US Army Corps
of Engineers
HUNTSVILLE DIVISION

DRAFT

Defense Environmental Restoration Program
for
Formerly Used Defense Sites

Ordnance and Explosive Waste
Chemical Warfare Materials

ARCHIVES SEARCH REPORT

PORT CHICAGO NAVAL MAGAZINE

Contra Costa County, California

Site No. J09CA102200

AUGUST 1993

Prepared by
US ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT

RESTORATION INFORMATION MANAGEMENT SYSTEM
FORMERLY USED DEFENSE SITES (FUDS)
PROJECT FACT SHEET
AUGUST 1993
TAG Review Date: 27 July 2005

1. **SITE NAME:** Port Chicago Naval Magazine

SITE NUMBER: J09CA102200

LOCATION:

City: Clyde
County: Contra Costa
State: California

PROJECT NUMBER: J09CA102200

CATEGORY: MMRP

INPR RAC:

ASR RAC: 5

TAG RAC: 5

2. **POC'S:**

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3. **SITE DESCRIPTION:**

a. This ASR encompasses three parcels of land that were formerly part of the Port Chicago Naval Magazine. The larger parcel, 58.18 acres, was developed by the City of Concord as a municipal golf course. The 4.965-acre tract was developed and consists of residences and businesses. Both of these sites border Concord Naval Weapons Station. The 15-acre site is situated next to a tidal area of Suisin Bay, five miles east-northeast of the town of Clyde and is undeveloped grazing land.

b. There was no MEC discovered during the site visit.

4. **SITE HISTORY:**

a. Port Chicago was established in 1942 with 640 acres as an ammunition storage and transshipment point for the Pacific Theater. Over the years Port Chicago expanded to over 6,575 acres. It is surmised that these three parcels of land were acquired to meet explosive safety distances. It was later determined that this land was not needed to meet these requirements.

b. There was very little real estate information available. The 58.18 acre parcel was sold to the City of Concord in 1961. The 4.965 acres was surplused after 1953. The 15 acres were reported excess to GSA in 1972. No information was provided for the final disposition of the two smaller parcels.

c. The larger parcel, 58.18 acres, was developed by the City of Concord as a municipal golf course. The 4.965-acre tract was developed and consists of residences and businesses. The 15-acre site is undeveloped grazing land.

5. **PROJECT DESCRIPTION:**

Area A
Size, Acres: 58.18
Former Usage Explosive Exclusion Area
Present Usage Municipal Golf Course
Probable End Usage: Same
OE Presence:
Confirmed: None
Type:
Potential: None
Type:
ASR Recommends: RAC 5
HNC Safety: Not Available

Area B
Size, Acres: 4.965
Former Usage Explosive Exclusion Area
Present Usage Residential / Commercial
Probable End Usage: Same
OE Presence:
Confirmed: None
Type:
Potential: None
Type:
ASR Recommends: RAC 5
HNC Safety: Not Available

Area C
Size, Acres: 15.00
Former Usage Explosive Exclusion Area
Present Usage Grazing
Probable End Usage: Same
OE Presence:
Confirmed: None
Type:
Potential: None
Type:
ASR Recommends: RAC 5
HNC Safety: Not Available

6. **CURRENT STATUS:**

The U.S. Army Corps of Engineers, St. Louis District completed the Archives Search Report for Port Chicago Naval Magazine in August 1993.

7. **STRATEGY:** (NDAI)

8. **ISSUES AND CONCERNS: The Huntsville Center Technical Advisory Group met and evaluated this ASR on 27 July 2005. The consensus was a score of RAC 5. The following issues were addressed:**

a. The archive search uncovered no documentation relating to CWM at Port Chicago Naval Magazine. The archive search team found no indication that the U. S. Navy conducted CWM training, storage or disposal at this site.

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

c. There is no mention of acquiring real estate documents from the County Assessor's Office. The documents should either be included or a statement is provided as to their absence.

9. **SCHEDULE SUMMARY:**

Phase	Orig. Start	Sch. Start	Actual Start	Orig. Comp.	Sch. Comp.	Actual Comp.

10. **FUNDING/BUDGET SUMMARY:**

Year	Phase	EXEC FOA	IN House Required	Contract Required	Funds Obligated

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WEAPONS MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NO. J09CA102200

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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 National Contingency Plan (NCP) was established by the Clean Water Act of 1972. The NCP has been revised and broadened several times since then. Its purpose is to provide the organizational structure and procedures for remedial actions to be taken in response to the presence of hazardous substances, pollutants, and contaminants at a site. Section 105 of the 1980 CERCLA states that the NCP shall apply to all response actions taken as a result of CERCLA requirements.

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 April 5, 1990, U.S. Army Engineer Division, Huntsville (USAEDH) was designated as the USACE Mandatory Center of Expertise (MCX) and Design Center for Ordnance and Explosive Waste (OEW). As the MCX and Design Center for OEW, USAEDH is responsible for the design and successful implementation of all Department of the Army OEW remediations required by CERCLA. USAEDH also designs and implements 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 (ASR) for those Formerly Used Defense Sites (FUDS) suspected of chemical warfare materials (CWM) contamination.

1.2 Subject

The U. S. **Port Chicago Naval Magazine** (a.k.a Naval Weapons Station - Concord or Port Chicago) is situated in Contra Costa County, approximately five miles east-northeast from the town of Clyde, California (Figures 1 & 2). The Navy used the site to load ammunition on ships. Three separate tracts, which were once part of the Port Chicago (Concord) naval reservation property, were determined during the archive search to qualify as a FUDS. The first parcel of land is a 15 acre site located adjacent to Suisun Bay. The second is 58.18 acres of land sold to the City of Concord for recreational purposes, and the final identified tract is a 4.965 acre parcel of land now developed in housing and local commercial shops (Maps M-3 & M-4).

1.3 Purpose

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

1.4 Scope

This investigation centered on the potential that CWM contamination could remain on the site from activities associated with the loading of magazines on ships; the report that two box cars of unexploded ordnance exist within the tidal area; and, lastly, the explosion on 17 July 1944 of approximately 1,600 tons of ammunition during a ship loading operation. The three locations investigated for potential chemical weapons contamination on the **Port Chicago Naval Magazine** FUDS are delineated on Maps M-3 and M-4.

This report presents the history of the site, description and characterization of the immediate surrounding area, real estate ownership information, findings of a visual field survey, and OEW (CWM) site analysis, including an evaluation of potential ordnance contamination.

2.0 Previous Site Investigations

An unsigned draft Inventory Project Report (INPR), dated January 1993, has been prepared by the Dynamac Corporation, 10365 Old Placerville Road, Suite 230, Sacramento, California, Appendix C1. The Findings of Fact centered on the 15 acre site excessed in 1972 to the General Administration Services. It was determined that this parcel was formerly used by the DOD and is eligible for funding under the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS). Data presented in the draft INPR did not specifically define the boundaries of the site, nor provide real estate details on past or current ownerships. This report, presently under review, will probably be updated by the Sacramento District, U.S. Army Corps of Engineers, to reflect the addition of two tracts of land. These two tracts were discovered during the archive search to have also been associated with **Port Chicago Naval Magazine**, and were formerly used by the DOD. A NOFA recommendation is expected to be forwarded relative to all three separate tracts once associated with this FUDS.

There were no other available studies or reports centering on the FUDS segment. Dynamac did report that a contact with the Regional Water Quality Control Board determined that the only area of concern in the vicinity of the site is the tidal area of the active Concord Naval Weapons Station. (The 15 acre site is not a part of the tidal area.) The tidal area is currently undergoing a site characterization as part on the Navy Clean program.

