March AFB civilian reports.

Box 3192: March AFB and Victorville.

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Boxes 73-90: California airfields.

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

Entry 27, Correspondence Files 1942-46

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Box 17: Camp Campbell

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Box 1121: Target Ranges.

Box 1122: General correspondence 1942-48. Decimal 684.

Box 1123: Firing ranges (nationwide). Decimal 684.

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Exercise Bristol Cone.  
Exercise Clear Water.  
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**Mojave Desert and Cultural Association  
Goffs Schoolhouse  
37198 Lanfair Road  
Essex, California 92332-0007**

Folder: The Desert Training Center. Maps and reports.

6.12 Summary of Interviews

6.12.1 Mr. Max Proudfoot, 29 Palms Historical Society

Mr. Proudfoot was contacted regarding information about the C-AMA and Desert Strike. He was unable 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.

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

Sgt. White was asked 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.

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

Prior to our site visits to the Cadiz Lake Sonic 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. Sgt. Hall said they answer a lot of calls about ordnance taken from active installations in the area.



## 6.13 Site Inspection

### 6.13.1 General

#### Participants:

##### Corps of Engineers:

Ted Moore	Project Manager
Kirk James	UXO Specialist and Safety Officer
Jim Luebbert	Historian

##### Others:

John Key	BLM Hazmat Specialist
Bill Wiley	BLM Hazmat Specialist
Rick Hartmann	Private citizen with knowledge of the area
Jerry Theaker	Private citizen with knowledge of the area

This site visit was performed in conjunction with the Victorville Precision Bombing Ranges N-1, #2, #7, and #8. This portion of the desert has been declared a wilderness area and no vehicles are permitted off established roads.

Mr. Hartmann and Mr. Theaker are Los Angeles police officers who spend as much free time as possible studying and walking the high desert of California. They are specifically interested in the areas where Patton trained his troops. They were very helpful during the Cadiz Lake Sonic Target inspections and also provided much information to John Key regarding potential and known ordnance contaminated areas on BLM property.

### 6.13.2 Detailed Site Inspection

#### **Monday and Tuesday, 6 and 7 February 1995**

Travel from St. Louis to Victorville, CA and inspect Victorville PBR's

#### **Wednesday, 8 February 1995**

##### **Morning** Travel to 29 Palms, CA

**1200** The team travelled to Cadiz Lake Sonic Target #1 which is located about 45 miles east of 29 Palms. Highway 62 now runs through the middle of the former four square mile target. We were not aware of anything marking the center of the target, so we began walking to the south along the north-south section line which divided the

target in half. Although we found practice bomb debris and possible craters, we never found anything that made us believe there was a marked target. We found a 50 cal. projectile, empty 50 cal. casings, practice bomb debris, possible craters, and two high explosive fragments (possibly from artillery rather than bombs). We also found two artillery pits on the north side of Highway 62. The pits were facing north. We found no unexploded ordnance.

#### **Thursday, 9 February 1995**

**0630** The team travelled to Cadiz Lake Sonic Target #2 which is located about 60 miles east of 29 Palms. Highway 62 runs about 0.75 miles to the south of the former four square mile target. We were not aware of anything marking the center of the target, so we began walking to the north along the north-south section line which divides the target in half. Although the target area boundary is 0.75 miles from Highway 62, we began finding practice bomb debris shortly after we began walking. We found practice bomb debris, possible craters, and part of a fuze from a high explosive bomb (at least 1,000 pound) as we walked to the center of the four square mile area, but we were not satisfied that we had found the marked target. We walked to the northeast and then circled back to the west but found no evidence of ordnance other than a piece of a rotator band. We turned to the south and began finding practice bomb debris and possible craters again. We turned to the southwest and soon found increasing amounts of debris including high explosive fragments. We finally found oiled rings and railroad ties marking the target. There are large quantities of bomb fragments, craters, and practice bomb debris surrounding the marked target. The debris area is about 0.8 miles in diameter. We found no unexploded ordnance.

**1200** The team travelled to Cadiz Lake Sonic Target #4 which is located about 30 miles northwest of Cadiz Lake Sonic Target #2 on the east side of Cadiz Road. After finding oiled rings marking the target at Target #2, we decided to call St. Louis (by cellular telephone) to see if air photos had arrived, and if so, to find out if oiled rings appear on the photos. St. Louis was able to provide coordinates of the marked target which allowed us to walk directly to the target. The oiled rings are still visible on the ground. We found only practice bomb debris at this target. Most of the bomb debris was within an approximate 0.35 mile radius around the target. There was some bomb debris outside this circle suggesting the approach to the target was along a south to north line running through the marked target. We found no unexploded ordnance.

#### **Friday, 10 February 1995**

Return to St. Louis

## 6.14 Interpretation of Aerial Photography

### 6.14.1 Target #1

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

<b><u>Photography Date</u></b>	<b><u>Approximate Scale</u></b>	<b><u>Source</u></b>	<b><u>Frame Identifier(s)</u></b>
11 Dec 1943	1"=3,250'	NATIONAL ARCHIVES	33 thru 35 87 thru 89
22 Jun 1977	1"=2,500'	EROS	8 thru 11

The photography was referenced using the Cadiz Valley SE USGS 7.5' quadrangle 1985.

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

The 1977 photography was analyzed and no evidence of bombing was seen during the photographic analysis.

### 6.14.2 Target #2

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

<b><u>Photography Date</u></b>	<b><u>Approximate Scale</u></b>	<b><u>Source</u></b>	<b><u>Frame Identifier(s)</u></b>
11 Apr 1943	1"=3,333'	NATIONAL ARCHIVES	30 thru 35 93 thru 95 144 thru 146
23 Jun 1977	1"=2,500'	EROS	7 thru 9
18 Dec 1890	1"=3,000'	I.K. CURTIS	43 thru 45 47 thru 49

The following USGS 7.5' quadrangles of California were used to reference aerial photography:

Arica Mountains 1983  
Dabny Lake 1983  
East of Granite Pass 1983  
Sablon 1983

No photography was available prior to 1943. The 1943 photography fails to reveal whether bombing took place in this area, but due to the type of environment, small craters may have been covered.

Photography from 1977 reveals the bombing target, but due to the scale of the photography, does not show up very well. There is a possible crater a short distance from the center of the target, but due to the type of environment in the area, any small craters may have filled up.

The 1990 photography does not reveal the target range, mainly due to the scale of the photography.

#### 6.14.3 Target #4

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

<u>Photography Date</u>	<u>Approximate Scale</u>	<u>Source</u>	<u>Frame Identifier(s)</u>
12 Nov 1943	1"=3,333'	NATIONAL ARCHIVES	165 thru 167 203 thru 205
22 Jun 1981	1"=2,000'	EROS	109 thru 111 155 thru 158

Two USGS 7.5 ' topographic quads were used to reference the aerial photography. These quads are as follows:

Cadiz Lake NE 1985  
Cadiz Lake NW 1986

Photography from 1943 shows no indication of the bomb target, nor does it indicate any evidence of bombing in the area.

The 1981 photography indicates the bombing target. Several small craters were seen in the area. Due to the type of environment in the area, several small craters may have been covered up.

## 6.15 Map Analysis

### 6.15.1 Target #1

Map analysis was performed using the Cadiz Lake SE USGS quadrangle, 1985 edition.

Planimetric and topographic features are shown on the quadrangle. The planimetric features include loose surface roads and levees. 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 OEW waste were detected during the photographic and map analysis.

### 6.15.2 Target #2

The following 7.5' USGS topographic quadrangles of California were used for the map analysis portion of this report:

Arica Mountains 1983  
Dabny Lake 1983  
East of Granite Pass 1983  
Sablon 1983

These quadrangles contain planimetric and topographic features. The planimetric features include railroad lines, dikes, levees, loose surface roads, and ditches. The topographic features are few. Mainly just consisting of relief features and many disappearing streams. Dabny Lake is the largest feature of the four quadrangles.

No other areas of OEW were detected during the photo and map analysis.

### 6.15.3 Target #4

The following 7.5' USGS topographic maps were used for the map analysis portion of the report:

Cadiz Lake NE 1985  
Cadiz Lake NW 1986

Both quadrangles contain planimetric and topographic features, although neither features are abundant. Planimetric features essentially include loose surface roads, levees and a railroad line. Topographically, the terrain goes from very flat to very rugged. There are several sand dunes in the area, along with many disappearing streams.

No other areas of OEW were detected during the photo and map analysis.

## **7.0 Evaluation of Ordnance Contamination**

Although all three of the subject targets are near roads, the entire Cadiz Lake area is remote. There are no buildings within five miles of any of the subject targets. There is little evidence of public use of the area. There was some trash along Highway 62 where it runs through target #1, but it did not extend very far from the road. There is no restriction to access at any of the sites.

We did not have air photos of the targets prior to beginning our site inspections, so we initially picked paths that we hoped would take us to or near the marked area of the targets. Maps 3, 4, and 5 show the path walked at each target. Maps 3 and 4 show the circuitous path we followed trying to find the marked area of targets #1 and #2. After finding oiled rings at target #2, we called St. Louis to see if air photos had arrived for target #4, and if oiled rings showed on the photos. St. Louis had the photos and gave us coordinates for the marked area of target #4. Map 5 shows our path directly to the marked area.

At all three targets we attempted to characterize the type of ordnance used and the extent of the ordnance remaining on the site. The size of our group varied from five to seven, but the flat terrain and sparse vegetation allowed us to be spaced at least 100' apart.

At target #1, we never found evidence of a marked area. As shown on Map 3, the southeast quadrant of the target contained the most debris. Aside from some metal fragments that appeared to be from artillery, we only found debris from practice bombs. There is still evidence of World War II use of the site. We found tank tracks and two artillery pits (facing to the north).

At target #2, we finally found the marked target after beginning our inspection at the center of the four square mile area (see Map 4). The target was marked with oiled rings and a raised area containing a hexagon made of railroad ties (see photographs). This target was used heavily. Although we found no unexploded ordnance, we found a large amount of practice bomb debris, probable craters, and high explosive bomb debris and fragments. Evidence suggests that at least 1,000 pound high explosive bombs were used. The most heavily bombed area is approximately 0.4 mile radius around the marked area. Although the most heavily bombed area is easy to distinguish, we found bomb debris at least a mile from the marked area, some of it outside the target boundary.

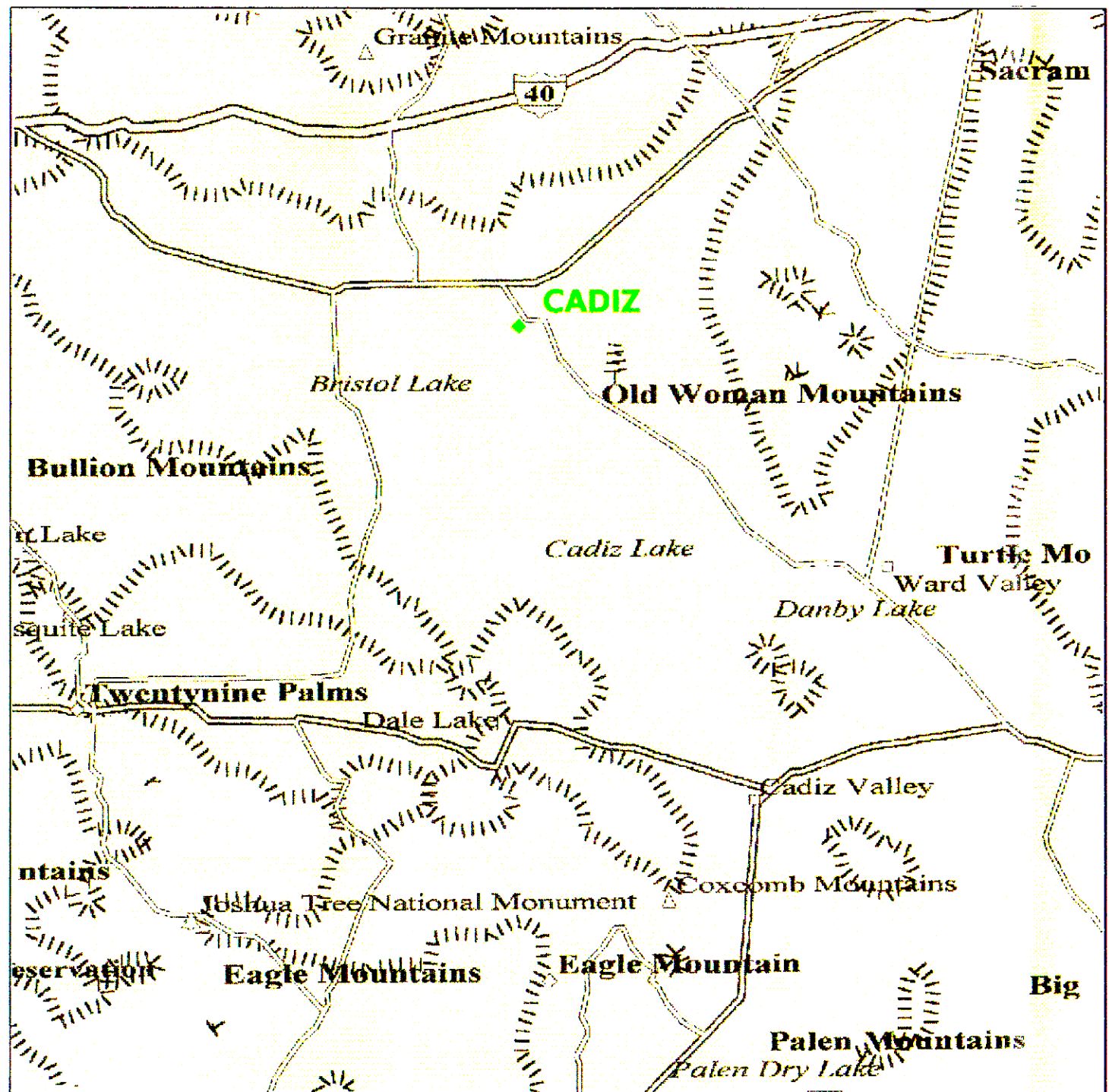
At target #4, we were able to walk directly to the marked area (oiled rings). We only found practice bomb debris at this target. After inspecting the marked area of the target, we walked to the northwest until we no longer found bomb debris. We then began generally walking a circle along the edge of the debris area. As we walked, we adjusted the radius of the circle out until we felt we were just outside the bomb debris.

Most of the bomb debris was found within 0.35 mile radius of the marked area. There was an area on the south side of the bomb debris area where the debris extended well outside the 0.35 mile radius. It is possible this was the approach to the target.

Targets #1 and #4 do not appear to have been used as heavily as target #2.



**MAPS/DRAWINGS**



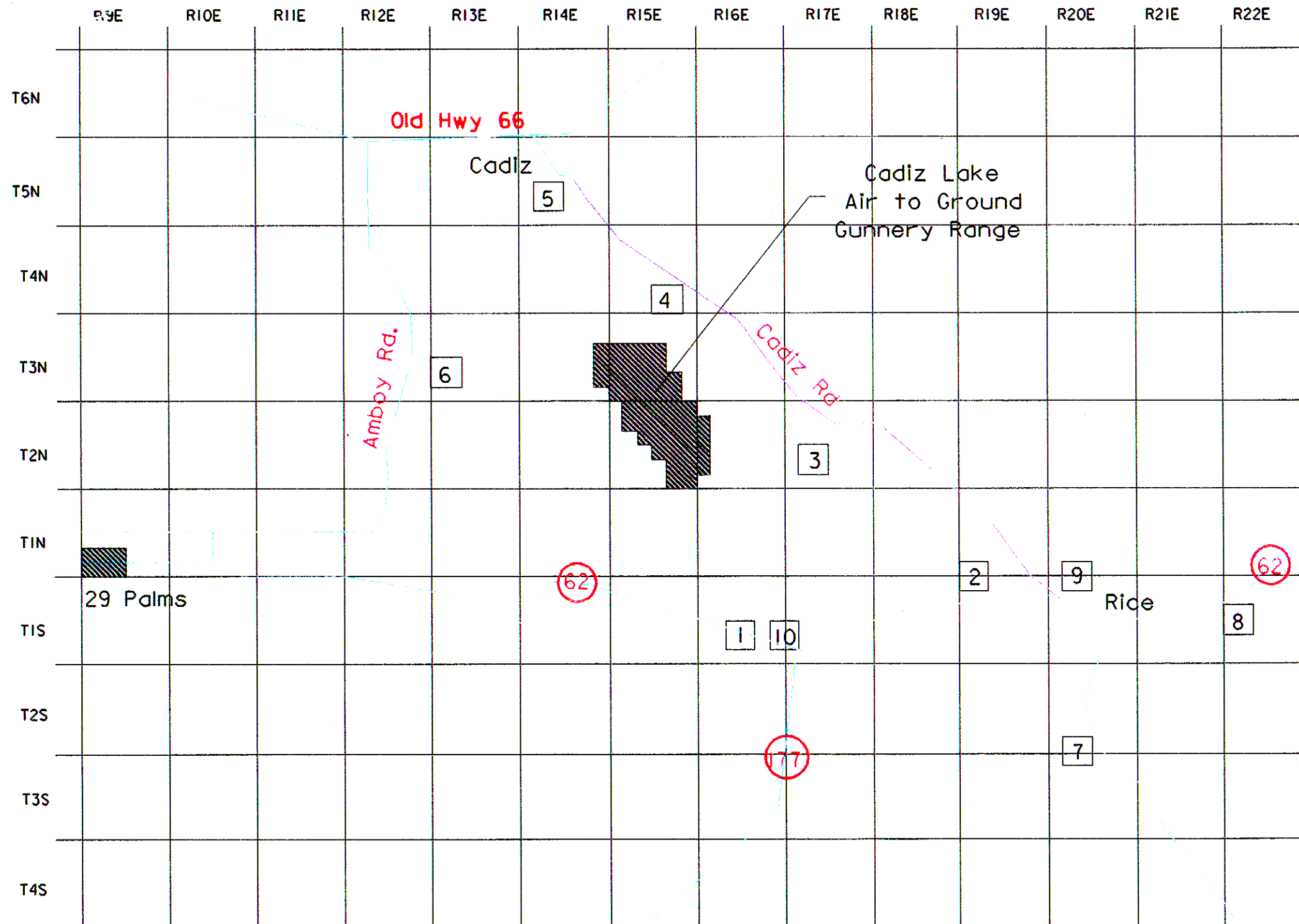
- LEGEND**
- Population Center
  - Geo Feature
  - Town, Small City
  - Hill
  - Park
  - Interstate, Turnpike
  - Major Street/Road
  - State Route
  - Interstate Highway
  - Open Water
  - Contour
- 10 Miles  
20 KM



**MAP I**

**CADIZ LAKE SONIC TARGETS  
RIVERSIDE AND  
SAN BERNARDINO COUNTIES  
VICINITY MAP**

NOT TO SCALE



## MAP 2

CADIZ LAKE SONIC TARGETS  
RIVERSIDE AND  
SAN BERNARDINO COUNTIES  
SITE LOCATION MAP

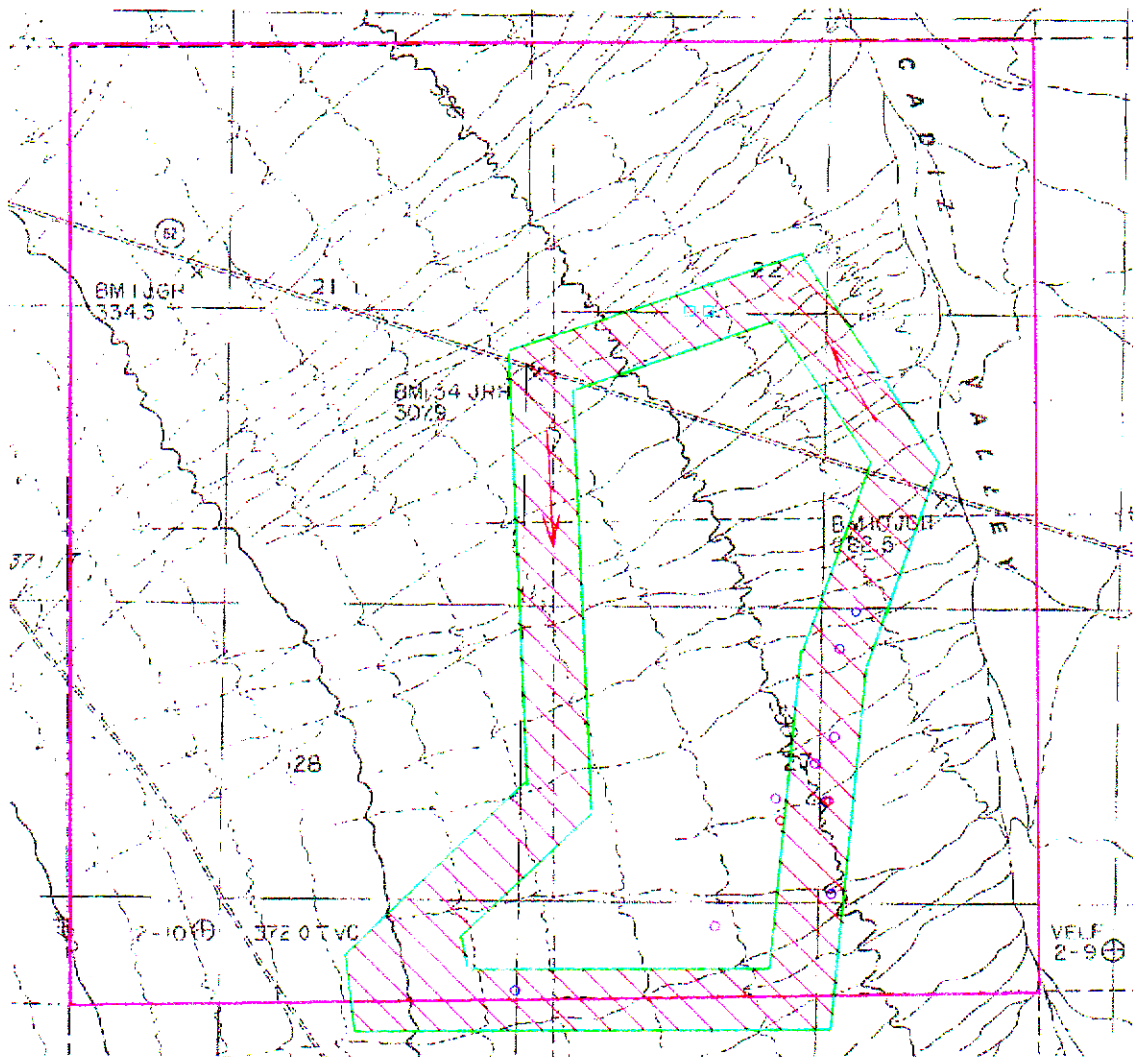
NOT TO SCALE






PROJ. DATE: MAY 1995

DATE OF MAP: 1993

20-JUN-1995 13:38

/N/OEW95AB/M80/MAP/CADIZMAP2.DGN



-  Area inspected
-  HE fragments
-  Practice bomb debris
-  Artillery emplacements
-  Range boundary



Scale in Miles



### MAP 3

**CADIZ LAKE SONIC TARGET #1  
RIVERSIDE COUNTY  
DERP-FUDS #J09CA025401  
SITE INSPECTION**

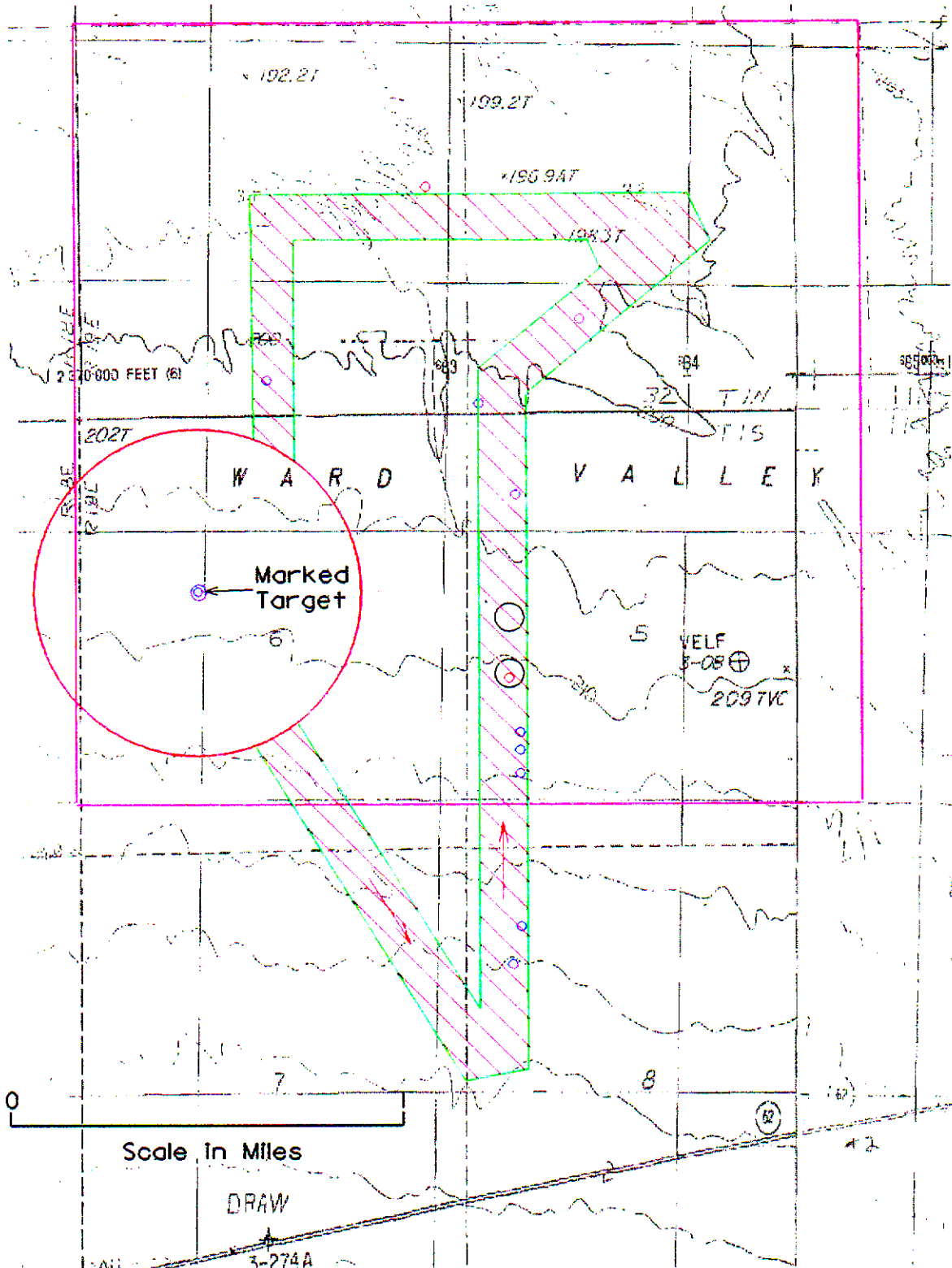
PROJECT DATE: JUNE 1995

DATE OF MAP: 1995

20-JUN-1995 14:33

N:\OEWSAB\M81\MAP\CADIZ01.DGN & CIT

115°00'