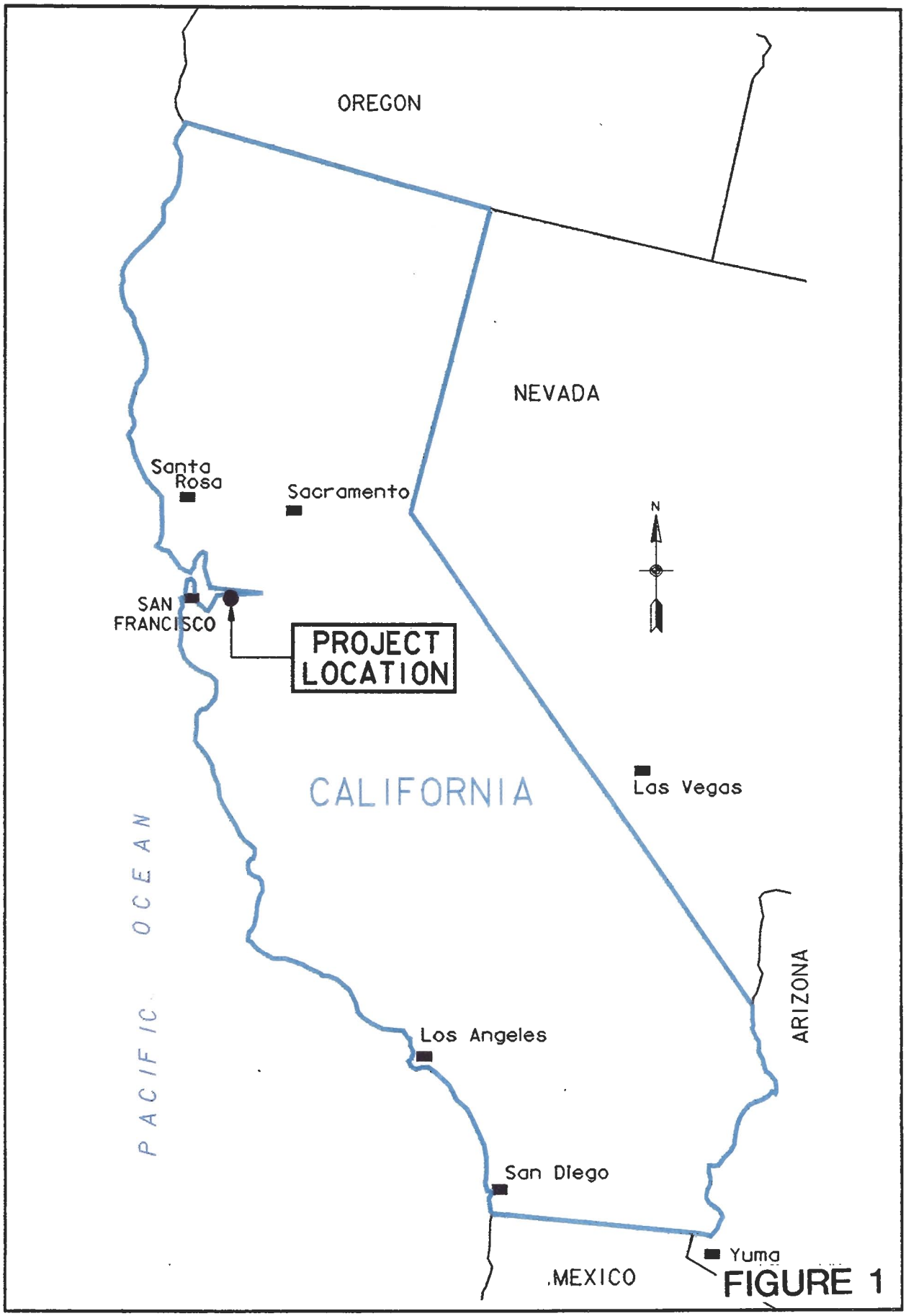


FIGURE 1

PORT CHICAGO NAVAL MAGAZINE

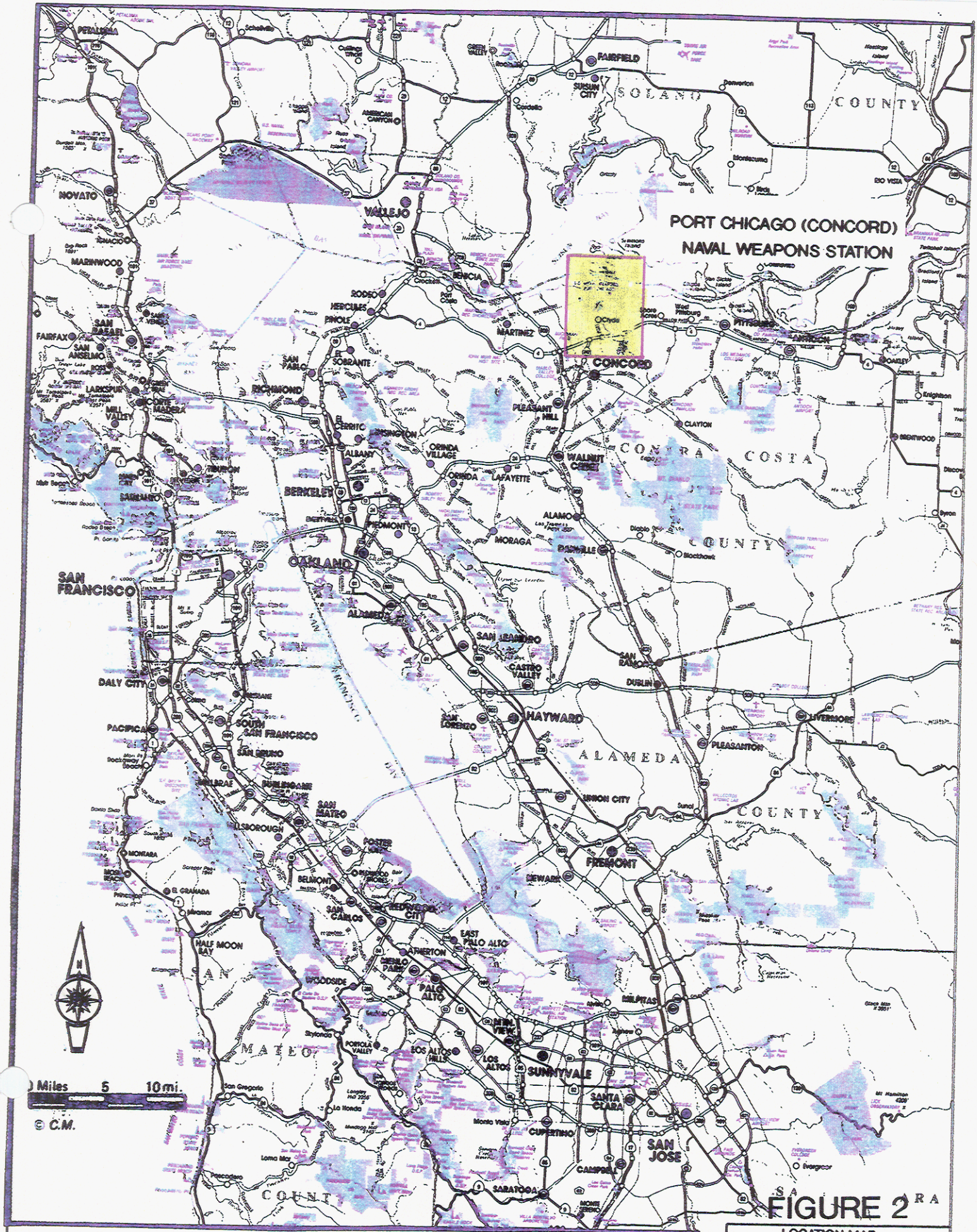


FIGURE 2

LOCATION MAP
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO CALIFORNIA

NOT TO SCALE

3.0 Site and Site Area Description

3.1 Location

Each site area addressed by this Archive Search is located north of the City of Concord in Contra Costa County, California. The 15 acre site is situated adjacent to Suisun Bay, approximately five miles east-northeast from the town of Clyde. The other two locations are south of Port Chicago and border the active Concord Naval Weapons Station. Concord is the commercial center of the area. State Highway 4 traverses east and west through the Concord Naval Weapons Station. The approximate boundaries of the three tracts which are the subject of this archive search and investigation are defined on Map M-4.

3.2 Past Uses

3.2.1 General

Data available in the INPR (unsigned) does not provide information relative to significant pass uses and/or ownerships, other than the naval magazine and port facility. The three parcels of land formerly part of the **Port Chicago Naval Magazine** consist of the 58.18 acres of land sold to the City of Concord for recreational purposes, and is used primarily as a municipal golf course (Photograph Sheet G-3). The second approximately 5 acre tract has been developed into a subdivision and service businesses (Photograph Sheet G-1 & G-2) . The third 15 acre parcel, which is adjacent to the tidal area, is currently used as leased agricultural land for cattle grazing (Photograph Sheet G-4).

3.2.2 Interpretation of Aerial Photography

A.) Photo analysis and land use interpretation were performed at the site with the use of aerial photography from 1948, 1952, 1965 and 1992. The approximate negative scale of photography is as follows:

1948	1" = 2300'
1952	1" = 1340'
1965	1" = 1000'
1992	1" = 1000'

The Port Chicago, CA; Clayton, CA; and Honker Bay, CA, USGS quadrangle maps were used as references for the photography.

No photography was available for interpretation prior to 1948. In 1948, post World War II, the Port Chicago Naval Magazine was in a rural area, but part of a naval reservation that included many activities. Ammunition bunkers with connecting railroad lines are present. A canal system, known as the Contra Costa Canal, is situated throughout the munitions area. Also, an airport is located to the south of the bunkers. The community of Clyde is located

to the northwest of the bunkers. No other economic activities, other than agriculture, is apparent in the photographs.

From 1948 to 1952 no apparent changes occurred around the bunkers. These sites are still interconnected by a railroad and road transportation system. The overall area is still rural and agriculturally based.

However, from 1952 to 1965 the bunker area undergoes a change. A reduction in the number of bunkers is evident. Also, numerous housing areas, located to the south and west of the munitions bunkers, are observed to have developed during the time frame. A cemetery and golf course have been developed to the west of the munitions area. The airport is now abandoned and is a storage area for railroad cars.

By 1992 the bunker areas are still present, however, they have again reduced in number since 1965. The area has developed into a commercial and industrial economy, with the business sites generally located to the north and west of the munitions area. Additionally, an interstate highway crosses the munitions area to the north. Since 1948 the area has gone from rural to an urbanized area with a mixture of residential, commercial and industry.

B. Site visits, records searches, and photographic investigations presented nearly conclusive evidence that chemical weapons storage activities were not present on the three subject former properties of the naval magazine base. The active **Port Chicago Naval Magazine** (a.k.a Naval Weapons Station - Concord or Port Chicago) may still, however, have chemical materials stored on base.

3.2.3. Map analysis

The **Port Chicago Naval Magazine** encompasses several areas in the vicinity of Port Chicago, CA. These areas are in Sections 19 & 30 of Township 2 North and Range 1 West.

The site was analyzed by referencing the USGS 7.5 minute quadrangle map, Port Chicago, CA, from 1959. This map displays the Naval Weapon Station at Concord, former properties of which are the sites under investigation. The Contra Costa Canal is shown, as is the Clayton canal, which is on the weapons station, but located to the east of the munitions bunkers. Numerous railroad lines and several rail yards are located near the bunkers. The airport, located to the south of the bunkers, is shown but marked abandoned. In addition, the airport area is shown as to have a spur from the main railroad line. Commercial and residential areas are marked on the map. Several primary and secondary schools are located in the vicinity of the weapons station.

A commercial vendor, Compass Maps, Inc., developed a general street map in 1992 of the Contra Costa area which includes Concord, California. Located on this map are many points of interest. These include the Diablo Creek Golf Course, Willow Pass Community Park, Buchanan Airfield and Mallard Reservoir. This street map references the U.S. Naval

Magazine area, but does not go into detail. One railroad line, servicing the storage area and referenced in the aerial photographs, is known as the Baypoint & Clayton Railroad.

3.3 Current Uses

As indicated previously, the three parcels of land of interest are used today primarily as a municipal golf course (Diablo Creek); have been developed into a subdivision and strip mall type businesses; and for agricultural land for cattle grazing (Photographs - Appendix G).

3.4 Demographics of the Area

A. **Center of activity:** The location of the **Port Chicago Naval Magazine** is about 5.5 miles north-northwest of the City of Concord. Centers of activity in Concord and its vicinity include California State University (Contra Costa Campus), Sun Valley Mall, and the Concord Pavilion.

B. **Population Density:**

City: Concord	County: Contra Costa
Area: 30 sq. mi. (approx.)	Area: 720 sq. mi (approx.)
Pop: 111,350 (approx.)	Pop: 803,730 (approx.)
PD: 3,710 persons per sq. mi.	PD: 1,116 persons per sq. mi.

C. **Types of business:** Retail outlets employ a large percentage of the population in Concord. Other businesses include service-related businesses such as banks, insurance companies and real estate companies. The University also employs a large amount of people.

D. **Type of industry:** Much of the industry in Concord is light industry. Many of these are located in industrial parks and have a strong emphasis on research and development. Manufactured goods produced include electronics, sugar, oil and paper products.

E. **Type of housing:** There are approximately 41,950 occupied housing units in the City of Concord. The majority of these are detached single-family dwellings. Other housing consists of attached single family and multiple family dwellings. The median dollar value of housing units in Concord is $193,900.

F. **New development in the area:** Aside from typical neighborhood renovation, a 454 unit residential single family project has been recently been approved. The Concord area is serviced by the Bay Area Rapid Transit (BART); and, thus, is a growing modern bay area community with ongoing new development occuring, including housing and light commercial, such as shopping centers and restaurants.

G. **Typical cross-section of population:** According to the 1990 Census, the total population of Concord is 113,000. The total percent of the population under the age of 17 is 23.3%, and the percentage over 65 years is 9.3%. The median age is 33. Approximately 84% of the population is white, 8.6% is Asian or Pacific Islander, 2.1% is Black, and the remaining 5.2% is other races. Out of the total population, 11.5% claim Hispanic origin (of any race).

4.0 Physical Characteristics of the Site

4.1 Geology/physiography

The **Port Chicago Naval Magazine** site is located near Port Chicago on Suisun Bay (near Honker Bay). It is within the Sacramento Valley Subregion of the Valley of California Section of the Pacific Border province. The Valley of California is a major northwest trending, southerly tilting, structural trough, asymmetrical in form with a steep western flank and a more gently inclined eastern flank. The northern third is known as the Sacramento Valley, the southern two-thirds is the San Joaquin Valley (Thornbury, 1965). Up to ten miles of sediments have filled the Sacramento Valley and range in age from Jurassic to Holocene and include marine and continental rocks and deposits. This trough has probably existed since the Jurassic, when the Sierra Nevada and Klamath Mountains were uplifted. During the Cretaceous and through much of the Cenozoic, this trough extended westward over the site of the present Coast Ranges and may have received sediment from the Sierra Nevada on the east. The trough existed in this form until the late Pliocene when development of the Coast Ranges cut off the sea (Thornbury, 1965). A generalized geologic section of the Central Valley is presented in Figure 4-1 (Page, 1986).

From the western flank of the trough to just east of the site, the following outcrops appear: (a) Quaternary age flood basin deposits of clay, silt, and some sand,; may include part of the Modesto Formation-100 feet thick, Pleistocene in age; deposited during flood stages of the major streams; (b) Quaternary age continental deposits of generally, poorly sorted clay, silt, sand and gravel; some beds of claystone, siltstone, sandstone and conglomerate. The site area is located on both the flood basin and continental deposits of informal units of younger alluvium of Holocene age, older alluvium of Pleistocene and Holocene(?) age. In total, these formations form the major aquifer of the valley; can be up to 15,000 feet in thickness.

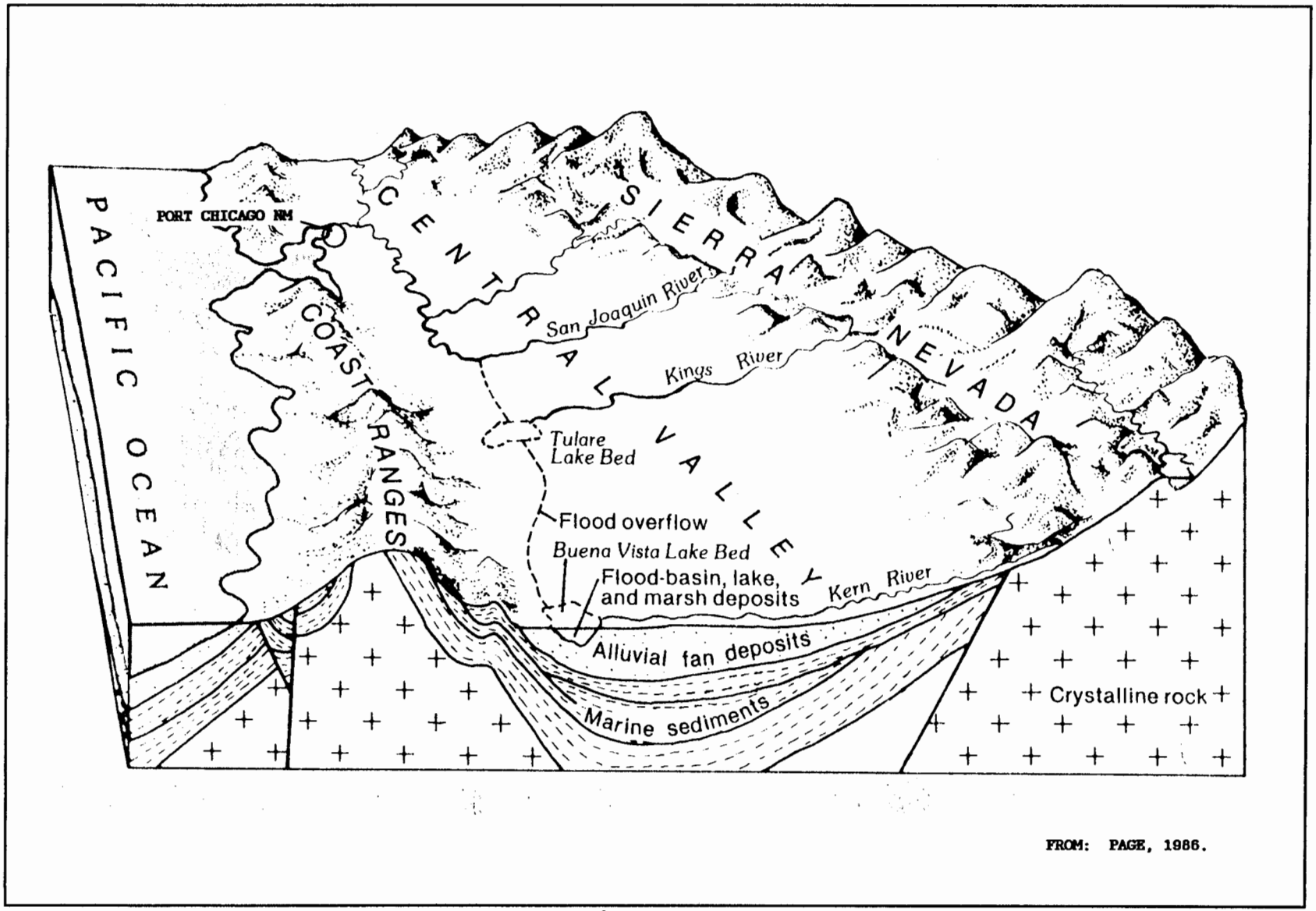


Figure 4-1
Generalized geologic section of San Joaquin Valley

4.2 Soils

Port Chicago Naval Magazine is underlain by well-drained soils mainly on benches whose parent material is shale, siltstone, mudstone, and argillaceous sandstone. These soils formed in alluvial valley fill from sedimentary rock. The detailed descriptions of the near surface site soils are presented in Table 4-1. They may not exhibit this exact profile, but should possess similar engineering characteristics (Welch, 1976).