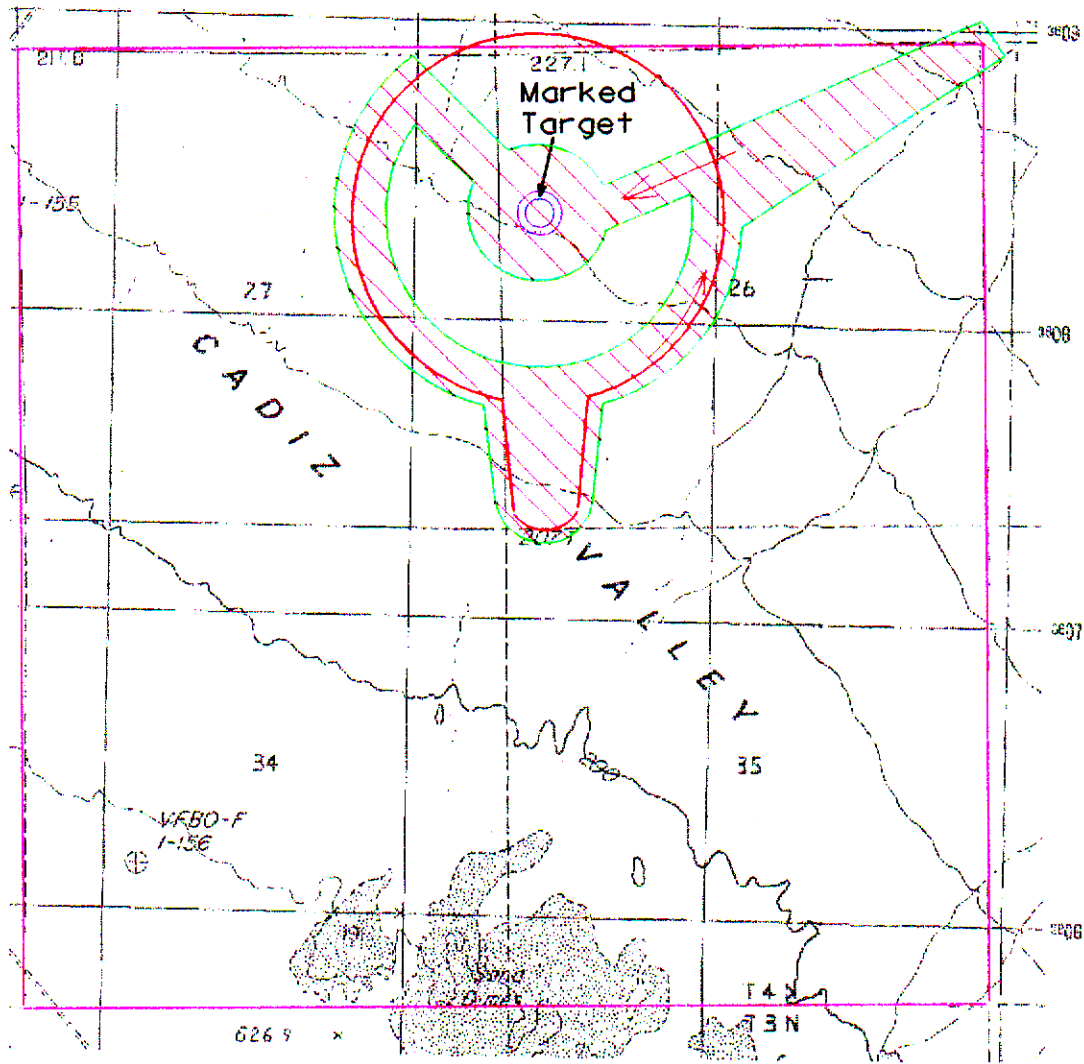





- Area Inspected
- HE fragments
- Practice bomb debris
- Craters
- 50 cal. debris
- Most heavily bombed area
- Range boundary

### MAP 4

**CADIZ LAKE SONIC TARGET #2**  
**SAN BERNADINO COUNTY**  
**DERP-FUDS #J09CA025601**  
**SITE INSPECTION**

PROJECT DATE: JUNE 1995	DATE OF MAP: 1995
20-JUN-1995 15:41	N:\OE95AB\M82\MAP\CADIZ02.DGN & CIT



-  Area inspected
-  Bomb debris area
-  Range boundary



Scale In Miles



## MAP 5

**CADIZ LAKE SONIC TARGET #4  
 SAN BERNADINO COUNTY  
 DERP-FUDS #J09CA025801  
 SITE INSPECTION**

PROJECT DATE: JUNE 1995

DATE OF MAP: 1995

20-JUN-1995 15:49

/N/OEW95AB/M80/MAP/CADIZ04.DGN & CIT

**APPENDIX A**  
**REFERENCES**

ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
**ARCHIVES SEARCH REPORT**  
FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801

**APPENDIX A**

**REFERENCES**

**DEMOGRAPHIC REFERENCES**

29 Palms Chamber of Commerce (619) 367-3445

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

**GEOLOGICAL AND SOILS REFERENCES**

Shlemon, Roy J.

*Quaternary Soil-Geomorphic Relationships, Southeastern Mojave Desert,  
California and Arizona.* South Coast Geological Society, Newport Beach, CA.



**APPENDIX B**

**ACRONYMS**

ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
**ARCHIVES SEARCH REPORT**  
FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801

**APPENDIX B**

**ACRONYMS**

ASR	Archive Search Report
BLM	Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CE	Corps of Engineers
CWM	Chemical Warfare Material
CWS	Chemical Warfare Service
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EOD	Explosive Ordnance Demolition
ERDA	Environmental Restoration Defense Account
FDE	Findings and Determination of Eligibility
FUDS	Formerly Used Defense Sites
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HTW	Hazardous and Toxic Waste
INPR	Inventory Project Report
MCX	Mandatory Center of Expertise
NCP	National Contingency Plan
NDDB	California Department of Fish and Game Natural Diversity Data Base
OEW	Ordnance and Explosive Waste
PBR	Precision Bombing Range
RAC	Risk Assessment Code
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SSHP	Site Specific Safety and Health Plan
USACE	U.S. Army Corps of Engineers

ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT  
FOR  
CADIZ LAKE SONIC TARGETS #1, #2, AND #4  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801

**APPENDIX B**

**ACRONYMS**

USAEDH	U.S. Army Engineer Division, Huntsville
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
WAA	War Assets Administration
WWII	World War Two

**APPENDIX C**

**REPORTS/STUDIES/LETTERS/MEMORANDUMS**

ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
**ARCHIVES SEARCH REPORT**  
FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801

**APPENDIX C**

**REPORTS/STUDIES/LETTERS/MEMORANDUMS**

- APPENDIX C - 1 Inventory Project Reports
- APPENDIX C - 2 Findings of Facts
- APPENDIX C - 3 Site Specific Safety and Health Plans
- APPENDIX C - 4 Site Visit Trip Report

**APPENDIX C - 1**  
**INVENTORY PROJECT REPORTS**

SITE SURVEY SUMMARY SHEET  
FOR  
DERP-FUDS SITE NO. JOCA025400  
THE FORMER CADIZ LAKE SONIC TARGET #1, CALIFORNIA  
29 JUNE 1992

**SITE NAMES:** The former Cadiz Lake Sonic Target #1, 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. The property is currently owned by the Bureau of Land Management (BLM) and is unnamed.

**LOCATION:** The site is located in northern Riverside 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 also 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 involved the use of live ordnance. No known DOD improvements to the site have been documented. The site was declared surplus in 1948 and relinquished to BLM in 1949.

**SITE VISIT:** A site visit was conducted by Dan Ahern, CEMRK-ED-TD on 23 April 1992.

**CATEGORY OF HAZARD:** Ordnance and Explosive Waste (OEW).

**PROJECT DESCRIPTION:** Locate, remove and dispose of all OEW on site.

**AVAILABLE STUDIES AND REPORTS:** 1) The real estate records from 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 are on file.

**PA POC:** Debra Castens, at 213-894-2865 is the district's point of contact for this matter.

PROJECT SUMMARY SHEET  
FOR  
DERP-FUDS OEW PROJECT NO. J09CA025401  
THE FORMER CADIZ LAKE SONIC TARGET #1, CALIFORNIA  
DERP-FUDS SITE NO. J09CA025400  
29 JUNE 1992

PROJECT DESCRIPTION: Surficial live ordnance has been found on the site. This site was a sonic target and possibly a maneuver area for the Air Force and Army. There is a strong likelihood of more OEW, either at or below the surface.

PROJECT ELIGIBILITY: The property was used by the Air Force and probably by the Army. Any ordnance would clearly be the result of Department of Defense (DOD) activities.

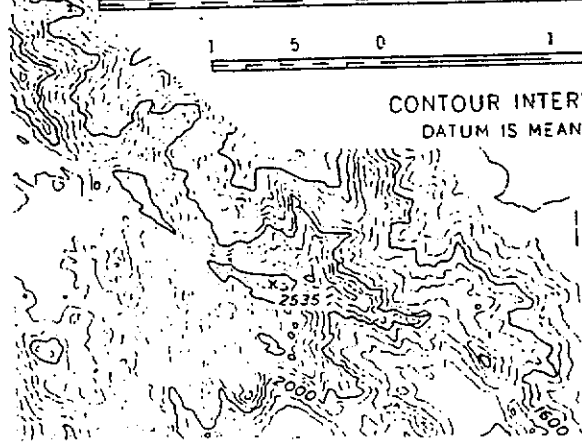
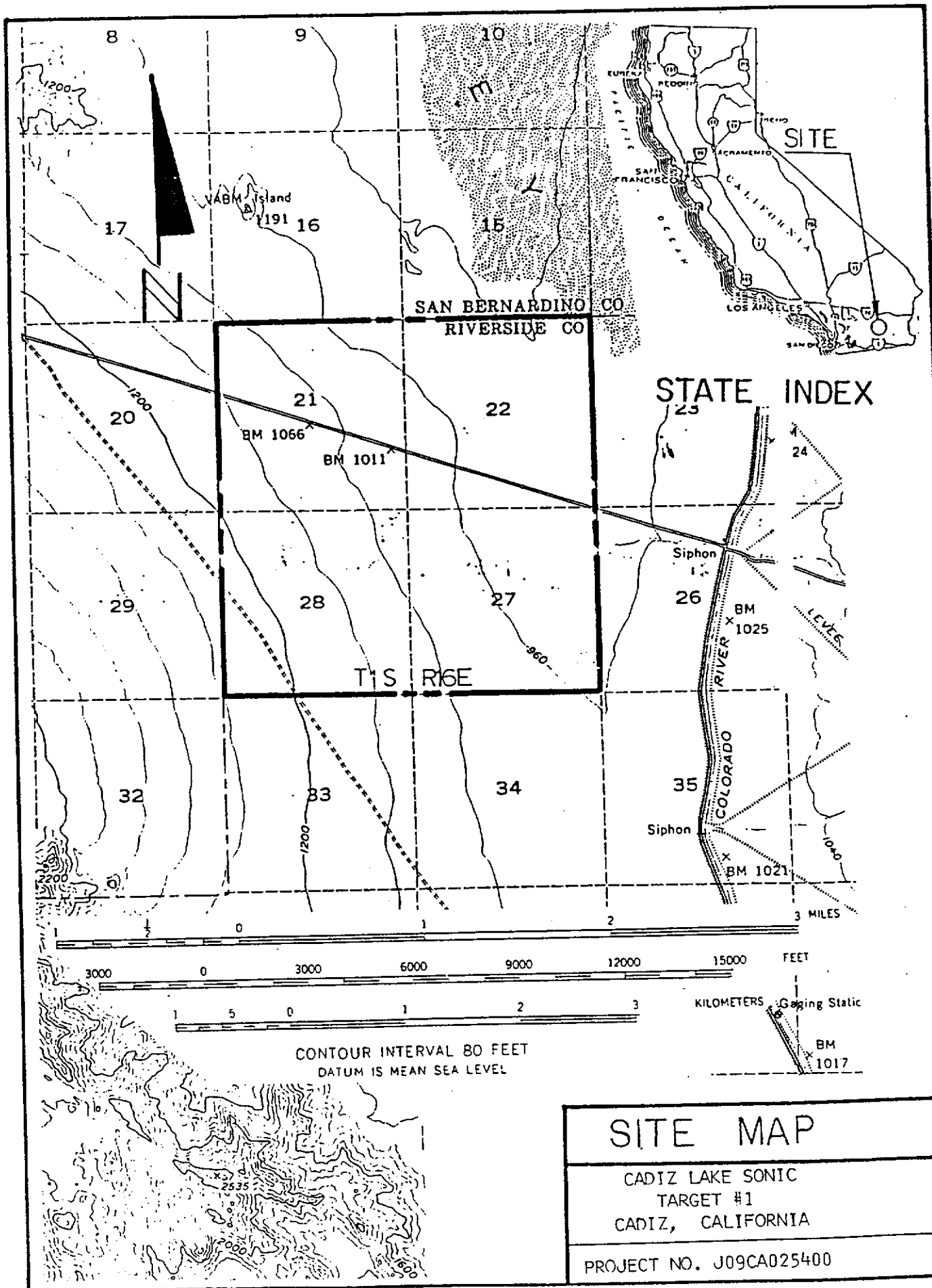
POLICY CONSIDERATIONS: There are no policy considerations that would affect the proposal of this project.

PROPOSED PROJECT: Recommend that the Corps' Mandatory Center of Expertise (MCX) for OEW at the Huntsville Division make a determination if an ordnance debris removal project is an appropriate undertaking. If the MCX decides that an archival search is appropriate, it is suggested that the 11 area Cadiz Lake OEW sites be addressed collectively.

RAC FORM: Attached.

DISTRICT POC: Request that CEHND inform Ms. Debra Castens at 213-894-2865, when a determination is made in regard to project status.





# SITE MAP

CADIZ LAKE SONIC  
TARGET #1  
CADIZ, CALIFORNIA

PROJECT NO. J09CA025400

SITE SURVEY SUMMARY SHEET  
FOR  
DERP-FUDS SITE NO. JOCA025600  
THE FORMER CADIZ LAKE SONIC TARGET #2, CALIFORNIA  
29 JUNE 1992

**SITE NAMES:** The former Cadiz Lake Sonic Target #2, 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. The property is currently owned by the Bureau of Land Management (BLM) and 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 also 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 involved the use of live ordnance. No known DOD improvements to the site have been documented. The site was declared surplus in 1948 and relinquished to BLM in 1949.

**SITE VISIT:** A site visit was conducted by Dan Ahern, CEMRK-ED-TD on 21 April 1992.

**CATEGORY OF HAZARD:** Ordnance and Explosive Waste (OEW).

**PROJECT DESCRIPTION:** Locate, remove and dispose of all OEW on site.

**AVAILABLE STUDIES AND REPORTS:** 1) The real estate records from 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 are on file.

**PA POC:** Debra Castens, at 213-894-2865 is the district's point of contact for this matter.

PROJECT SUMMARY SHEET  
FOR  
DERP-FUDS OEW PROJECT NO. J09CA025601  
THE FORMER CADIZ LAKE SONIC TARGET #2, CALIFORNIA  
DERP-FUDS SITE NO. J09CA025600  
29 JUNE 1992

PROJECT DESCRIPTION: Surficial live ordnance has been found on the site. This site was a sonic target and possibly a maneuver area for the Air Force and Army. There is a strong likelihood of more OEW, either at or below the surface.

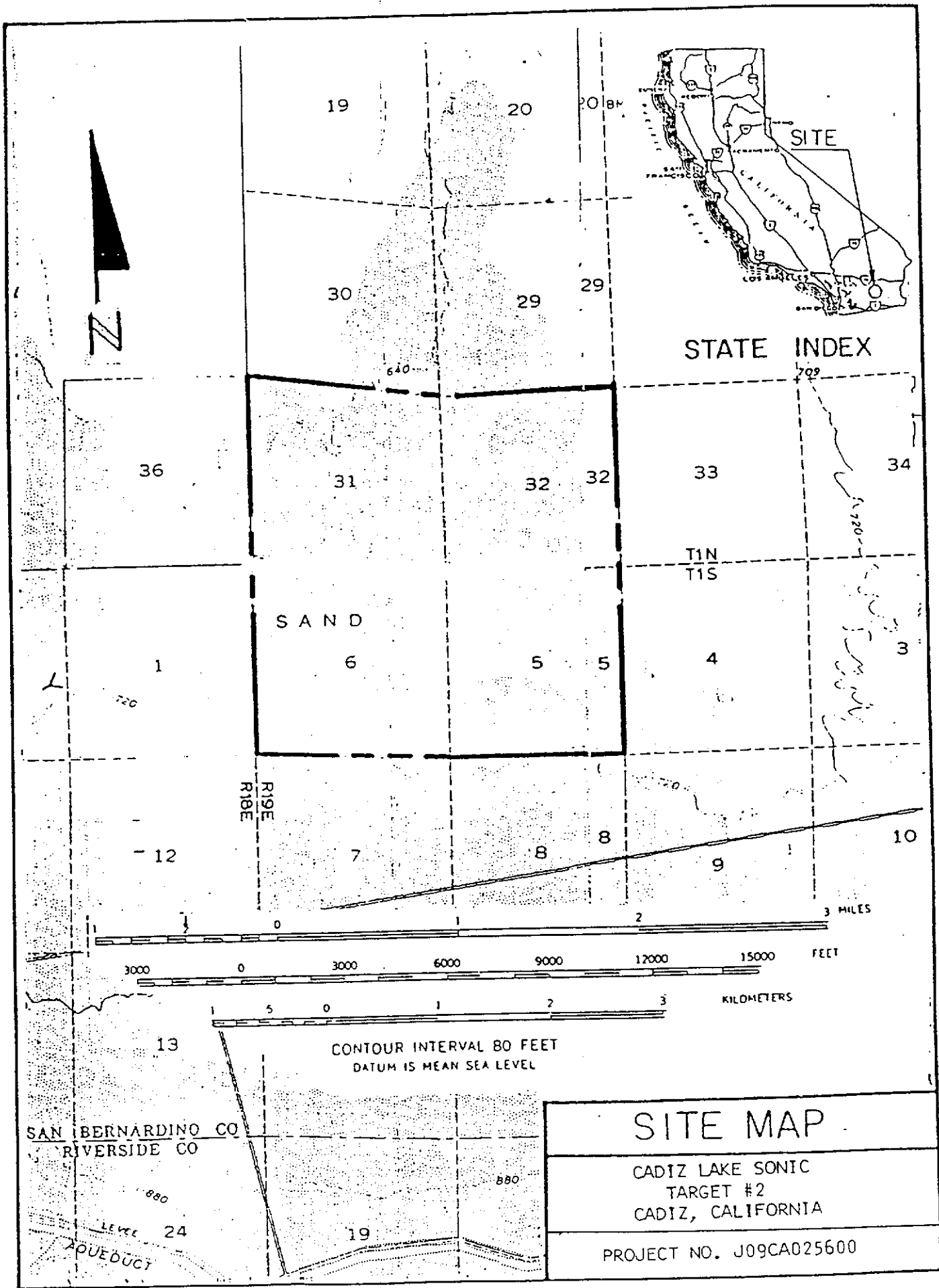
PROJECT ELIGIBILITY: The property was used by the Air Force and probably by the Army. Any ordnance would clearly be the result of Department of Defense (DOD) activities.

POLICY CONSIDERATIONS: There are no policy considerations that would affect the proposal of this project.

PROPOSED PROJECT: Recommend that the Corps' Mandatory Center of Expertise (MCX) for OEW at the Huntsville Division make a determination if an ordnance debris removal project is an appropriate undertaking. If the MCX decides that an archival search is appropriate, it is suggested that the 11 area Cadiz Lake OEW sites be addressed collectively.

RAC FORM: Attached.

DISTRICT POC: Request that CEHND inform Ms. Debra Castens at 213-894-2865, when a determination is made in regard to project status.



# SITE MAP

CADIZ LAKE SONIC  
TARGET #2  
CADIZ, CALIFORNIA

PROJECT NO. J09CA025600

SITE SURVEY SUMMARY SHEET  
FOR  
DERP-FUDS SITE NO. JOCA0258000  
THE FORMER CADIZ LAKE SONIC TARGET #4, CALIFORNIA  
29 JUNE 1992

**SITE NAMES:** The former Cadiz Lake Sonic Target #4, 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. The property is currently owned by the Bureau of Land Management (BLM) and 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 also 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 involved the use of live ordnance. No known DOD improvements to the site have been documented. The site was declared surplus in 1948 and relinquished to BLM in 1949.

**SITE VISIT:** A site visit was conducted by Dan Ahern, CEMRK-ED-TD on 22 April 1992.

**CATEGORY OF HAZARD:** Ordnance and Explosive Waste (OEW).

**PROJECT DESCRIPTION:** Locate, remove and dispose of all OEW on site.

**AVAILABLE STUDIES AND REPORTS:** 1) The real estate records from 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 are on file.

**PA POC:** Debra Castens, at 213-894-2865 is the district's point of contact for this matter.

PROJECT SUMMARY SHEET  
FOR  
DERP-FUDS OEW PROJECT NO. J09CA025801  
THE FORMER CADIZ LAKE SONIC TARGET #4, CALIFORNIA  
DERP-FUDS SITE NO. J09CA025800  
29 JUNE 1992

PROJECT DESCRIPTION: Surficial live ordnance has been found on the site. This site was a sonic target and possibly a maneuver area for the Air Force and Army. There is a strong likelihood of more OEW, either at or below the surface.

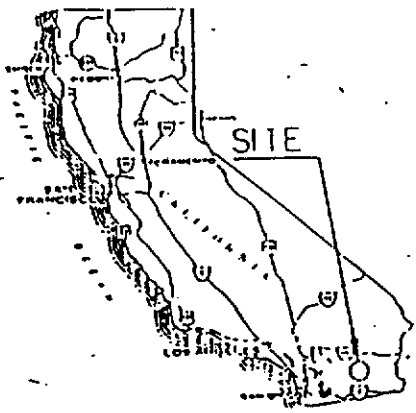
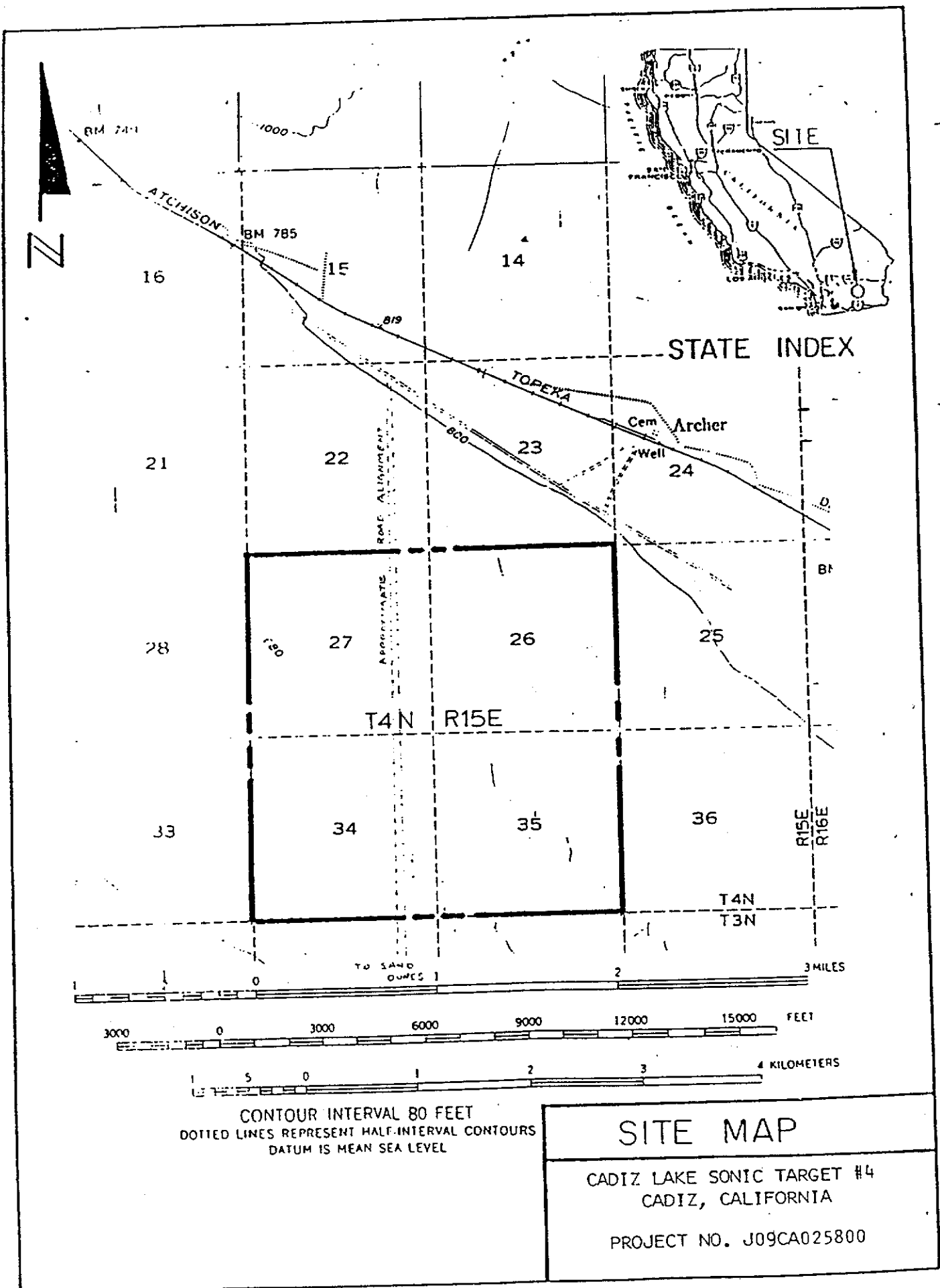
PROJECT ELIGIBILITY: The property was used by the Air Force and probably by the Army. Any ordnance would clearly be the result of Department of Defense (DOD) activities.