TABLE 4-1

NEAR-SURFACE SOIL PROFILE

DEPTH (FT)	SOIL DESCRIPTION	PERCENTAGE PASSING SIEVE NUMBER			LIQUID LIMIT	PLASTICITY INDEX
		#4	#40	#200		
0.0-1.0	Dark grayish brown sandy lean clay with gravel (CL).	100	90-100	70-80	30-40	15-20
1.0-2.4	Dark brown sandy lean clay (CL).	100	90-100	80-90	35-45	20-25
2.4-5.4	Yellowish brown sandy lean clay (CL).	100	95-100	85-95	25-35	10-20

SOURCE: SCS OF CONTRA COSTA COUNTY, CALIFORNIA.

Permeability is slow, 0.06 to 0.2, in the site surficial soils. Runoff is medium and the hazard of erosion is slight where the soil is exposed. Erosion is often severe on cut and fill slopes. Landslides, slips and slumps are more frequent because of manipulation of the soil. Furthermore, the risk of corrosion to uncoated steel is moderate to high. (Welch, 1976).

4.3 Hydrology

4.3.1 Surface Water

The northern portion of Port Chicago is located on Suisun Bay which is part of the San Francisco Bay waters. A continuous tidal gage for Suisun Bay is located at Port Chicago on the bridge across from the tug and pier office. The publication "Tidal Stage vs. Frequency Study", US Army Corps of Engineers, San Francisco District, October 1984, presented a graphical/statistical procedure to define tidal stage vs. frequency relationship for gages around San Francisco Bay. Elevations of tidal datum for Port Chicago are referred to as mean lower low water. The results of the study for Port Chicago are shown in TABLE 4-2. The estimated highest water level to the nearest half foot is seven and one-half feet above

mean lower low water. The estimated lowest water level to the nearest half foot is two and one half feet below mean lower low water.

COMPUTED TIDE DATA FOR PORT CHICAGO
TABLE 4-2

TIDE ELEVATIONS DATUM

	MLLW[1]	NGVD[2]
MEAN HIGHER HIGH WATER	4.6	
MEAN HIGH WATER	4.1	
MEAN TIDE LEVEL	2.35	
MEAN LOW WATER	0.70	
MEAN LOWER LOW WATER	0.00	
10-YEAR	7.4	5.8
100-YEAR	8.0	6.3
500-YEAR	8.3	6.6

[1]MEAN LOWER LOW WATER

[2]NGVD VALUES APPROXIMATE ONLY

4.3.2 Ground Water

Post-Eocene continental deposits constitute the primary groundwater reservoir in the Sacramento Valley. The thickness of these deposits averages about 2,400 feet and increased from north to south. The average hydraulic conductivity is 2.116×10^{-3} cm/sec (Williamson, et al., 1989).

4.4 Weather

The site lies within the South Coast Air Basin, which encompasses approximately 8,630 square miles in southern California. The climate of the basin is classified as mediterranean, characterized by a pattern of cool wet winters and warm dry summers. Typical dry summers are caused by a semipermanent high-pressure cell located over the eastern Pacific Ocean. This system generally blocks storms from moving into the basin during the summer months.

Climatological data for the area are summarized in TABLE 4-3. Data were collected at the National Weather Service meteorological station at the Stockton Metropolitan Airport, which is located approximately 45 miles east-southeast of the site and at the Port Chicago Naval Deport.

CLIMATOLOGICAL DATA FOR
PORT CHICAGO NAVAL DEPORT & STOCKTON, CALIFORNIA
TABLE 4-3

Month	Temperature[1]		Precipitation[1]		Wind[2]
	Average Minimum (°F)	Average Maximum (°F)	Average (Inches)	Average Speed Miles/Hour	Average Direction
January	43.0	60.0	3.60	6.7	SE
February	44.0	65.0	2.42	6.0	SE
March	46.0	71.0	1.97	7.7	W
April	46.0	77.0	1.27	8.3	W
May	51.0	81.0	0.36	9.2	W
June	54.0	90.0	0.13	9.2	W
July	57.0	92.0	0.03	8.2	WNW
August	56.0	94.0	0.03	7.7	WNW
September	55.0	89.0	0.12	7.1	W
October	51.0	81.0	0.94	6.4	W
November	44.0	70.0	2.01	5.8	W
December	43.0	63.0	2.95	6.2	SE
Average	46.0	75.0		7.4	W
Yearly Total			15.78		

[1]Port Chicago Naval Deport
[2]Stockton Metropolitan Airport

4.5 Ecology

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

There are no endangered or threatened species or unusual natural communities listed for the Port Chicago Naval Magazine vicinity in the Natural Diversity Data Base. However, eight

federally-listed endangered or threatened species may occur in the area of the proposed use, storage and disposal of explosive waste and chemical warfare material site in Contra Costa County. They include: winter-run chinook salmon (Oncorhynchus tshawytscha), delta smelt (Hypomesus transpacificus), Aleutian Canada goose (Branta canadensis leucopareia), California brown pelican (Pelecanus occidentalis californicus), California clapper rail (Rallus longirostris obsoletus), California least tern (Sterna antillarum (albifrons) browni), salt marsh harvest mouse (Reithrodontomys raviventris), and Antioch Dunes evening-primrose (Oenothera deltoides ssp. howellii). Thirty species listed as federal candidate species may also occur in the area (Appendix C-4).

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

5.1 DOD ownership

According to the INPR, between 1967 and 1975, the U. S. acquired 4764.93 fee acres by purchase and condemnation. The properties were known as Port Chicago and/or U. S. Port Chicago Naval Magazine, California. The site was utilized to load magazines on ships, and was an off-site component to the Concord Naval Weapons Station. In 1972, 15.00 fee acres were reported excess to the General Administration Services. The remaining 4749.93 fee acres are owned by the U. S. and currently known as Port Chicago.

Two other identified parcels of land, which also qualify as formerly used, were identified during the archive search task. The first is 58.18 acres of land sold to the City of Concord for recreational purposes (Proposed Excess Land, GSA Control No. N-Calif-758, 16 Oct 61). The second is a 4.965 acres of land (Proposed Excess Land, GSA Control No. N-Calif-474, December 22, 1953).

None of these parcels of land were associated with ammunition storage or disposal and the only potential OEW contamination would be from munitions expelled during explosions such as the one that occurred in 1944. Records indicate the 58.18 acres parcel was acquired to meet safe distance requirements for the inland ammunition storage facility. Later determinations indicated that this land was not needed to meet these requirements. It was surplused and offered for disposal by the Public Building Service, and given the file number N-Calif-758. This land is currently being used by the City of Concord as a golf course.

The appraisal document for the approximate 5 acre parcel did not provide a reason for the land having been surplused. The appraisal document made no mention of OEW or similar hazards.

The available information on the third parcel is limited, but government improvements to the land consists of fences on the south and east sides. This fact suggests this 15 acre property was not used except, possibly, as part of the explosive exclusion area.

5.2 Present ownership

The 58.18 acres of land primarily used as a municipal golf course was sold to the City of Concord. The second, 4.965 acres of land, site has numerous ownerships. The third parcel has limited ownership data at this time.

5.3 Significant Past Ownership other than DOD

There is no significant ownership of any properties associated with the **Port Chicago Naval Magazine** other than the DOD.

6.0 OEW/CWM site Analysis

6.1 Historical Summary of OEW/CWM Activities

Port Chicago Naval Magazine (also known as the U. S. Naval Weapons Station - Concord) is an active munitions storage and transshipment point for the Pacific Theater. It was established in 1942 and originally consisted of 640 acres which over the years was expanded to over 6,575 acres (Briefing Pamphlet, US Naval Magazine Port Chicago, n.d.). All types of munitions have been shipped through this facility.

6.1.1 General

The Port Chicago facility is divided into two sections connected by a government owned railway and highway. The tidal section consists of approximately 50 magazines, Railroad Class Yards (barricaded storage for explosive loaded rail cars), and the port facility used to load or unload ammunition laden ships (Briefing Pamphlet, US Naval Magazine Port Chicago, n.d.).

The inland section houses the administrative facilities, approximately 208 ammunition magazines, and Railroad Class Yards for approximately 500 rail cars (Briefing Pamphlet, US Naval Magazine Port Chicago, n.d.).

The portions of Port Chicago which qualify as formerly used consist of three parcels of land. The first is 58.18 acres of land sold to the City of Concord for Recreation purposes (Proposed Excess Land, GSA Control No. N-Calif-758, 16 Oct 61). The second is 4.965 acres of land (Proposed Excess Land, GSA Control No. N-Calif-474, December 22, 1953). The third parcel is 15 acres located adjacent to the tidal area. (Site Survey Summary Sheet - Port Chicago, January 1993). None of these parcels of land were associated with ammunition storage or disposal and the only potential OEW contamination would be from munitions expelled during explosions such as the one that occurred in 1944.

The first parcel of 58.18 acres was acquired to meet safe distance requirements for the inland ammunition storage facility. Later determinations indicated that this land was not needed to meet these requirements and it was surplused and offered for disposal by the Public Building Service and given the file number N-Calif-758. This land is currently being used by the City of Concord as a golf course. (Public Buildings Service, n.d.).

The appraisal document for the second parcel of land did not give a reason for the land having been surplused. However, the appraisal document made no mention of OEW or similar hazards. (Public Buildings Service, 1953).

Information on the third parcel is limited but government improvements to the land consists of fences on the south and east sides. This indicates that this land was not used except

possibly as part of the explosive exclusion area.

6.1.2 OEW

There have been several events in the history of this facility which involved explosive ordnance items and could in some way effect the possibility of OEW hazard presence. The most significant of these events occurred on 17 July 1944 when approximately 1,600 tons (explosive weight) of ammunition detonated during a ship loading operation. (Application for Dangerous Cargo Operation Permit for SS E. A Bryan and SS Quinault Victory, 15 July 1944).

There is no evidence that the parcels of land under consideration for this report have ever been used for the storage or disposal of explosives or munitions. OEW contamination of these sites, if it exists, would be a result of munitions ejected from an explosion site which by chance landed on one of these parcels.

6.1.3 CWM

This site was listed as a possible location of CWM material because chemical munitions were transshipped through the facility. There is no evidence of an event, such as an explosion, which would have scattered chemical munitions, and there is no evidence that the sites in question have ever been used to store or dispose of chemicals or chemical munitions. The only chemical munitions identified as having been involved in an explosion which could have resulted in them being scattered were those listed in the Applications for Dangerous Cargo Operations Permits for the ships involved in the 1944 explosion. These munitions were of the smoke/signal/incendiary variety commonly associated with conventional munitions.

6.2 Records Review

The plan of action for the records search was to investigate regional archives and records centers due to their ease of access. This was followed by research at the national level. The final step was to research local records in the Port Chicago area.

1. National Archives and Records Agency, Suitland Facility, Suitland, MD

   RG 18 - Records of the Army Air Forces. No information found.

   RG 71 - Records of the Bureau of Yards and Docks. General History.

   RG 77 - Records of the Office of the Chief of Engineers. No information found.

   RG 175 - Records of the Chemical Warfare Service. No information found.

RG 341 - Records of Headquarters United States Air Force. No information found.

RG 394 - Records of United States Army Continental Commands, 1920-42. No information found.

2. Washington National Records Center, Suitland, MD

RG 121 - Records of the Public Buildings Service. No information found.

RG 270 - Records of the War Assets Administration. No information found.

3. National Archives - Pacific Sierra Region, San Bruno, CA

RG 77 - Records of the Office of the Chief of Engineers. No information found.

RG 121 - Records of the Public Buildings Service. Appraisal documents for surplus property.

RG 181 - Records of Naval Districts and Shore Establishments. Record of investigation for the 1944 ammunition explosion.

RG 269 - Records of the General Services Administration. No information found.

RG 291 - Records of the Property Management and Disposal Service. No information found.

4. Federal Records Center, San Bruno, CA

RG 77 - Records of the Office of the Chief of Engineers. No information found.

RG 121 - Records of the Public Buildings Service. No information found.

RG 181 - Records of Naval Districts and Shore Establishments. General information only.

RG 291 - Records of the Property Management and Disposal Service. No information found.

5. Western U. S. Naval Facilities Engineering Command - Plan Files Office.

   Collection of maps and drawings on naval facilities for installations of the 11th, 12th, and 13th Naval Districts.

6. U. S. Naval Weapons Station, Concord, Museum.

   Miscellaneous documents and maps on the Port Chicago facility, Briefing books and general histories of the facility.

7. U. S Air Force Historical Research Center, Maxwell AFB, AL
   No information found.

8. U. S. Army Military History Institute, Carlisle Barracks, PA
   No information found.

6.3 Summary of Interviews

Interviews with persons knowledgeable with potential CWM contamination on the site are listed in Appendix E.

6.4 Site Inspection

The site inspection was conducted on 3 June 1993. The three sites were inspected and no visual evidence of munitions or CWM contamination was observed. The 58 acre area is currently the Diablo Creek public golf course. No evidence of previous usage could be observed. The 5 acre site is a housing development and strip mall, again with no evidence of previous usage evident. The specific location of the 15 acre site is unclear. However, a visual inspection of all non-fenced (active base) properties in the vicinity was conducted from the positions along the Port Chicago Highway and other public thoroughfares. The site is undeveloped grazing land with a commercial chemical plant located nearby. There was no evidence of OEW or CWM usage or contamination. Current Site Photographs of each location investigated can be found in Appendix G.

7.0 Site Evaluation

Port Chicago Naval Magazine was listed as a FUDS with suspect CWM material contamination, because chemical munitions were known to have been transshipped through the facility. There is no evidence of an event, such as an explosion, which may have scattered chemical munitions, and there is no evidence that the sites in question have ever been used to store or dispose of chemicals or chemical munitions. The only chemical munitions identified as potentially on the site resulted from the 1944 explosion. These munitions, listed in the Applications for Dangerous Cargo Operations Permits, were of the smoke/signal/incendiary variety commonly associated with conventional munitions.

Our evaluation based on research, conversations, and the site visit is that the possibility of CWS remaining on any of the three locations found to be eligible as a DERP-FUDS associated with the **Port Chicago Naval Magazine** is extremely remote.

8.0 Conclusions and Recommendations

8.1 General

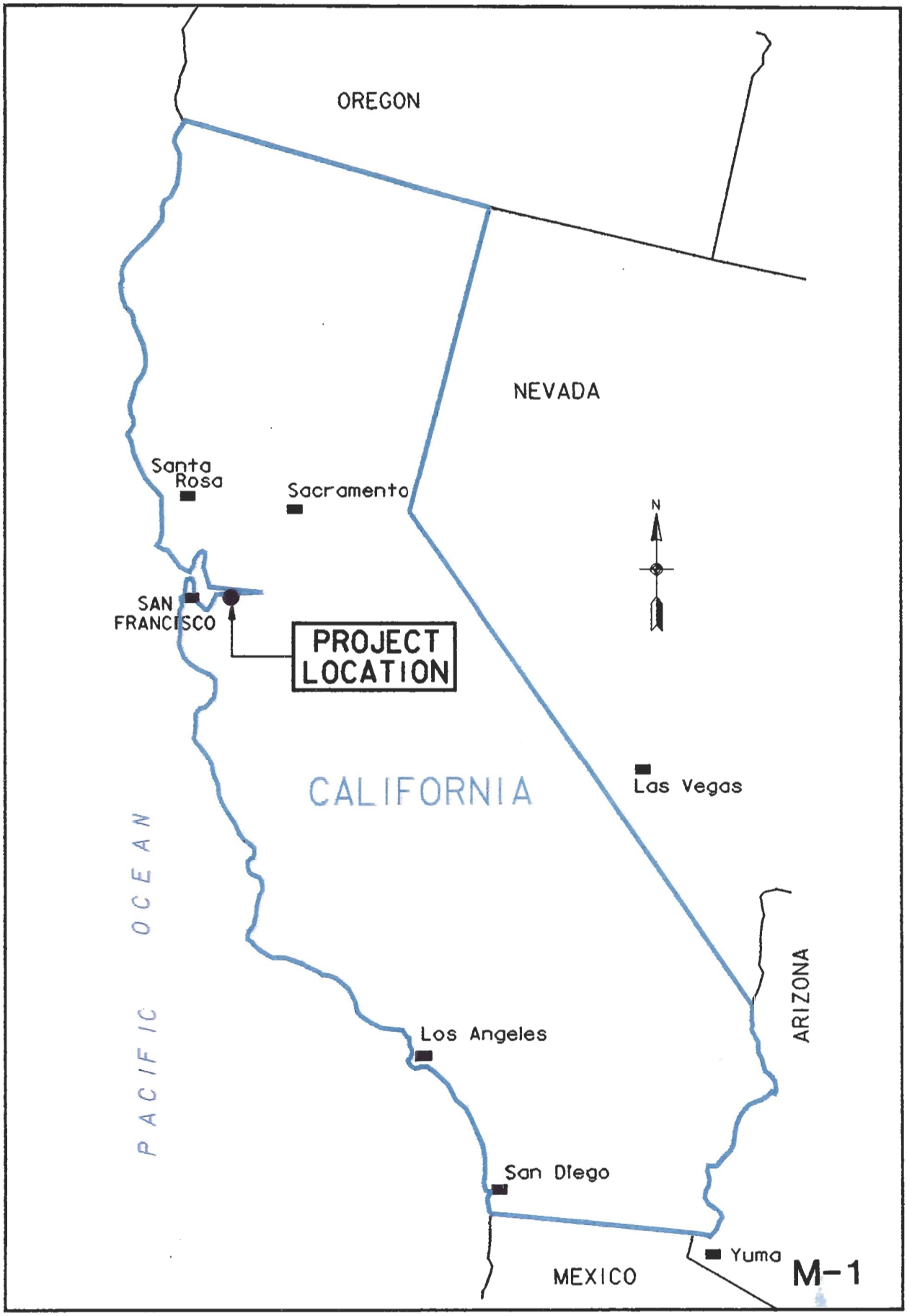
Despite extensive archive searches and other activities undertaken in the preparation of this report, it can not be guaranteed that chemical warfare material contamination does not exist at **Port Chicago Naval Magazine** FUDS. There has been uncovered no records or other evidence indicating that CWM if ever used, stored at, or transported through this location, remains present on former Port Chicago properties addressed in this ASR. Thus, it is a reasonable conclusion that it is highly improbable CWM was improperly disposed of at this FUDS. Risk Assessment Code (RAC) procedure form is furnished in Appendix I.

8.2 Recommendation

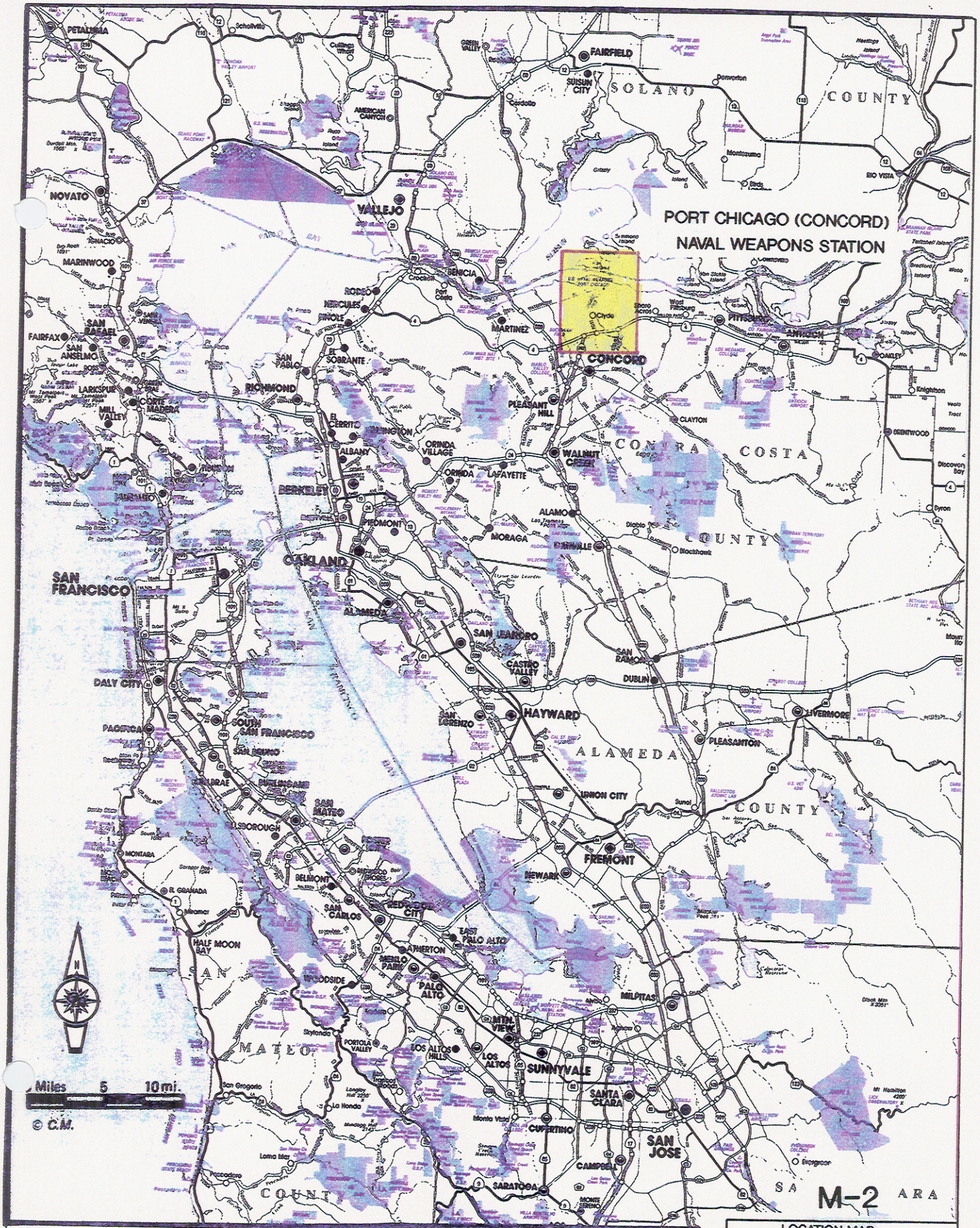
Based upon the evidence presented in this ASR, the potential for CWM contamination is negligible, and a no further action recommendation is appropriate for the former **Port Chicago Naval Magazine**, Project No. J09CA102200. The site Risk Assessment value is RAC 5. This FUDS appears on the list of locations with the potential for CWM, because Port Chicago was identified as possibly having chemical munitions transshipped through the facility.