POLICY CONSIDERATIONS: There are no policy considerations that would affect the proposal of this project.

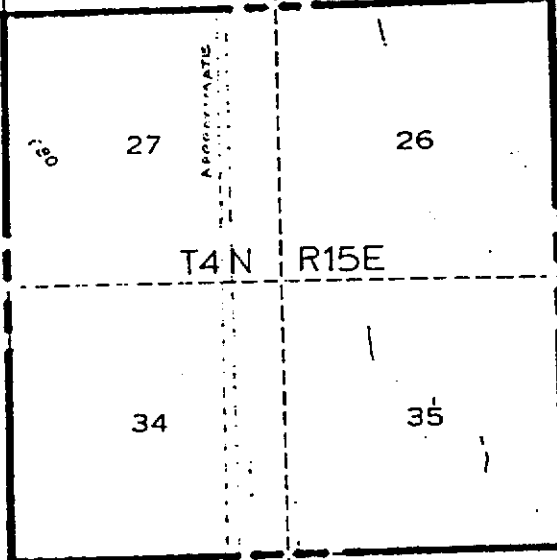
PROPOSED PROJECT: Recommend that the Corps' Mandatory Center of Expertise (MCX) for OEW at the Huntsville Division make a determination if an ordnance debris removal project is an appropriate undertaking. If the MCX decides that an archival search is appropriate, it is suggested that the 11 area Cadiz Lake OEW sites be addressed collectively.

RAC FORM: Attached.

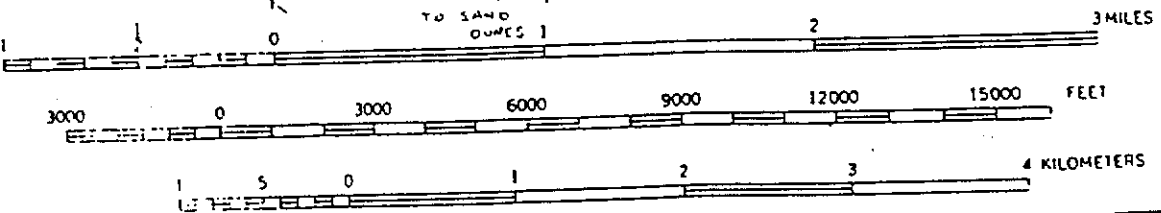
DISTRICT POC: Request that CEHND inform Ms. Debra Castens at 213-894-2865, when a determination is made in regard to project status.



STATE INDEX



T4N R15E



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

**SITE MAP**

CADIZ LAKE SONIC TARGET #4  
 CADIZ, CALIFORNIA

PROJECT NO. J09CA025800

**APPENDIX C - 2**  
**FINDINGS OF FACTS**



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

CADIZ LAKE SONIC TARGET NO. 1  
CADIZ, CALIFORNIA  
SITE NO. J09CA025400

FINDINGS OF FACT

1. The records reflect a Real Estate Directive to acquire 2,560 acres by Special Use Permit from the Department of Interior (DOI), 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 33 Miles southeast of Cadiz, in Riverside County, California. No record of the Special Use Permit was found, however, by letter dated 21 April 1949 the land was returned to the DOI.

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. 1. (The site is no. 1 of Cadiz Lake Sonic Targets Nos 1 through 10.) The site was located within the confines of the Desert Training Center (later called the CAMA) and therefore may have been used by DOD for other types of maneuvers. The property was under DOD control during the period of DOD's use.

3. The site was declared surplus on 2 August 1948 and was relinquished to the DOI, Bureau of Land Management (BLM), by letter dated 21 April 1949. The DOI still has jurisdiction of the property.

DETERMINATION

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

28 Sep 93  
Date

*DERH col*  
MILTON HUNTER  
for Brigadier General, U.S. Army  
Commanding

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

CADIZ LAKE SONIC TARGET NO. 2  
CADIZ, CALIFORNIA  
SITE NO. J09CA025600

FINDINGS OF FACT

1. The records reflect a Real Estate Directive dated 3 July 1946 to acquire 2, 560 acres by Special Use Permit from the Department of Interior (DOI), 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 38 Miles southeast of Cadiz, in Riverside County, California. No record of the Special Use Permit was found, however, by letter dated 21 April 1949 the land was returned to the DOI.
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. 2. (The site is no. 2 of Cadiz Lake Sonic Targets Nos 1 through 10.) The site was located within the confines of the Desert Training Center (later called the CAMA) and therefore may have been used by DOD for other types of maneuvers. Some of the training involved the use of live ordnance. The property was under DOD control during the period of DOD's use.
3. The site was declared surplus on 2 August 1948 and was relinquished to the DOI, Bureau of Land Management (BLM), by letter dated 21 April 1949. The DOI still has jurisdiction of the property.

DETERMINATION

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

28 Sep 93  
Date

for DC Pitt Col  
MILTON HUNTER  
Brigadier General, U.S. Army  
Commanding

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

CADIZ LAKE SONIC TARGET NO. 4  
CADIZ, CALIFORNIA  
SITE NO. J09CA025800

FINDINGS OF FACT

1. The records reflect a Real Estate Directive dated 3 July 1946 to acquire 2, 560 acres by Special Use Permit from the Department of Interior (DOI), 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 10 Miles southeast of Cadiz, in Riverside County, California. No record of the Special Use Permit was found, however, by letter dated 21 April 1949 the land was returned to the DOI.

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. 4. (The site is No. 4 of Cadiz Lake Sonic Targets Nos 1 through 10.) The site was located within the confines of the Desert Training Center (later called the CAMA) and therefore may have been used by DOD for other types of maneuvers. Some of the training involved the use of live ordnance. The property was under DOD control during the period of DOD's use.

3. The site was declared surplus on 2 August 1948 and was relinquished to the DOI, Bureau of Land Management (BLM), by letter dated 21 April 1949. The DOI still has jurisdiction of the property.

DETERMINATION

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

28 Sep 93  
Date

for DEPitt COL  
MILTON HUNTER  
Brigadier General, U.S. Army  
Commanding

**APPENDIX C - 3**

**SITE SPECIFIC SAFETY AND HEALTH PLANS**

**SITE SPECIFIC SAFETY AND HEALTH PLAN (SSHP)**  
**OEW/CWM Archives Search Site Inspection Visit**  
**Cadiz Lake Sonic Target # 1**  
**Cadiz, CA**  
**Site #J09CA025401**

**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 # 1, CA, suspected to be contaminated with UXO and/or toxic chemical munitions.

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

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:** Cold, wet weather can be expected in the month of February. Snakes, biting insects, 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 ammunition)
- 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: 911  
Law enforcement agency: 619-326-9200  
Huntsville Safety: (205) 895-1582/1579  
Non-emergency number: 1-800-627-3532, PIN 707-2534

SSHP reviewed by: Hank Counts

### Encis

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

<u>William K. JAMES</u>	<u>CELMS-PM-M</u>	<u>William K. James</u>
<u>JERRY THEAKER</u>	<u>Simi Valley CA</u>	<u>[Signature]</u>
<u>RICHARD W. HARTMAN</u>	<u>Simi Valley CA</u>	<u>[Signature]</u>
<u>John W. Gray</u>	<u>USDT, BCM, CDD, HazMat</u>	<u>[Signature]</u>
<u>[Signature]</u>	<u>USDT BCM CDD HazMat</u>	<u>[Signature]</u>
_____	_____	_____
_____	_____	_____



MANDATORY MINIMUM SAFETY GEAR

- First aid kit (individual)
- Survival kit
- Fire starter
- Space blanket
- Whistle
- Mirror
- Cellular phone
- Flash light
- Survey tape
- Canteen

**SITE SPECIFIC SAFETY AND HEALTH PLAN (SSHP)**  
**OEW/CWM Archives Search Site Inspection Visit**  
**Cadiz Lake Sonic Target # 2**  
**Cadiz, CA**  
**Site #J09CA025601**

**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 # 2, CA, suspected to be contaminated with UXO and/or toxic chemical munitions.

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

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:** Cold, wet weather can be expected in the month of February. Snakes, biting insects, 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

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Law enforcement agency: 619-326-9200  
Huntsville Safety (205) 895-1582/1579  
Non-emergency number: 1-800-627-3532, PIN 707-2534

SSHP reviewed by: Hank Counts

### 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

William K. Jones CELMS-PM-M

William K. Jones

John W. Key USDI, BLM, CDD, Harbin

John W. Key

James G. Luebbert CELMS-RD

James G. Luebbert

Richard W. Hartman Sierra Valley CA

Richard W. Hartman

William T. Wiley BLM-CA

William T. Wiley

Ted Moore CELMS PM-M

Ted Moore

JERRY THEAZER Sierra Valley CA

Jerry Theazer

MANDATORY MINIMUM SAFETY GEAR

First aid kit (individual)	<input checked="" type="checkbox"/>
Survival kit	<input checked="" type="checkbox"/>
Fire starter	<input checked="" type="checkbox"/>
Space blanket	<input checked="" type="checkbox"/>
Whistle	<input checked="" type="checkbox"/>
Mirror	<input checked="" type="checkbox"/>
Cellular phone	<input checked="" type="checkbox"/>
Flash light	<input checked="" type="checkbox"/>
Survey tape	<input checked="" type="checkbox"/>
Canteen	<input checked="" type="checkbox"/>

**SITE SPECIFIC SAFETY AND HEALTH PLAN (SSHP)**  
**OEW/CWM Archives Search Site Inspection Visit**  
**Cadiz Lake Sonic Target # 4**  
**Cadiz, CA**  
**Site # J09CA025801**

**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 # 4, CA, suspected to be contaminated with UXO and/or toxic chemical munitions.

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

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:** Cold, wet weather can be expected in the month of February. Snakes, biting insects, 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 ammunition)
- 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: 911  
Law enforcement agency: 619-326-9200  
Huntsville Safety: (205) 895-1582/1579  
Non-emergency number: 1-800-627-3532, PIN 707-2534

SSHP reviewed by: Hank Counts

### 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

<u>William K. JAMES</u>	<u>William K. James</u>
<u>Wiley, D.T. Bar-CD</u>	<u>Wiley</u>
<u>Lyebbert, James CELMS - PD</u>	<u>James Lyebbert</u>
<u>HACKMAN, RICHARD SIMI VALLES, CA</u>	<u>Rick Hackman</u>
<u>Ted Moore CELMS PM-M</u>	<u>Ted Moore</u>
<u>JERRY THEAKER Simi Valles CA</u>	<u>Jerry Theaker</u>
_____	_____

MANDATORY MINIMUM SAFETY GEAR

First aid kit (individual)	<input checked="" type="checkbox"/>
Survival kit	<input checked="" type="checkbox"/>
Fire starter	<input checked="" type="checkbox"/>
Space blanket	<input checked="" type="checkbox"/>
Whistle	<input checked="" type="checkbox"/>
Mirror	<input checked="" type="checkbox"/>
Cellular phone	<input checked="" type="checkbox"/>
Flash light	<input checked="" type="checkbox"/>
Survey tape	<input checked="" type="checkbox"/>
Canteen	<input checked="" type="checkbox"/>

**APPENDIX C - 4**  
**SITE VISIT TRIP REPORT**

MEMORANDUM FOR : Mike Dace

SUBJECT: Cadiz Lake Sonic Targets #1, #2, and #4 - Site Visit

Participants:

Corps of Engineers:

Ted Moore	Project Manager
Kirk James	UXO Specialist and Safety Officer
Jim Luebbert	Historian

Others:

John Key	BLM Hazmat Specialist
Bill Wiley	BLM Hazmat Specialist
Rick Hartmann	Private citizen with knowledge of the area
Jerry Theaker	Private citizen with knowledge of the area

This site visit was performed in conjunction with the Victorville Precision Bombing Ranges N-1, #2, #7, and #8. This portion of the desert has been declared a wilderness area and no vehicles are permitted off established roads.

Mr. Hartmann and Mr. Theaker are Los Angeles police officers who spend as much free time as possible studying and walking the high desert of California. They are specifically interested in the areas where Patton trained his troops. They were very helpful during the Cadiz Lake Sonic Target inspections and also provided much information to John Key regarding potential and known ordnance contaminated areas on BLM property.