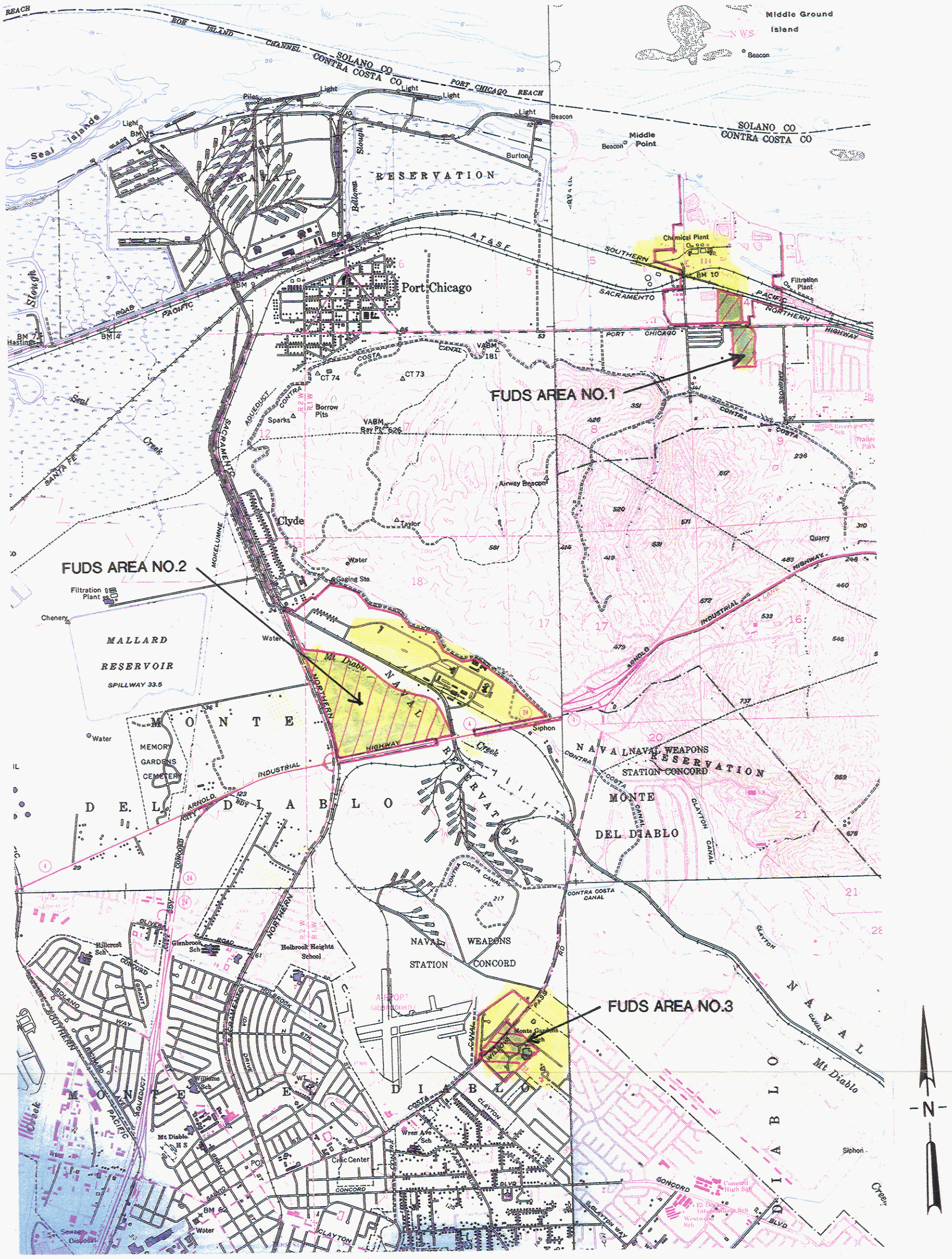
MAPS/DRAWINGS

MAP M-1	LOCATION MAP
MAP M-2	SITE MAP - PORT CHICAGO NAVAL MAGAZINE
MAP M-3	VICINITY MAP - PORT CHICAGO NAVAL MAGAZINE
MAP M-4	BOUNDARY MAP - THREE SITES FORMERLY UTILIZED & EXCESSED
MAP M-5	1951 QUAD SHEET - PORT CHICAGO NAVAL MAGAZINE



PORT CHICAGO NAVAL MAGAZINE


PORT CHICAGO (CONCORD)
NAVAL WEAPONS STATION
PETALUMA
NOVATO
MARINWOOD
SAN RAFAEL
FAIRFAX
SAN ANSELMO
LARKSPUR
CORTE MADERA
MILL VALLEY
SAUSALITO
TIBURON
BELVEDERE
VALLEJO
BENICIA
FAIRFIELD
SUISUN CITY
SOLANO
COUNTY
AMERICAN CANYON
Cordelia
Fairfield
Green Valley
Cuttings Wharf
Schellville
Petaluma
Novato
Ignacio
Marinwood
Rodeo
Hercules
Pinole
Crockett
Port Costa
Martinez
Concord
Clyde
Shore Acres
West Pittsburg
Pittsburg
Antioch
Oakley
Knightsen
Brentwood
Discovery Bay
Byron
Clayton
Pleasant Hill
Walnut Creek
Lafayette
Orinda
Orinda Village
Moraga
Alamo
Diablo
Blackhawk
Danville
CONTRA COSTA COUNTY
San Pablo
El Sobrante
Richmond
El Cerrito
Kensington
Albany
Berkeley
Piedmont
Oakland
San Francisco
Alameda
San Leandro
Castro Valley
San Ramon
Dublin
Livermore
Pleasanton
Hayward
San Lorenzo
Union City
Fremont
Newark
Daly City
Pacifica
South San Francisco
San Bruno
Burlingame
San Mateo
Hillsborough
Montara
El Granada
Miramar
Half Moon Bay
Belmont
San Carlos
Redwood City
Atherton
Menlo Park
Palo Alto
East Palo Alto
Woodside
Portola Valley
Los Altos Hills
Los Altos
Mtn. View
Sunnyvale
Milpitas
Alviso
Santa Clara
Cupertino
San Jose
Campbell
Saratoga
Monte Sereno
Los Gatos
Skyland
San Gregorio
La Honda
Loma Mar
Pescadero
SAN MATEO COUNTY
SANTA CLARA COUNTY
Miles 5 10 mi.
N
© C.M.
M-2
LOCATION MAP
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO CALIFORNIA
NOT TO SCALE



M-3

VICINITY MAP
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO
CALIFORNIA

DIGITIZED FROM EXISTING MAPS

NOT TO SCALE

U.S. NAVAL MAGAZINE
PORT CHICAGO

SUISUN BAY

TIDAL AREA

R.2 W

R.1 W

SOUTHERN PACIFIC RAILROAD

ATCHISON TOPEKA AND SANTA FE

SACRAMENTO NORTHERN

CHEMICAL PLANT

FILTRATION PLANT

PORT CHICAGO

PORT CHICAGO HIGHWAY

SACRAMENTO NORTHERN

AQUEDUCT

FUDS AREA NO. 1
15 ACRES

CONTRA COSTA CANAL

CLYDE

FUDS AREA NO. 2
58.2 ACRES

MALLARD RESERVOIR

MOKELUMNE

BAY POINT AND CLAXTON

DIABLO CREEK GOLF COURSE

MEMORY GARDENS CEMETERY

STATE ROUTE 4

MONTE DEL DIABLO

NAVAL WEAPONS STATION CONCORD

AIRPORT (ABANDONED)

MONTE GARDENS SCHOOL

WILLOW PASS

FUDS AREA NO. 3
5 ACRES

DIGITIZED FROM EXISTING MAPS

LEGEND

- VISUAL SURVEY VICINITY
- FUDS AREAS

N

M-4

R.M.

FUDS BOUNDARY MAP
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

PROJ. DATE: JULY-1993	DATE OF MAP: 1959
01-AUG-1993 17:02	/D5/DEW3S/SITE11/QUAD/PORTCHI.DGN

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NAVAL RESERVATION

Port Chicago

Clyde

MALLARD RESERVOIR

SPILLWAY 33.6

MONTE ELDIO

NAVAL RESERVATION

R2W R1W

T. 2 N.

PACIFIC NORTHERN

CANAL

CONTRA COSTA AQUEDUCT

MOKELUMNE AQUEDUCT

INDUSTRIAL HIGHWAY

Creek

Water Tank

Siphon

Mt Diablo

BM 4

PITTSBURG 6.9 MI.
STOCKTON 51 MI.

SACRAMENTO 72 MI.

2'30"

TRUE NORTH
18°
MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 1950

SCALE 1:24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

2'30" R. 2 W. 1 560 000 FEET (3)

WALNUT CREEK 4.2 MI. CONCORD 1.9 MI.

PORT CHICAGO, CALIF.

SE/4 CARQUINEZ 15' QUADRANGLE

N3800—W12200/7.5

EDITION OF 1951 M-5

1951 QUAD
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO CALIFORNIA

NOT TO SCALE

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDICES

APPENDIX A

REFERENCES

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX A -- REFERENCES

A1. INPR REFERENCES.

A1.1 Dynamic Corporation.
1993. Defense Environmental Restoration Program - Port Chicago, January 1993.

A2. HISTORICAL REFERENCES.

A2.1 Unknown.
Unknown. Briefing Pamphlet, U.S. Naval Magazine Port Chicago, Concord, California. Museum, US Naval Weapons Station - Concord.

A2.2 Lafrenz, W. F.
1944. Application for Dangerous Cargo Operation Permit - Quinault Victory, 15 July 1944. RG 181 12ND COMDIS Office files, National Archives - San Bruno, San Bruno, CA.

A2.3 LaFrenz, W. F.
1944. Application for Dangerous Cargo Operation Permit - SS E. A. Bryan, 13 July 1944. RG 181, 12ND COMDIS Office Files, National Archives - San Bruno, San Bruno, CA.

A2.4 Moore, J. Oxley.
1953. U. S. Naval Magazine, N-CALIF-474, Port Chicago, California, December 22, 1953. RG 121, National Archives - San Bruno, San Bruno, CA.

A2.5 Unknown.
1961. Proposed Excess Land, GSA Control No N-Calif-758, 16 Oct 1961. RG 121, Box 68338, National Archives - San Bruno, San Bruno, CA.

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX A -- REFERENCES

A3. GEOTECHNICAL REFERENCES.

A3.1 Arkley, R.J.
1964. Soil Survey of the Eastern Stanislaus Area, California, U.S.D.A., Soil Conservation Service, 1964.

A3.2 Page, R.W.
1986. Regional Aquifer-System Analysis; Geology of the Fresh Ground-Water Basin of the Central Valley, California, with Texture Maps and Sections; U.S. Geological Survey Professional Paper 1401-C, 1986.

A3.3 Page, R.W.
1986. Regional Aquifer-System Analysis; Geology of the Fresh Ground-Water Basin of the Central Valley, California, with Texture Maps and Sections; U.S. Geological Survey Professional Paper 1401-C, 1986.

A3.4 Williamson, A.K., Prudic, D.E., and Swain, L.A.
1989. Regional Aquifer-System Analysis--Central Valley, California, Ground-Water Flow in the Central Valley, California, 1989.

A3.5 Thornbury, Wm. D.
UNK. Regional Geomorphology of the U.S., John Wiley & Sons, Inc.

APPENDIX B

ACRONYMS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX B -- ACRONYMS

ASR	Archive Search Report
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CEHND	Corps of Engineers, Huntsville Division
CSM	Chemical Surety Material
CWM	Chemical Warfare Material
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
EOD	Explosives Ordnance Disposal
EODCC	EOD Control Center
EPA	Environmental Protection Agency
ERDA	Environmental Restoration Defense Account
EROS	Earth Resources Observation Satellite
ESIC	Earth Science Information Center
FUDS	Formerly Used Defense Sites
FWS	U. S. Fish and Wildlife
GSA	General Services Administration
HTW	Hazardous and Toxic Waste
INPR	Inventory Project Report
IRP	Installation Restoration Program
MCP / MCX	Mandatory Center of Expertise
NCP	National Contingency Plan
NDDB	Natural Diversity Data Base
NGVD	National Geodetic Vertical Datum
NOFA	No Further Action
OEW	Ordnance and Explosive Waste
RAC	Risk Assessment Code
RG	Records Group
SARA	Superfund Amendments and Reauthorization Act
USACE	U.S. Army Corps of Engineers
USADACS	U.S. Army Defense Ammunition Center and School
USAEDH	U.S. Army Engineer Division, Huntsville, AL
USC	U.S. Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
WRNC	Washington National Records Center

APPENDIX C

REPORTS, STUDIES, LETTERS, MEMORANDUMS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX C

REPORTS/STUDIES/LETTERS/MEMORANDUMS

C1. INPR REFERENCES.

C1.1 Dynamic Corporation.
1993. Defense Environmental Restoration Program - Port Chicago, January 1993.

C2. HISTORICAL REFERENCES.

C2.1 Unknown.
Unknown. Briefing Pamphlet, U.S. Naval Magazine Port Chicago, Concord, California. Museum, US Naval Weapons Station - Concord.

C2.2 Lafrenz, W. F.
1944. Application for Dangerous Cargo Operation Permit - Quinault Victory, 15 July 1944. RG 181 12ND COMDIS Office files, National Archives - San Bruno, San Bruno, CA.

C2.3 LaFrenz, W. F.
1944. Application for Dangerous Cargo Operation Permit - SS E. A. Bryan, 13 July 1944. RG 181, 12ND COMDIS Office Files, National Archives - San Bruno, San Bruno, CA.

C2.4 Moore, J. Oxley.
1953. U. S. Naval Magazine, N-CALIF-474, Port Chicago, California, December 22, 1953. RG 121, National Archives - San Bruno, San Bruno, CA.

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX C

REPORTS/STUDIES/LETTERS/MEMORANDUMS

C2.5 Unknown.

1961. Proposed Excess Land, GSA Control No N-Calif-758, 16 Oct 1961. RG 121, Box 68338, National Archives - San Bruno, San Bruno, CA.

C3. SITE VISITS.

C3.1 SAFETY INSPECTION SAFETY PLAN.