**Monday and Tuesday, 6 and 7 February 1995**

Travel from St. Louis to Victorville, CA and inspect Victorville PBR's

**Wednesday, 8 February 1995**

**Morning** Travel to Twentynine Palms, CA

**1200** The team travelled to Cadiz Lake Sonic Target #1 which is located about 45 miles east of Twentynine Palms. Highway 62 now runs through the middle of the former four square mile target. We were not aware of anything marking the center of the target, so we began walking to the south along the north-south section line which divided the target in half. Although we found practice bomb debris and possible craters, we never found anything that made us believe there was a marked target. We found a 50 cal. projectile, empty 50 cal. casings, practice bomb debris, possible

craters, and two high explosive fragments (possibly from artillery rather than bombs). We also found two artillery pits on the north side of Highway 62. The pits were facing north. We found no unexploded ordnance.

#### **Thursday, 9 February 1995**

**0630** The team travelled to Cadiz Lake Sonic Target #2 which is located about 60 miles east of Twentynine Palms. Highway 62 runs about 0.75 miles to the south of the former four square mile target. We were not aware of anything marking the center of the target, so we began walking to the north along the north-south section line which divides the target in half. Although the target area boundary is 0.75 miles from Highway 62, we began finding practice bomb debris shortly after we began walking. We found practice bomb debris, possible craters, and part of a fuze from a high explosive bomb (at least 1,000 pound) as we walked to the center of the four square mile area, but we were not satisfied that we had found the marked target. We walked to the northeast and then circled back to the west but found no evidence of ordnance other than a piece of a rotator band. We turned to the south and began finding practice bomb debris and possible craters again. We turned to the southwest and soon found increasing amounts of debris including high explosive fragments. We finally found oiled rings and railroad ties marking the target. There are large quantities of bomb fragments, craters, and practice bomb debris surrounding the marked target. The debris area is about 0.8 miles in diameter. We found no unexploded ordnance.

**1200** The team travelled to Cadiz Lake Sonic Target #4 which is located about 30 miles northwest of Cadiz Lake Sonic Target #2 on the east side of Cadiz Road. After finding oiled rings marking the target at Target #2, we decided to call St. Louis (by cellular telephone) to see if air photos had arrived, and if so, to find out if oiled rings appear on the photos. St. Louis was able to provide coordinates of the marked target which allowed us to walk directly to the target. The oiled rings are still visible on the ground. We found only practice bomb debris at this target. Most of the bomb debris was within an approximate 0.35 mile radius around the target. There was some bomb debris outside this circle suggesting the approach to the target was along a south to north line running through the marked target. We found no unexploded ordnance.

#### **Friday, 10 February 1995**

Return to St. Louis

**APPENDIX D**  
**HISTORICAL PHOTOGRAPHS**

(NOT USED)

**APPENDIX E**

**INTERVIEWS**



**TELEPHONE OR VERBAL CONVERSATION RECORD**

DATE 11 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  Max Proudfoot	OFFICE  29 Palms Historical Society	PHONE NUMBER AND EXT.  (619) 367-6976

**SUMMARY OF CONVERSATION:**

I called Mr. Proudfoot to see if he could provide any written historical 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.

**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.

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

<b>SUBJECT OF CONVERSATION</b>		
Victorville Precision Bombing Ranges and Cadiz Lake Sonic Targets		
<b>INCOMING CALL</b>		
<b>PERSON CALLING</b>	<b>ADDRESS</b>	<b>PHONE NUMBER AND EXT.</b>
Sgt. Bob Hall	San Bernardino County Sheriff's Dept., Bomb and Arson Detail	(909) 387-3601 (909) 422-9038 (pager)
<b>PERSON CALLED</b>	<b>OFFICE</b>	<b>PHONE NUMBER AND EXT.</b>
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.

**APPENDIX F**  
**NEWSPAPERS/JOURNALS**

(NOT USED)

**APPENDIX G**  
**PRESENT SITE PHOTOGRAPHS**

ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
**ARCHIVES SEARCH REPORT**  
FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801

**APPENDIX G**

**PRESENT SITE PHOTOGRAPHS**

**TYPICAL PHOTO**

**Page G-5**

PHOTO # 1 - Desert Tortoise - Only endangered species in project area

**TARGET #1**

**Page G-6**

PHOTO # 2 - General view of Target #1 (view to south)  
PHOTO # 3 - Suspected fox hole

**Page G-7**

PHOTO # 4 - HE fragments  
PHOTO # 5 - HE fragments

**Page G-8**

PHOTO # 6 - 50 caliber casing  
PHOTO # 7 - 50 caliber projectile

**Page G-9**

PHOTO # 8 - Typical bomb debris  
PHOTO # 9 - Typical bomb debris

ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT  
FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801

**APPENDIX G**

**PRESENT SITE PHOTOGRAPHS**

**TARGET #1**

**Page G-10**

PHOTO # 10 - Typical bomb debris  
PHOTO # 11 - Artillery Pit

**TARGET #2**

**Page G-11**

PHOTO # 12 - General view of Target #2 (view to north)  
PHOTO # 13 - Target center

**Page G-12**

PHOTO # 14 - Suspected craters  
PHOTO # 15 - Nose fuse

**Page G-13**

PHOTO # 16 - Rotator band  
PHOTO # 17 - Typical practice bomb debris

**Page G-14**

PHOTO # 18 - Typical practice bomb debris  
PHOTO # 19 - Typical practice bomb debris

ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
**ARCHIVES SEARCH REPORT**  
FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801

**APPENDIX G**

**PRESENT SITE PHOTOGRAPHS**

**TARGET #2**

**Page G-15**

PHOTO # 20 - Typical practice bomb debris  
PHOTO # 21 - Typical HE fragments

**Page G-16**

PHOTO # 22 - Typical HE fragments  
PHOTO # 23 - Typical HE fragments

**Page G-17**

PHOTO # 24 - Typical HE fragments  
PHOTO # 25 - Tube - part of fuse assembly

**TARGET #4**

**Page G-18**

PHOTO # 26 - General view of target center (view to north)  
PHOTO # 27 - 7.62mm casing



ORDNANCE AND EXPLOSIVE WASTE  
CHEMICAL WARFARE MATERIALS  
**ARCHIVES SEARCH REPORT**  
FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
J09CA025601, AND J09CA025801

**APPENDIX G**

**PRESENT SITE PHOTOGRAPHS**

**TARGET #4**

**Page G-19**

PHOTO # 28 - Can (unknown contents)  
PHOTO # 29 - Typical bomb debris

**Page G-20**

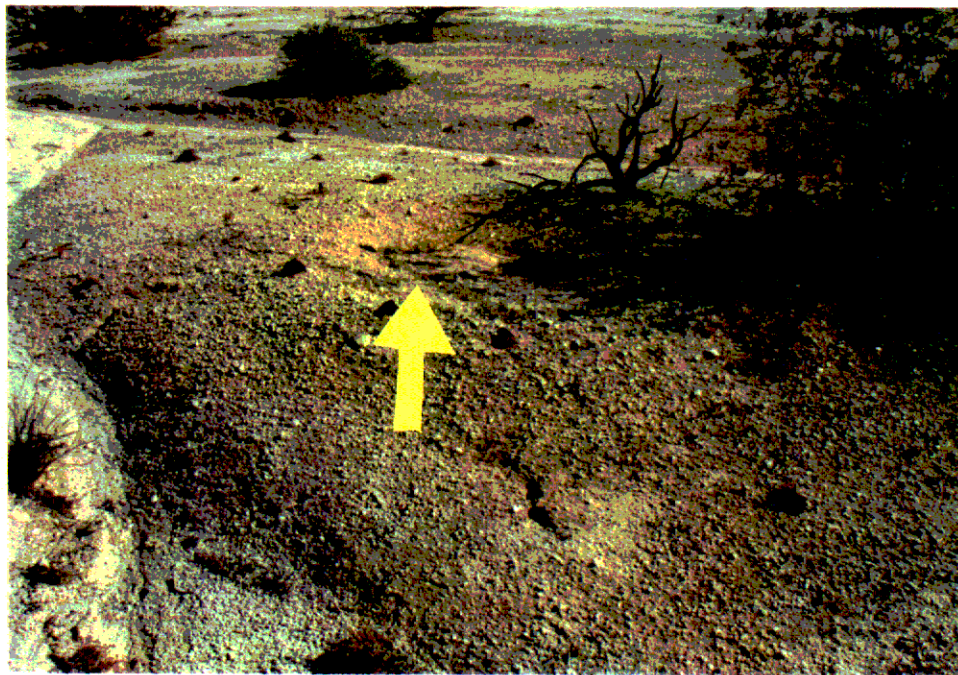
PHOTO # 30 - 50 caliber casing



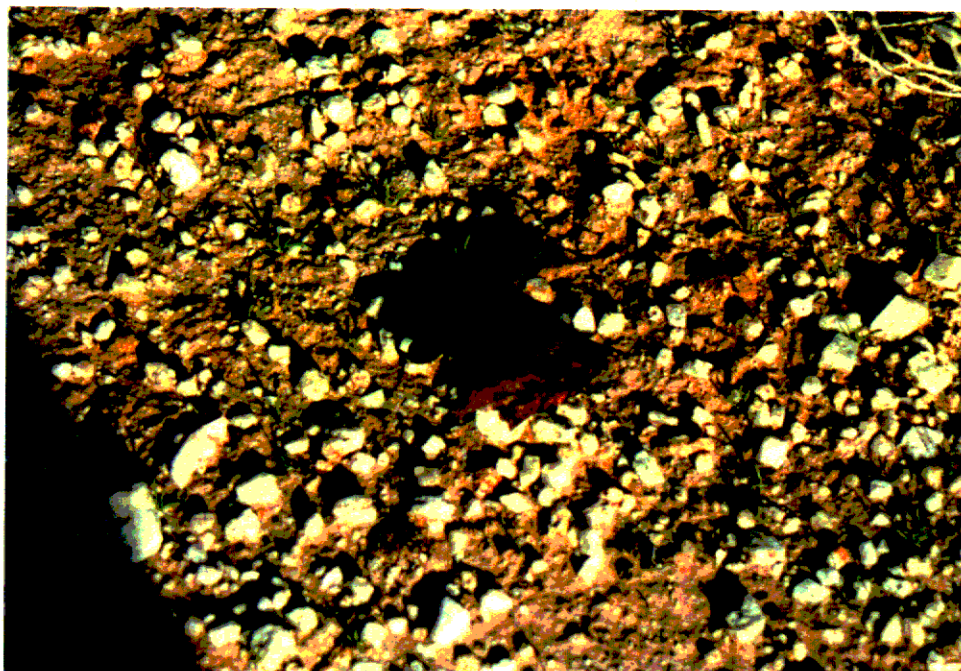
**PHOTO # 1**  
**DESERT TORTOISE**  
**ONLY ENDANGERED SPECIES IN PROJECT AREA**