C3.2 SITE VISIT TRIP REPORT.

C4. ENDANGERED OR THREATENED SPECIES.

C5. ADDITIONAL REPORTS, STUDIES, LETTERS, AND MEMORANDUMS, NOT OFFICIALLY INCLUDED IN THE BODY OF THIS REPORT.

Bound with a separate Table of Contents.

Appendix C1

INVENTORY PROJECT REPORT

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
FORMERLY USED DEFENSE SITES

PORT CHICAGO
CONTRA COSTA COUNTY, CALIFORNIA

SITE NO. J09CA102200

Prepared for:

SACRAMENTO DISTRICT, CORPS OF ENGINEERS
1325 J Street
Sacramento, CA 95814-4794

Prepared by:

DYNAMAC CORPORATION
10365 Old Placerville Road
Suite 230
Sacramento, CA 95827

JANUARY, 1993

SITE SURVEY SUMMARY SHEET
FOR
DERP-FUDS SITE NO.
PORT CHICAGO
CONTRA COSTA COUNTY, CA
SITE NO. J09CA102200

SITE NAME(S): The site was known as Port Chicago and U. S. Port Chicago Naval Magazine, CA.

LOCATION: The site is located in Contra Costa County approximately 5 miles east-northeast from the town of Clyde, California. See Figure 1.

SITE HISTORY: Between 1967 and 1975, the Navy acquired 4,764.93 fee acres between purchase and condemnation. Total acreage acquired for the site was 4,764.93. In 1972, 15.00 fee acres were reported excess to General Administration Services. The 4,764.93 acres were used as an off-site component to Concord Naval Weapons Station. Improvements consisted of administrative buildings, railroad, ammo piers, scrap yard, magazine storage, smoke stacks, oil storage, gas station, etc. Improvements to the 15.00 fee acres comprising the site consisted of fencing on the south and east sides.

SITE VISIT: A site visit was conducted on 6 November 1992 by Mr. Mark Melani of Dynamac Corporation. He met Mr. Richard Pieper, Director, Facilities Division Naval Weapons Station, Concord, at the site. Mr. Pieper provided facility plans and current and historical information about the site and surrounding area.

The 15.00 acre site is located adjacent to Suisun Bay in Contra Costa County. The site has been and currently is being used as leased agricultural land for cattle grazing. The site and surrounding land was acquired by DoD to serve as an explosion buffer. Improvements on-site were limited to perimeter fences on the south and east sides of the site.

The Contra Costa County Assessors office was visited and records were reviewed concerning site ownership. The 15.00 fee acres are not recorded as a parcel. The 15.00 fee acres are located in two parcels: APN# 99-11-09, 0.05 acres and APN# 99-11-22, 65.25 acres. Both of these parcels have been in continuous ownership by the Navy since 24 December 1968.

Ms. Bobby Smith, Regional Water Quality Control Board area engineer for the site area was contacted. The only area of concern in the vicinity of the site is the tidal area of the Concord Naval Weapons Station. (The 15-acre site is not a part of the tidal area). The tidal area is currently undergoing site characterization under a Navy Clean contract. Four areas of initial concern have been identified; Tidal area landfill, R area disposal area, Froid

Road and Taylor Road sites, and the Wood Hogger site. Additionally, they are trying to locate two box cars of unexploded ordinances within the tidal area. Initial characterization has detected heavy metals, pesticides, oil, grease, diesel and gasoline. Since the tidal area is predominately wetlands and non-human receptors are the primary concern cleanup levels are expected to be very low. The 15-acre site is at an elevation approximately 60 feet higher and is located approximately one-half mile southeast of the tidal areas.

The State of California Hazardous Waste and Substances list (Cortese, November 1990) was examined. The Concord Naval Weapons Station, Port Chicago Highway was included as a DHS5 site. DHS5 sites are sites included under the Hazardous Substances Cleanup Bond Act.

CATEGORY OF HAZARD: None identified.

PROJECT DESCRIPTION: NOFA

AVAILABLE STUDIES AND REPORTS: None available.

PA POC: Larry Bergmooser, CESPK-ED-E, US Army Corps of Engineers, Sacramento District, 916-557-7671.

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
FORMERLY USED DEFENSE SITES
FINDINGS AND DETERMINATION OF ELIGIBILITY
PORT CHICAGO
CONTRA COSTA COUNTY, CALIFORNIA
SITE NO. J09CA102200

FINDINGS OF FACT

1. Between 1967 and 1975, the United States (U.S.) acquired 4,764.93 fee acres by purchase and condemnation. Total acreage acquired for the site was 4,764.93.

2. The site was known as Port Chicago and U. S. Port Chicago Naval Magazine, CA. It is situated in Contra Costa County, CA. The Navy used the site to load magazines on ships. The site was an off-site component to Concord Naval Weapons Station. Improvements consisted of administrative buildings, railroad, ammo piers, scrap yard, magazine storage, smoke stacks, oil storage, gas station, etc.

3. In 1972, 15.00 fee acres were reported excess to General Administration Services. The remaining 4,749.93 fee acres are owned by the U. S. and currently known as Port Chicago.

DETERMINATION

Based on the foregoing findings of fact, the 15.00 acre Port Chicago site has been determined to be formerly used by the DoD. Therefore, it is eligible for funding under the Defense Environmental Restoration Program for Formerly Used Defense Sites established under 10 USC 2701 et seq.

DATE

MILTON HUNTER
Brigadier General, U.S. Army
Army Commanding

PHOTOGRAPHIC LOG

SUBJECT: Defense Environmental Restoration Program (DERP)
Port Chicago

SITE NO.: J09CA102200

PHOTOS: November 1992
Mark Melani

PHOTO NO:	DESCRIPTION
1.	View to the north of the western portion of the site. Site in foreground, high security, weapons manufacturing area and ordinance loading area, and Suisun Bay in background.
2.	View to the north-northeast. Site in foreground with private residence, and Suisun Bay in the background.

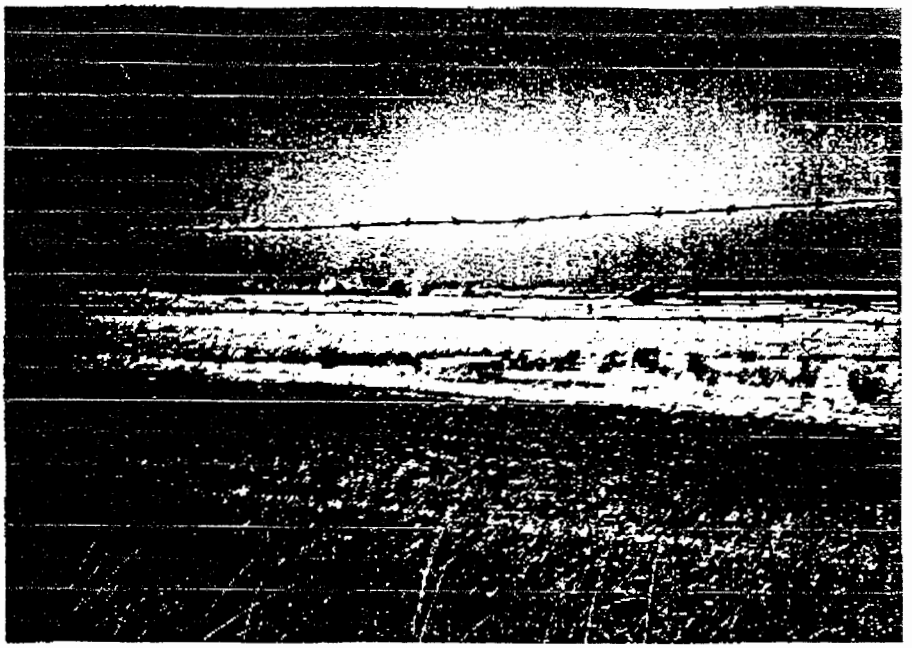


PHOTO 1

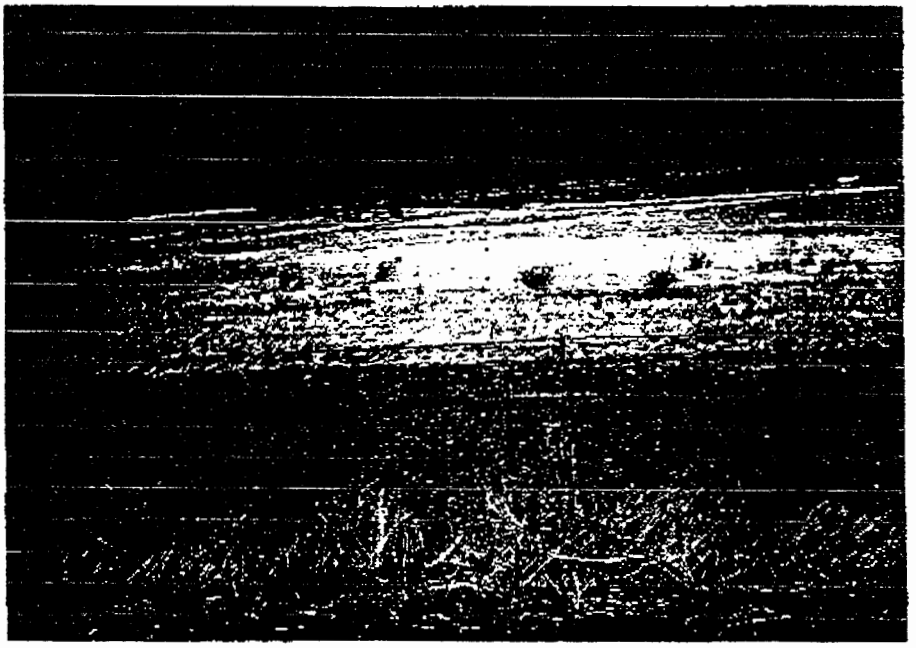


PHOTO 2

Appendix C2.1

BRIEFING PAMPHLET

USNWS Concord

BRIEFING PAMPHLET

U.S. NAVAL MAGAZINE
PORT CHICAGO
CONCORD, CALIFORNIA

GENERAL INFORMATION

The U. S. Naval Magazine Port Chicago, Concord, California, a Bureau of Ordnance activity, is the principal ammunition transshipment facilty on the west coast. Serving the Armed Forces in the Pacific, this Station is a vital cog in delivering ammunition overseas.

Encompassing 6,575.8 acres and an estimated replacement value of more than $100,000,000, the station consists of a tidal and inland area connected by a government-owned railway and a military highway. Located in central Contra Costa County in the shadow of picturesque Mt. Diablo, the Naval Magazine Port Chicago is approximately 3 miles north of Concord and 7 miles east of Martinez, the county seat. San Francisco is about 35 miles southwest of the station.

The tidal area is on the south shore of Suisun Bay, immediately north of the town of Port Chicago. It contains 3 piers of two berths each and is the heart of the Station's operations. It is adjacent to two transcontinental railways and a good all-weather highway system. The area is bounded on the south by a county highway and the Santa Fe and Southern Pacific railroads; on the east and west by a tule-peat marsh.

The inland area is approximately three miles south and east of the tidal area. It's most inland depth reaches to within five miles of majestic Mt. Diablo. It is bounded on the north by a natural barricade of sandstone hills, on the south by agricultural lands and the City of Concord, on the east by agricultural lands, and by the Concord-Port Chicago Highway on the west. A mild climate, lacking in extreme changes of temperature is characteristic of the area and the average annual temperature is 58 degrees.

The mission of the Naval Magazine Port Chicago is to serve as the major west coast transshipment point for all the armed services; to provide in-transit storage for ammunition in railcars and trucks; and to maintain basic stocks of Navy ammunition.

The Station's peacetime operations budget is approximately $6,500,000. Nine hundred civilians are employed in addition to a complement of 250 military personnel.

MISCELLANEOUS STATISTICS

Barricades for storage of explosive ammunition

Tidal	40
Inland	41
Railcar capacity	509

Magazines, Inland

Gun ammunition magazines	116
High explosive magazines	78
Inert magazines	14

Magazines, Tidal

Inset magazines	50

Class Yards (for storage of explosive loaded railcars)

Class Yard #1	Capacity - 161 railcars
Class Yard #2	Capacity - 125 railcars
Class Yard #3	Capacity - 276 railcars

Roads

Paved	60 miles

Permanent Type Buildings

Inland	65
Tidal	53

HISTORICAL BACKGROUND

Establishment of an ammunition shipping point somewhere on the San Francisco Bay had been under consideration as far back as 1927. Along with the proposed construction of the Naval Ammunition Depot at Hawthorne, Nevada, it was recommended that provisions be made for in-transit storage of high explosives, including appropriate rail facilities and a deep water pier.

With the advent of the war in the Pacific, the inadequacy of west coast shipping facilities for transshipment of large quantities of ammunition soon became evident. Using commercial ports in the Bay Area was considered too hazardous, so a separate facility became a must. Three days after the Pearl Harbor attack, recommendations were made to locate the much needed installation at a site adjacent to the town of Port Chicago. The Secretary of the Navy approved the undertaking in the middle of January, 1942.

The site chosen encompassed 640 acres, mostly salt marsh lying between the northern end of the Mt. Diablo range and tide water. The chief advantage of this location was its isolation from other commercial ports, a natural deep water channel that would accommodate deep draft vessels, and excellent transcontinental railroads adjacent to the site.

Initial plans for the development of shipping at Port Chicago called for wharfage space for six liberty ship berths. By early 1942, two berths had already been constructed. The second stage of the Station's expansion began in February, 1944, with the construction of an additional two-berth pier with approach levels and utility buildings. The construction was doomed to disaster however, when a commercial ship loading ammunition, berthed at the first pier, blew up, destroying all wharfage that existed or was under construction.

A new contract was immediately negotiated to rehabilitate the Station, and the old pier site was abandoned and two new piers were built. Later, the function of the third pier was replaced by another pier in a new location.

Following the expansion of berthing capacity came the corresponding increase in yard trackage, auxiliary buildings, barricaded sidings and storage magazines.

In order to provide necessary back-up storage for Navy ammunition for issue to combatant vessels and for emergency issue to the fleet, it was necessary to procure 5000 acres for inland magazine storage areas.

The beginning of 1945 found war materials being rushed to the Pacific in ever increasing amounts. Port Chicago was being expanded far beyond

the original plans, and further development of the inland area was being accomplished. Additional barricaded sidings and magazines were built to bring the storage facilities into suitable balance with the six berths at the piers in the tidal area. Most of the construction that was started in the early part of 1945 was completed even though the war with Japan ended in August.

In the years following World War II, throughout the Korean conflict, to the present time, the Station continued to acquire more permanent type structures, including a multi-million dollar Quality Evaluation Laboratory, Electric Shop, Transshipment Depot, Field Office and Ammunition Rework Building. At the time new buildings were being constructed, older temporary structures in the tidal area were being torn down.

Today, the Naval Magazine Port Chicago proudly points to a record of service to the armed forces overseas. Although comparatively young from the standpoint of years, the Station has played a major role in two wars and is continuing to service our fighting forces in the Pacific area by keeping them supplied with serviceable ammunition at all times. During the Korean incident, the Station outloaded about 75% of the total ammunition used by the armed forces in the Pacific.

Appendix C2.2

APPLICATION FOR DANGEROUS CARGO OPERATION PERMIT
QUINAULT VICTORY

CONFIDENTIAL

APPLICATION FOR DANGEROUS CARGO OPERATION PERMIT

CONFIDENTIAL

15 JULY 1944
(Date)

To: Captain of the Port
Room 503, Custom House
San Francisco, California

1. Permission is hereby requested to load dangerous cargo aboard the

SS QUINAULT VICTORY - P-144 *(Name of Vessel)*	US *(Registry)*
WSA *(Owner)*	UNKNOWN *(Master)*
US LINES *(Operator)*	NONE *(Charterer)*
US LINES *(Agent)*	NAVY *(Allocated)*

starting SEE ADJACENT *(Time and Date)* at PORT CHICAGO - 7/17 *(Pier or Anchorage)*

2. In support of this request, attached hereto is cargo stowage plan and manifest of entire dangerous and hazardous cargo. Compliance with the "Regulations Governing Transportation of Military Explosives on Board Vessels During Present Emergency"dated 1 October, 1942 (F.R. Vol. 7, No. 195, Page 7846, October 3,1942)and the "Regulations Governing Security of Ports and the Control of Vessels in the Navigable Waters of the United States" dated 5 October,1942, (F.R.Vol. 7, NO.200, Page 8026,October 10, 1942) is made a condition of the request.

3. As provided in Section 146.29-25(b) of the above quoted regulations, dated 1 October, 1942, a Coast Guard explosives loading detail is not declined.

NOTE: Only commanding officers of facilities under the direct control and operation of the Navy or Army may decline Coast Guard explosives loading details.

(Signature)

W. F. LAFRENZ, Captain USN(Ret)
(Title)

Assistant Port Director
TWELFTH NAVAL DISTRICT
(Unit or Company)

SAN FRANCISCO, CALIFORNIA

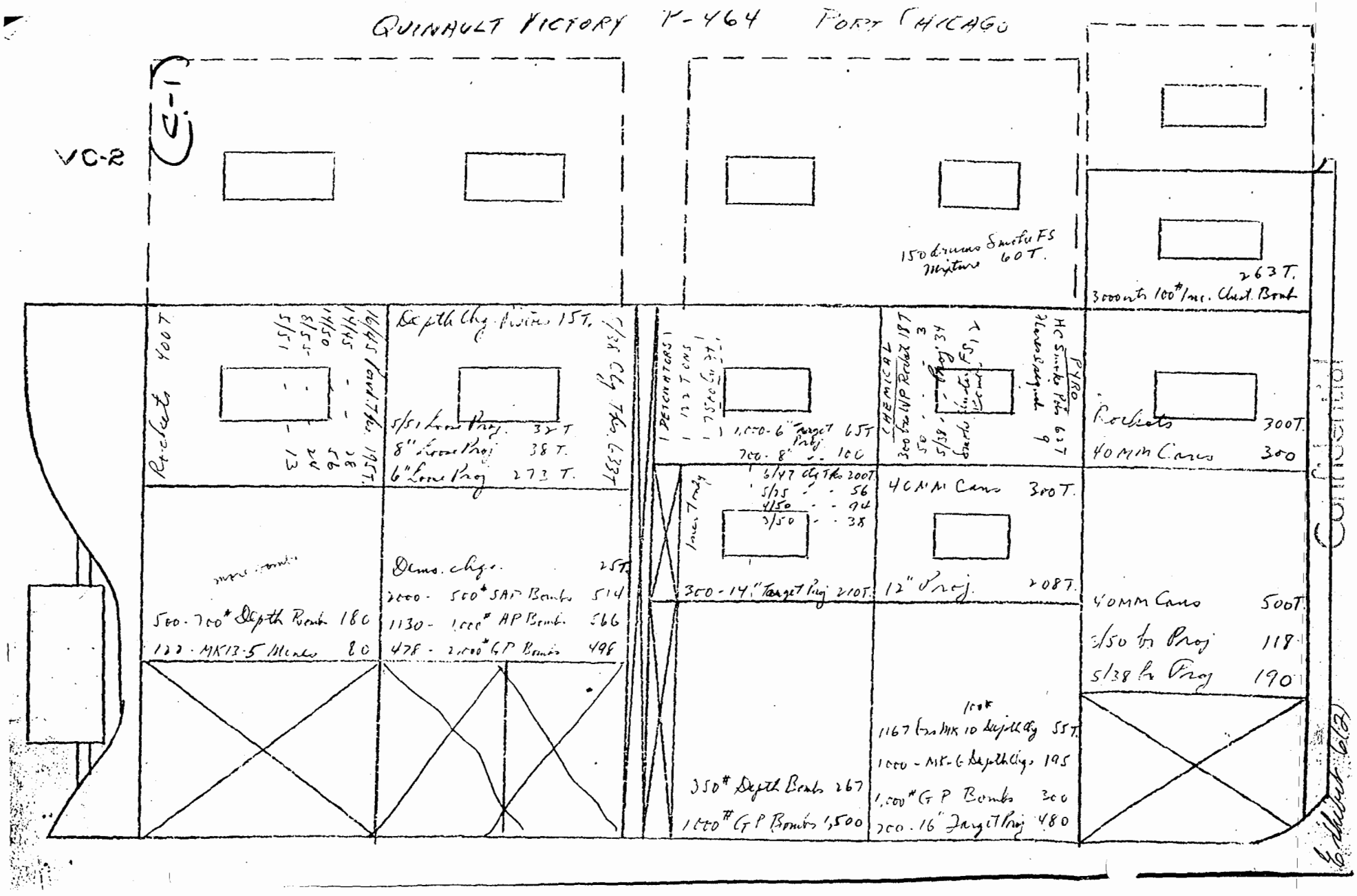
Inclosures: (1) Manifest of Dangerous Cargo for the SS QUINAULT VICTORY
(Name of Vessel)

(2) Proposed Stowage Plan for the SS QUINAULT VICTORY
(Name of Vessel)

NOTE: Section 146.29-24 of the above regulations dated 1 October, 1942, states: "The owners, charterers, agents or master of a vessel or other person shall not accept on board a vessel any military explosives, as cargo, until a permit authorizing such loading has been granted by the Captain of the Port".

Exhibit 60

Confidential



(C-2)

P-464 (FC-79) LOAD FOR IRON-68 AT NAVAL MAGAZINE PORT CHICAGO 7-16/7-26-44

FROM NAD HAWTHORNE

NO. KGS	TYPE PKGS	NO. RDS	MATERIAL	BOSO	WEIGHT	CUBE
2,000	Pcs	2,000	500-Lb SAP Bomb, AN-M58A1	83356	514.	15,800.
2,000	Crates	2,000	AN-M58A1 Fin Assemblies		23.	2,740.
2,4[illegible]	[illegible]	2,481	1000-Lb GP Bomb, AN-M65 (2,400 Coming From Umatilla)		1,281.4	4,367.
2,481	Crates	2,481	AN-M65 Fin Assemblies		54.6	9,651.
500	Pcs	500	1000-Lb AP Bomb, AN-MK 33		250.5	2,645.
500	Crates	500	AN-MK 33 Fin Assemblies		8.3	750.
478	Pcs	478	2000-Lb GP Bomb, AN-M66		498.	15,774.
478	Crates	478	AN-M66 Fin Assemblies		19.6	3,633.
385	Boxes	9,625	AN-M103 Nose Fuze		27.	787.
168	Boxes	4,200	AN-M100A2 Tail Fuze		10.3	520.
84	Boxes	2,100	AN-M101A2 Tail Fuze		5.4	294.
131	Boxes	3,275	AN-M102A2 Tail Fuze		10.	524.
126	Boxes	502	AN-MK 230 Hydrostatic Fuze		5.7	214.
14	Boxes	1,345	M14 Primer Det, Non-Delay		.4	12.
14	Boxes	1,345	M14 Primer Det, .1 Sec. Delay		.4	12.
14	Boxes	1,345	M14 Primer Det, .01 Sec. Delay		.4	12.
11	Boxes	1,050	M14 Primer Det, .025 Sec. Delay		.3	9.
8	Boxes	40	M2A1 Trunnion Band		.4	71.
200	Boxes	1,000	M4 Trunnion Band		4.8	780.
17	Boxes	83	M5 Trunnion Band		.7	126.
		19,800	Navy Arming Wire Assembly, .064" Diam			
		39,600	Fahnestock Safety Clips			
1,000	Pcs	1,000	1000-Lb GP Bomb, AN-M65	79858	516.5	17,600.
1,000	Crates	1,000	AN-M65 Fin Assemblies (AN-M65 Bombs and Fins Coming From Umatilla)		22.	5,890.
900	Boxes	4,500	M1A1 Trunnion Band		33.3	4,680.
400	Boxes	2,000	M4 Trunnion Band		9.6	1,560.
182	Boxes	4,550	AN-M103 Nose Fuze		12.64	369.46

Exhibit 6(3)

P-464 LOAD FOR IRON-68 CONT'D

Confidential

FROM NAD HAWTHORNE

NO. PKGS	TYPE PKGS	NO. RDS	MATERIAL	BOSO	WEIGHT	CUBE
42	Boxes	1,050	AN-M102A2 TAIL Fuze	79858	3.21	168.
75	Boxes	7,500	M14 Primer Det, .01 Sec. Delay		2.36	60.75
45	Boxes	4,500	M14 Primer Det, .025 Sec. Delay		1.4	36.45
200	Crates	200	AN-Mk 41/47 Fin Assemblies		4.3	696.
500	Crates	500	AN-M64 Fin Assemblies		5.25	800.
		105,000	Fahnestock Safety Clips			
100	Crates	100	M-25 100-Lb Smoke Clusters	83984	11.5	309.
334	Boxes	1,002	HC M-1 Smoke Pot	83971	8.4	360.72
750	Boxes	3,000	HC Mk 3 Smoke Pot		53.25	1,950.
160	Pcs	160	8" AP Proj, Mk 21 Mods, Orange	80416	26.8	272.
65	Pcs	65	8" AP Proj, Mk 21 Mods, Blue		10.9	111.
236	Tanks	118	8"/55 Chgs, 2800 FS		7.9	496.
756	Pcs	756	6" AP Proj, Mk 35 Mods, Blue		49.1	605.
578	Pcs	578	6" AP Proj, Mk 35 Mods, Green		37.6	462.
680	Pcs	680	6" AP Proj, Mk 35 Mods, Red		44.2	544.
486	Pcs	486	6" AP Proj, Mk 35 Mods, White		31.6	389.
2,105	Pcs	2,105	6" HC Proj, Mk 34 Mods		110.5	1,684.
941	Tanks	941	6"/47 Flashless Ctg		39.2	2,447.
2,824	Tanks	2,824	6"/47 Non-Flashless Ctg		117.9	7,343.
31	Pcs	31	5"/51 Flashless Service Ctg		.73	37.
542	Tanks	542	5"/51 Service Chgs, 3000 FS		12.7	650.
613	Boxes	1,225	5"/38 Common Proj, Mk 32, 38 Mods, Orange		41.	920.
719	Boxes	1,438	5"/38 Common Proj, Mk 32, 38 Mods, Blue		48.48	1,079.
800	Boxes	1,600	5"/38 Common Proj, Mk 32, 38 Mods, Green		53.6	1,200.
682	Boxes	1,363	5"/38 Common Proj, Mk 32, 38 Mods, Red		45.66	1,023.
1,043	Tanks	1,043	4"/50 Common, Flashless		46.9	1,565.
1,043	Tanks	1,043	4"/50 Common, Non-Flashless		46.9	1,565.
134	Boxes	3,200	Point Detonating Fuze, Mk 29 Mod 2 or 3		4.79	174.
125	Boxes	3,000	Mechanical Time Fuze, Mk 18 Mod 2, 3 or 4		3.38	250.
9,500	Tanks	9,500	5"/38 Flashless Ctg	79816	178.1	13,300.
24,250	Tanks	24,250	5"/38 Non-Flashless Ctg		454.75	33,950.