**PHOTO # 2  
GENERAL VIEW OF TARGET #1  
(VIEW TO SOUTH)**



**PHOTO # 3  
SUSPECTED FOX HOLE**



**PHOTO # 4  
HE FRAGMENTS**



**PHOTO # 5  
HE FRAGMENTS**



**PHOTO # 6**  
**50 CALIBER CASING**



**PHOTO # 7**  
**50 CALIBER PROJECTILE**



**PHOTO # 8**  
**TYPICAL BOMB DEBRIS**



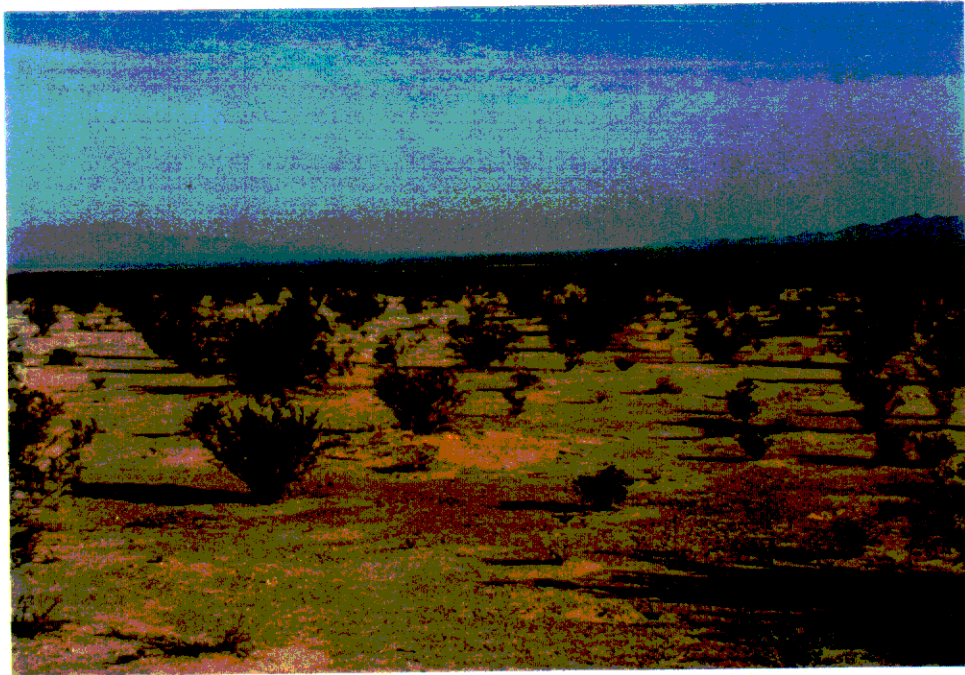
**PHOTO # 9**  
**TYPICAL BOMB DEBRIS**



**PHOTO # 10  
TYPICAL BOMB DEBRIS**



**PHOTO # 11  
ARTILLERY PIT**

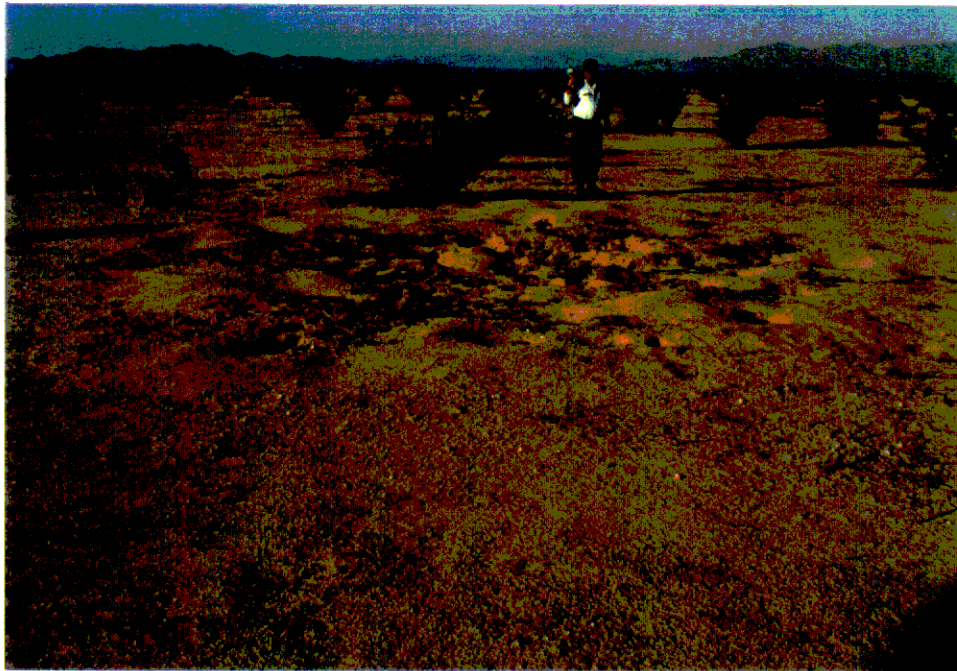


**PHOTO # 12  
GENERAL VIEW OF TARGET #2  
(VIEW TO NORTH)**



**PHOTO # 13  
TARGET CENTER**





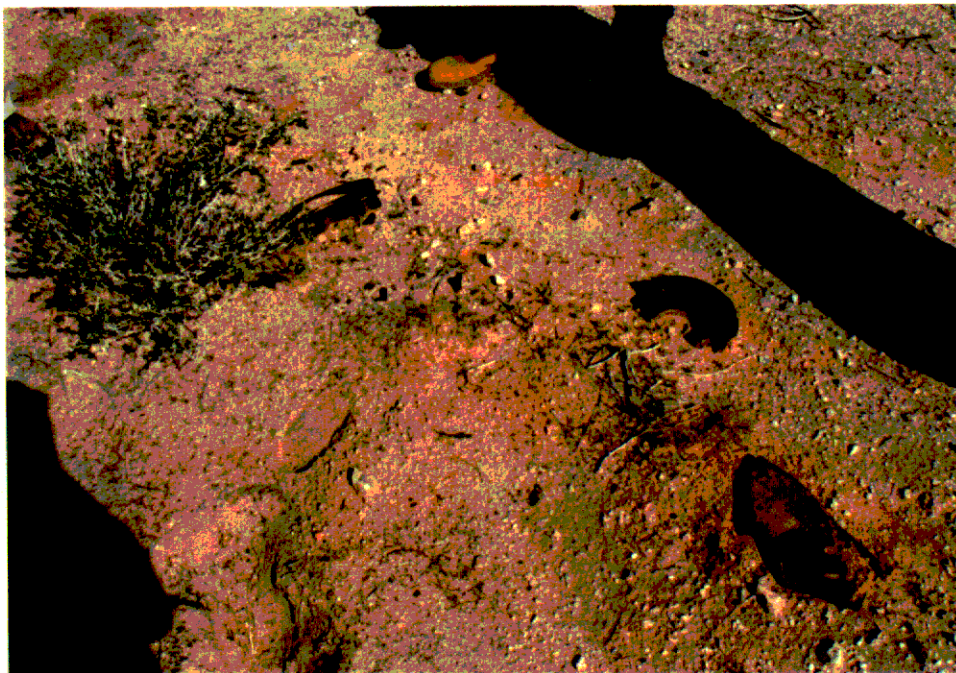
**PHOTO # 14**  
**SUSPECTED CRATERS**



**PHOTO # 15**  
**NOSE FUSE**



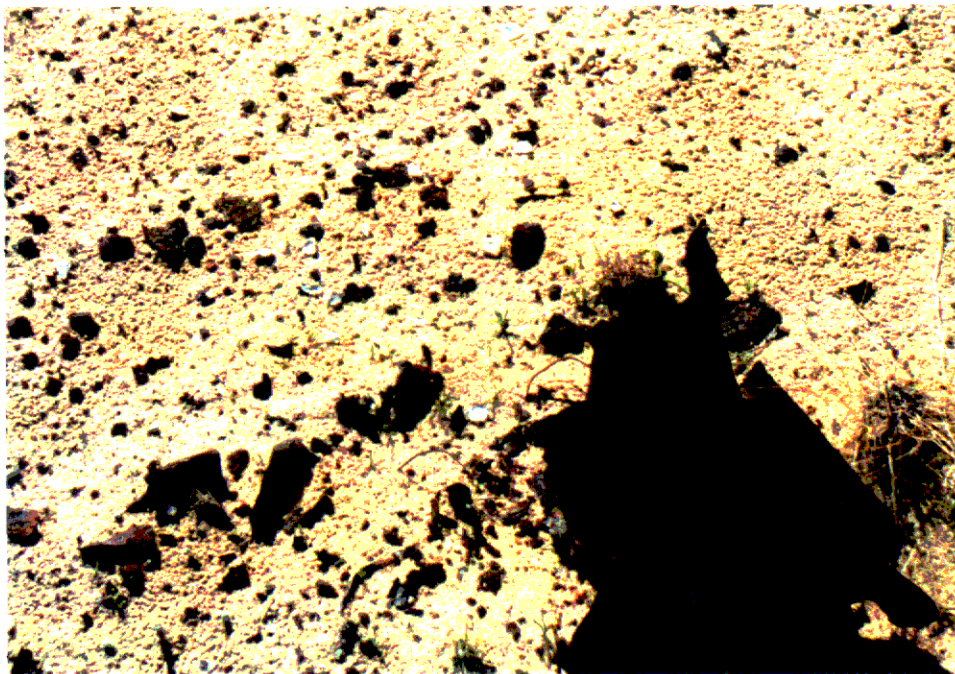
**PHOTO # 16  
ROTATOR BAND**



**PHOTO # 17  
TYPICAL PRACTICE BOMB DEBRIS**



**PHOTO # 18**  
**TYPICAL PRACTICE BOMB DEBRIS**



**PHOTO # 19**  
**TYPICAL PRACTICE BOMB DEBRIS**



**PHOTO # 20**  
**TYPICAL PRACTICE BOMB DEBRIS**



**PHOTO # 21**  
**TYPICAL HE FRAGMENTS**



**PHOTO # 22**  
**TYPICAL HE FRAGMENTS**



**PHOTO # 23**  
**TYPICAL HE FRAGMENTS**



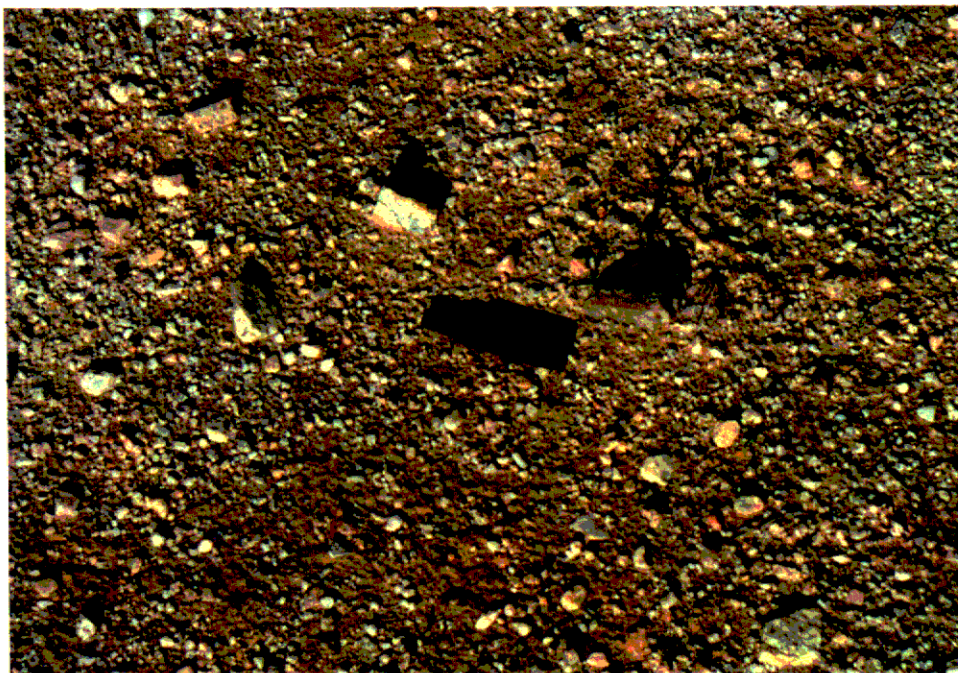
**PHOTO # 24**  
**TYPICAL HE FRAGMENTS**



**PHOTO # 25**  
**TUBE (PART OF FUSE ASSEMBLY)**



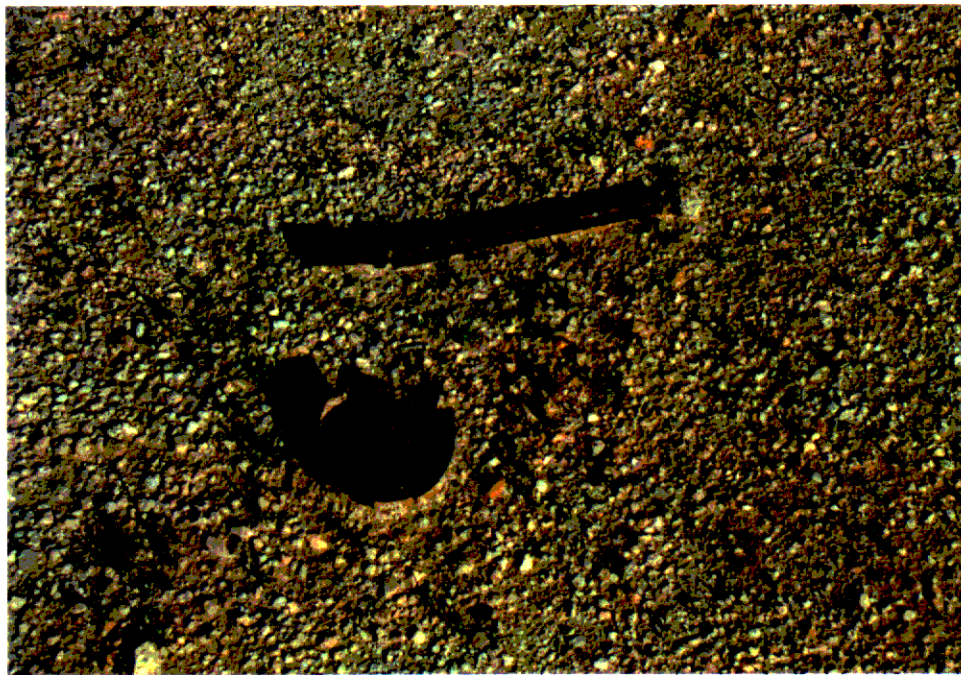
**PHOTO # 26**  
**GENERAL VIEW OF TARGET CENTER**  
**(VIEW TO NORTH)**



**PHOTO # 27**  
**7.62MM CASING**

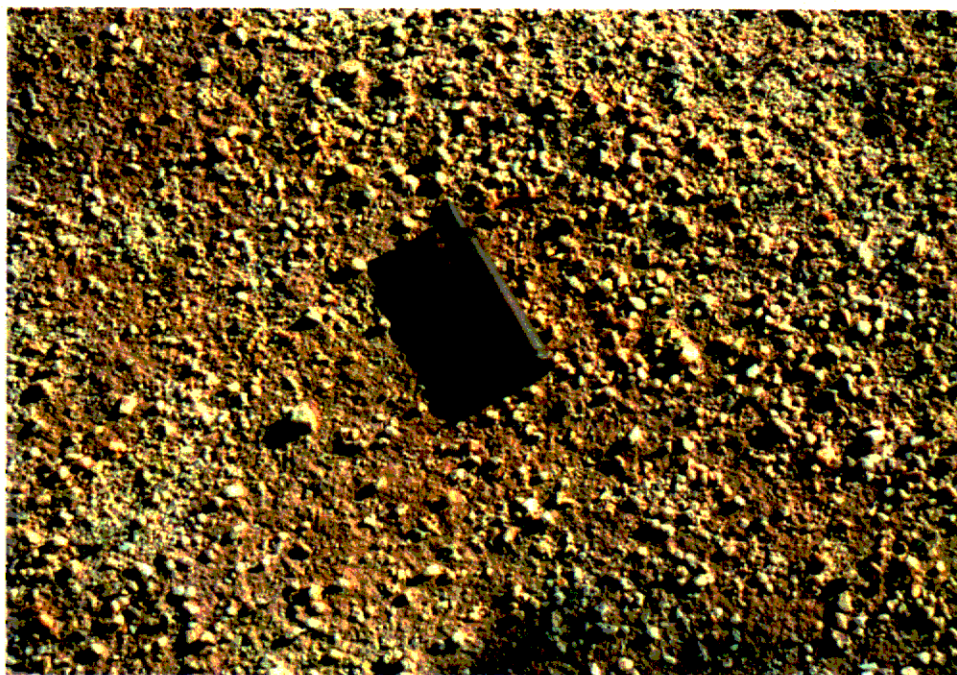


**PHOTO # 28**  
**CAN (UNKNOWN CONTENTS)**



**PHOTO # 29**  
**TYPICAL BOMB DEBRIS**





**PHOTO # 30**  
**50 CALIBER CASING**

**APPENDIX H**  
**HISTORICAL MAPS/DRAWINGS**  
(NOT USED)

**APPENDIX I**

**RISK ASSESSMENT CODE PROCEDURE FORMS**

18 Apr 94

RISK ASSESSMENT PROCEDURE FOR  
ORDNANCE AND EXPLOSIVE WASTE (OEW) SITE

Site Name	<u>Cadiz Lake Sonic Target #1</u>	Rater's Name	<u>Ted Moore</u>
Site Location	<u>Riverside County, CA</u>	Phone No.	<u>(314) 331-8849</u>
DERP Project#	<u>J09CA025401</u>	Organization	<u>CELMS PM-M</u>
Date Completed	<u>04/26/95</u>	RAC Score	<u>3</u>

OEW RISK ASSESSMENT:

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

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

TYPE OF ORDNANCE  
(Circle all values that apply)

A. Conventional Ordnance and Ammunition

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

What evidence do you have regarding conventional OEW? There are explosive ordnance fragments and practice bomb debris on the site.

B. Pyrotechnics (For munitions not described above)	VALUE
Munition (Container) Containing White Phosphorus (WP) or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
Munitions Containing A Flame or Incendiary Material (i.e., Napalm, Triethylaluminum Metal Incendiaries)	6
Flares, Signals, Simulators, Screening Smokes (other than WP)	4
Pyrotechnics (Select the largest single value)	<u>0</u>
What evidence do you have regarding pyrotechnics?	<u>None</u>

C. Bulk High Explosives (Not an integral part of conventional ordnance; uncontainerized.)	VALUE
Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Compositions A, B, C Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)	3
High Explosives (Select the largest single value)	<u>0</u>
What evidence do you have regarding bulk explosives?	<u>None</u>

D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized)	VALUE
Solid or Liquid Propellants	6
Propellants	<u>0</u>
What evidence do you have regarding bulk propellants?	<u>None</u>

E. Chemical Warfare Materiel and Radiological Weapons	VALUE
Toxic Chemical Agents (Choking, Nerve, Blood, Blister)	25
War Gas Identification sets	20
Radiological	15
Riot Control and Miscellaneous (Vomiting, Tear)	5
Chemical and Radiological <u>(Select the largest single value)</u>	<u>0</u>
What evidence do you have regarding chemical/radiological OEW? <u>None</u>	

=====  
 Total Hazard Severity Value  
(Sum of the Largest Values for A through E--Maximum of 61). 10  
 Apply this value to Table 1 to determine Hazard Severity Category.

TABLE 1

HAZARD SEVERITY\*

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

\* Apply Hazard Severity Category to Table 3

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

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

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

A. Location of OEW Hazards

	VALUE
On the surface	5
Within Tanks, Pipes, Vessels or Other confined locations	4
Inside walls, ceilings, or other parts of Buildings and Structures	3
Subsurface	2
Location (Select the single largest value)	5
What evidence do you have regarding location of OEW? <u>Practice bomb debris and explosive ordnance fragments are on the surface.</u>	

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

	VALUE
Less than 1250 feet	5
1250 feet to 0.5 miles	4
0.5 miles to 1.0 miles	3
1.0 miles to 2.0 miles	2
Over 2 miles	1
Distance (Select the single largest value)	5
What are the nearest inhabited structures? <u>More than 5 miles to the nearest building. Highway 62 runs through the site.</u>	

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

	VALUE
26 and over	5
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of Buildings <u>(Select the single largest value)</u>	<u>0</u>
Narrative _____	

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

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



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

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

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

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

-----  
 Total Hazard Probability Value  
 (Sum of Largest Values for A through F--Maximum of 30) 15  
 Apply this value to Hazard Probability Table 2 to determine  
 Hazard Probability Level.

TABLE 2

HAZARD PROBABILITY

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

\* Apply Hazard Probability Level to Table 3.

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

TABLE 3

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

RISK ASSESSMENT CODE (RAC)

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

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

There is evidence that high explosive ordnance was used at this site. It was part of an artillery range and the range clearance suggested surface use only for the north half of the site. There is a main road running through the site and access is not restricted.

18 Apr 94

RISK ASSESSMENT PROCEDURE FOR  
ORDNANCE AND EXPLOSIVE WASTE (OEW) SITE

Site Name	<u>Cadiz Lake Sonic Target #2</u>	Rater's Name	<u>Ted Moore</u>
Site Location	<u>San Bernardino County, CA</u>	Phone No.	<u>(314) 331-8849</u>
DERP Project#	<u>J09CA025601</u>	Organization	<u>CELMS PM-M</u>
Date Completed	<u>04/26/95</u>	RAC Score	<u>4</u>

OEW RISK ASSESSMENT:

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

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

TYPE OF ORDNANCE  
(Circle all values that apply)

A. Conventional Ordnance and Ammunition

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

What evidence do you have regarding conventional OEW? There are explosive ordnance fragments and practice bomb debris on the site.

B. Pyrotechnics (For munitions not described above)

	VALUE
Munition (Container) Containing White Phosphorus (WP) or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
Munitions Containing A Flame or Incendiary Material (i.e., Napalm, Triethylaluminum Metal Incendiaries)	6
Flares, Signals, Simulators, Screening Smokes (other than WP)	4
Pyrotechnics (Select the largest single value)	<u>0</u>
What evidence do you have regarding pyrotechnics?	<u>None</u>

---

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

	VALUE
Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Compositions A, B, C Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)	3
High Explosives (Select the largest single value)	<u>0</u>
What evidence do you have regarding bulk explosives?	<u>None</u>

---

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

	VALUE
Solid or Liquid Propellants	6
Propellants	<u>0</u>
What evidence do you have regarding bulk propellants?	<u>None</u>

---

E. Chemical Warfare Materiel and Radiological Weapons

	VALUE
Toxic Chemical Agents (Choking, Nerve, Blood, Blister)	25
War Gas Identification sets	20
Radiological	15
Riot Control and Miscellaneous (Vomiting, Tear)	5
Chemical and Radiological <u>(Select the largest single value)</u>	<u>0</u>
What evidence do you have regarding chemical/radiological OEW?	<u>None</u>

=====  
 Total Hazard Severity Value  
(Sum of the Largest Values for A through E--Maximum of 61).      10  
**Apply this value to Table 1 to determine Hazard Severity Category.**

TABLE 1

HAZARD SEVERITY\*

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

\* Apply Hazard Severity Category to Table 3

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

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

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

A. Location of OEW Hazards

	VALUE
On the surface	(5)
Within Tanks, Pipes, Vessels or Other confined locations	4
Inside walls, ceilings, or other parts of Buildings and Structures	3
Subsurface	2
Location <u>(Select the single largest value)</u>	<u>5</u>
What evidence do you have regarding location of OEW? <u>Practice bomb debris and explosive bomb fragments are on the surface.</u>	

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

	VALUE
Less than 1250 feet	5
1250 feet to 0.5 miles	(4)
0.5 miles to 1.0 miles	3
1.0 miles to 2.0 miles	2
Over 2 miles	1
Distance <u>(Select the single largest value)</u>	<u>4</u>
What are the nearest inhabited structures? <u>More than 5 miles to the nearest building, however, Highway 62 runs just south of the site.</u>	

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

	VALUE
26 and over	5
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of Buildings <u>(Select the single largest value)</u>	<u>0</u>
Narrative _____	

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

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



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

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

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

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

=====  
Total Hazard Probability Value  
(Sum of Largest Values for A through F--Maximum of 30) 14  
Apply this value to Hazard Probability Table 2 to determine  
Hazard Probability Level.

TABLE 2

HAZARD PROBABILITY

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

\* Apply Hazard Probability Level to Table 3.

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

TABLE 3

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

RISK ASSESSMENT CODE (RAC)

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

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

There is evidence that high explosive ordnance was used at this site.

Ordnance debris was found within 0.25 mile of Highway 62.

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18 Apr 94

RISK ASSESSMENT PROCEDURE FOR  
ORDNANCE AND EXPLOSIVE WASTE (OEW) SITE

Site Name	<u>Cadiz Lake Sonic Target #4</u>	Rater's Name	<u>Ted Moore</u>
Site Location	<u>San Bernardino County, CA</u>	Phone No.	<u>(314) 331-8849</u>
DERP Project#	<u>J09CA025801</u>	Organization	<u>CELMS PM-M</u>
Date Completed	<u>04/26/95</u>	RAC Score	<u>4</u>

OEW RISK ASSESSMENT:

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

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

TYPE OF ORDNANCE  
(Circle all values that apply)

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

What evidence do you have regarding conventional OEW? There is practice bomb debris on the site.

B. Pyrotechnics (For munitions not described above)

	VALUE
Munition (Container) Containing White Phosphorus (WP) or other Pyrophoric Material (i.e., Spontaneously Flammable)	10
Munitions Containing A Flame or Incendiary Material (i.e., Napalm, Triethylaluminum Metal Incendiaries)	6
Flares, Signals, Simulators, Screening Smokes (other than WP)	4
Pyrotechnics <u>(Select the largest single value)</u>	<u>0</u>
What evidence do you have regarding pyrotechnics? <u>None</u>	

---

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

	VALUE
Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10
Demolition Charges	10
Secondary Explosives (PETN, Compositions A, B, C Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Military Dynamite	6
Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)	3
High Explosives <u>(Select the largest single value)</u>	<u>0</u>
What evidence do you have regarding bulk explosives? <u>None</u>	

---

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

	VALUE
Solid or Liquid Propellants	6
Propellants	<u>0</u>
What evidence do you have regarding bulk propellants? <u>None</u>	

---

E. Chemical Warfare Materiel and Radiological Weapons

	VALUE
Toxic Chemical Agents (Choking, Nerve, Blood, Blister)	25
War Gas Identification sets	20
Radiological	15
Riot Control and Miscellaneous (Vomiting, Tear)	5
Chemical and Radiological (Select the largest single value)	<u>0</u>
What evidence do you have regarding chemical/radiological OEW?	<u>None</u>

=====  
 Total Hazard Severity Value  
 (Sum of the Largest Values for A through E--Maximum of 61). 6  
 Apply this value to Table 1 to determine Hazard Severity Category.

TABLE 1

HAZARD SEVERITY\*

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

\* Apply Hazard Severity Category to Table 3

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

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

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

A. Location of OEW Hazards

	VALUE
On the surface	5
Within Tanks, Pipes, Vessels or Other confined locations	4
Inside walls, ceilings, or other parts of Buildings and Structures	3
Subsurface	2
Location <u>(Select the single largest value)</u>	<u>5</u>
What evidence do you have regarding location of OEW? <u>Practice bomb debris and explosive bomb fragments are on the surface.</u>	

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

	VALUE
Less than 1250 feet	5
1250 feet to 0.5 miles	4
0.5 miles to 1.0 miles	3
1.0 miles to 2.0 miles	2
Over 2 miles	1
Distance <u>(Select the single largest value)</u>	<u>5</u>
What are the nearest inhabited structures? <u>More than 5 miles to the nearest building, but Cadiz Road is adjacent to the site.</u>	

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

	VALUE
26 and over	5
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of Buildings <u>(Select the single largest value)</u>	<u>0</u>
Narrative _____	

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

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



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

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

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

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

=====  
 Total Hazard Probability Value  
 (Sum of Largest Values for A through F--Maximum of 30) 15  
 Apply this value to Hazard Probability Table 2 to determine  
 Hazard Probability Level.

TABLE 2

HAZARD PROBABILITY

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

\* Apply Hazard Probability Level to Table 3.

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

TABLE 3

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

RISK ASSESSMENT CODE (RAC)

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

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

There is evidence that practice bombs were used on this site.

Cadiz Road is adjacent to the site.

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**APPENDIX J**  
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ORDNANCE AND EXPLOSIVE WASTE  
 CHEMICAL WARFARE MATERIALS  
**ARCHIVES SEARCH REPORT**  
 FOR  
**CADIZ LAKE SONIC TARGETS #1, #2, AND #4**  
 RIVERSIDE AND SAN BERNARDINO COUNTIES, CALIFORNIA

DERP-FUDS PROJECT NUMBERS J09CA025401,  
 J09CA025601, AND J09CA025801

**APPENDIX J**

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