Exhibit 6(4)

P-464 LOAD FOR IRON-68 CONT'D

FROM NAD HAWTHORNE

NO. KGS	TYPE PKGS	NO. RDS	MATERIAL	NOSO	WEIGHT	CUBE
400	Tanks	200	16"/45 Chgs, 1800 FS	AO 4264	78.	4,280.
750	Tanks	300	16"/45 Chgs, 2000 FS	AO 7916	117.	6,225.
400	Tanks	200	14"/50 Chgs, 2000 FS	AO 4268	56.	2,640.
400	Tanks	200	8"/55 Chgs, 2000 FS	AO 7916	16.	840.
1,000	Tanks	1,000	6"/47 Ctg, 2050 FS	AO 16340	42.5	2,600.

FROM NAD MARE ISLAND

200	Pcs	200	16" Target Projs, 2700-Lb	AB 7917	270.	2,000.
300	Pcs	300	14" Target Projs	AO 7917	210.	2,100.
200	Tanks	100	14"/45 Chg, 2000 FS	AO 11908	28.	1,320.
200	Pcs	200	8" Target Projs, 335-Lb	AO 4797	33.5	340.
500	Pcs	500	8" Target Projs, 260-Lb	AO 5880	65.	800.
1,000	Pcs	1,000	6" Target Projs, 130-Lb	AO 7917	65.	800.

FROM NAD PUGET SOUND

200	Pcs	200	16" Target Projs, 2100-Lb	AO 4263	210.	2,000.

FROM NAD CRANE, IND.

200	Pcs	200	12" AP Proj, Mk 18 Mods	80417	114.	1,140.
200	Pcs	200	12" HC Proj, Mk 17 Mods		94.	1,140.

FROM NAD HAWTHORNE

500	Boxes	1,000	5"/38 WP Projs	83929	33.5	750.
937	Boxes	3,748	3"/50 AP, Flashless		58.56	1,687.
1,252	Tanks	1,252	3"/50 AP, Flashless		18.78	1,127.
937	Boxes	3,748	3"/50 AP, Non-Flashless		58.56	1,687.
1,252	Tanks	1,252	3"/50 AP, Non-Flashless		18.78	1,127.

FROM NAD CRANE, IND.

3,000	Crates	3,000	100-Lb Incendiary Cluster, AN-M6	83355	262.5	12,000.

FROM NAD HASTINGS

1,698	Pcs	1,698	350-Lb Depth Bomb, Mk 54	83359	267.4	5,467.
1,698	Crates	1,698	Mk 54 Fin Assemblies		34.4	5,145.

FROM NAD PUGET SOUND

630	Pcs	630	1000-Lb AP Bomb, AN-Mk 33	83358	315.6	3,332.
630	Crates	630	AN-Mk 33 Fin Assemblies		10.4	945.

Exhibit 6(5)

Confidential

E-464 LOAD FOR IRON-68 CONT'D

FROM NAD MC ALESTER, OKLA.

NO. PKGS	TYPE PKGS	NO. RDS	MATERIAL	BOSO	WEIGHT	CUBE
500	Pcs	500	700-Lb Depth Bomb, Mk 49	83357	180.	5,530.
500	Crates	500	Mk 49 Fin Assemblies		18.7	3,000.
			FROM NAD FALLBROOK			
100	Crates	500	M5 Trunnion Bands	79863	4.05	743.
800	Crates	4,000	M2A1 Trunnion Bands		39.2	7,120.
		500	15" Trunnion Bands			
50	Boxes	5,000	M14 Primer Det, Non-Delay		1.5	41.
75	Boxes	7,500	M14 Primer Det, .01 Sec. Delay		2.36	60.75
			FROM NAD HAWTHORNE			
1,000	Pcs	1,000	Mk 6 Depth Chgs Complete	81777	195.	5,300.
100	Boxes	1,000	Mk 6 Depth Chg Pistols		11.5	3,600.
1,000	Cans	1,000	Mk 6 Depth Chg Booster & Extender		7.5	300.
168	Boxes	1,000	Mk 1 Mod 1 Detonators		.08	16.8
			FROM NAD CRANE			
1,167	Boxes	3,500	Mk 10 Depth Chgs, TNT Ldd	81778	55.4	2,450.
71	Boxes	1,700	Mk 8 Depth Chg Pistol, 11 Sec. Delay		1.7	163.
24	Boxes	900	Mk 8 Depth Chg Pistol, 16 Sec. Delay		.9	55.
24	Boxes	900	Mk 8 Depth Chg Pistol, 22 Sec. Delay		.9	55.
		200	Empty Wooden Stowage Boxes			
			FROM NAD PUGET SOUND			
896	Pcs	896	5"/51 HC Proj, Mk 39 Mods	83931	31.36	1,344.
			FROM NAD MARE ISLAND			
5	Boxes	5,000	Lock Combination Primer, Mk 15-1	83930	.29	12.
10	Boxes	1,000	Mk 1 False Target Shell	85214	.25	15.
834	Boxes	200,000	Type D Starter Ctg	83974	18.3	2,001.6
150	Drums	112,500	Lbs FS Smoke Mixture		60.	1,950.
			FROM NAD HAWTHORNE			
139	Boxes	20,000	AN-M44 Single Star Para Flare, Y	77660	5.2	390.59
1,350	Boxes	2,700	7.2 Rocket Body, Mk 5, TNT Ldd	83990	94.5	3,240.
334	Boxes	2,700	2.25 Rocket Motor, Mk 3		20.04	1,570.
113	Boxes	2,700	Mk 131 Mod 3 Fuze		5.37	283.

Exhibit 6(6)

Confidential

Confidential

FROM NAD HAWTHORNE

NO. PKGS	TYPE PKGS	NO. RDS	MATERIAL	NOSO	WEIGHT	CUBE
2,825	Boxes	11,300	3.25 Rocket Motor, Mk 7	75672	266.	12,713.
3,750	Boxes	7,500	5.0 Rocket Body, Mk 1, TNT Ldd		225.	5,625.
700	Boxes	2,800	3.5 Rocket Body, Mk 2, Solid		34.	875.
500	Boxes	1,000	5.0 Rocket Body, Mk 1, Plaster Ldd		30.	750.
313	Boxes	7,500	Mk 148 Fuze		8.	282.
50	Boxes	200	4.5 Rocket Body, Mk 7, WP Ldd	82501	2.5	75.
1	Box	200	Burster Tube for 4.2 Chem Mortar		.07	1.5
100	Boxes	800	2.25 Rocket Motor, Mk 9		4.5	217.
32	Boxes	800	Mk 137 Mod 1 Fuze		1.	35.
			FROM NAD MARE ISLAND			
150	Boxes	600	4.5 Rocket Body, Mk 7, FS Ldd	82502	7.5	225.
			FOR 5TH PHIBCORP			
300	Boxes	600	7.2 Rocket Body, Mk 7, FS Ldd	45439	17.25	720.
150	Boxes	600	3.25 Rocket Motor, Mk 5		9.	732.
24	Boxes	600	Mk 137 Mod 1 Fuze		.5	22.
			FROM NAD FALLBROOK			
1,000	Boxes	(4,000	2.25 Rocket Body, Mk 1)	75673	32.	2,170.
		(	)			
		(4,000	2.25 Rocket Motor, Mk 12)			
			FROM NAD HAWTHORNE, FOR FRAY 70-75			
868	Boxes	868	Demolition Chg, Mk 14	47671	24.	1,302.
14	Boxes	14	Demolition Chg, Mk 9		.7	25.
14	Boxes	56	Demolition Chg, Mk 18		.1	17.
1	Box	112	Electric Blasting Caps		.02	1.
7	Boxes	7	Pyrotechnic Outfits for Mk 114 Outfit		.75	
		16	Mk 143 Mod 1 Fuze		.02	
		6	M.D. 1 Assemblies			
			FROM NAD MARE ISLAND			
1,200	Tanks	1,200	5"/25 HC Flashless Ctg	78387	56.4	2,040.
34	Boxes	204	Mk 8 Mod 1 A/C Para Flare	74413	2.7	187.

Exhibit 6(7)

Confidential

F-464 LOAD FOR IRON-68 CONT'D

Confidential

FROM NAD HAWTHORNE

NO. PKGS	TYPE PKGS	NO. RDS	MATERIAL	BOSO	WEIGHT	CUBE
		72	Mk 13-5 Mines Complete With all Spare Parts and Accessories	76223	47.5	2,160.
		50	Mk 18-5 Mines Complete With all Spare Parts and Accessories	76224	33.	1,500.
12,500	Boxes	200,000	40MM CTG, H.E. Plugged	83305	718.75	22,500.
6,250	Boxes	100,000	40MM Ctg, H.E. S.D.		359.37	11,250.
				TOTAL:	9,922.81	329,424.62

Exhibit 6(8)

Confidential

NOTE: A VESSEL LADEN WITH EXPLOSIVES MUST BE ABLE TO MANEUVER UNLESS TUGS ARE IN ATTENDANCE.

NAVY DEPARTMENT
UNITED STATES COAST GUARD
Twelfth Naval District

(D)

Captain of the Port
Room 503, Custom House
San Francisco, California

CONFIDENTIAL

15 July, 1944
(Date)

PERMIT TO LOAD OR UNLOAD EXPLOSIVES OR OTHER DANGEROUS CARGO

To: United States Lines Co.
222 Sansome Street
San Francisco, California

In compliance with the request contained in your application of 15 July, 1944 signed by Lt. Comdr. F. J. Waugh, USNR for Capt. W. F. LaFrenz, USN (Ret), Assistant Port Director, 12th Naval District

permission is hereby granted the below named vessel to LOAD - ~~UNLOAD~~ dangerous cargo

on 17 July, 1944 until completed at Naval Magazine, Port Chicago, California

Vessel SS QUINAULT VICTORY Registry U.S.

Owner War Shipping Administration Master Captain Sullivan

Operator U. S. Lines Co. Charterer -

Agent U. S. Lines Co. Allocated to the Navy

CARGO DESCRIPTION: Military ammunition and explosives per manifest and stowage plan that were made part of application herein referred to

Compliance with the "Regulations Governing Transportation of Military Explosives on Board Vessels During Present Emergency" dated 1 October, 1942 (F.R. Vol. 7, No. 195, Page 7846, October 3, 1942) and the "Regulations Governing Security of Ports and the Control of Vessels in the Navigable Waters of the United States" dated 5 October, 1942 (F.R.Vol. 7, No. 200, Page 8026, October 10, 1942) is made a condition of this permit. Other conditions are: As provided in Section 146.29-25(b) of the within quoted regulations dated 1 October, 1942, a Coast Guard detail is declined. (Reference is made to ltr. from Commanding Officer, NAD, Mare Island, California to Captain of the Port, 1 November, 1943.)

This permit shall be kept on board vessel until this cargo is discharged.
This permit is valid only for the time shown herein. In case you desire to change the movement of the foregoing explosives or ammunition, communicate with the office of the Captain of the Port.

Master SS QUINAULT VICTORY
Port Director's Office
CO-Naval Magazine, Port Chicago
cc Lt. Comdr. Shepard
Vessel Control
Vessel Security
Waterfront Security

A. J. DI ROCCO
Ensign, USCGR
For: P. B. CRONK
Commander, U.S.C.G.
Captain of the Port

Exhibit 6(9)

Confidential

Appendix C2.3

APPLICATION FOR DANGEROUS CARGO OPERATION PERMIT
SS E. A. BRYAN

ANP 14KK js (a)

APPLICATION FOR DANGEROUS CARGO OPERATION PERMIT

CONFIDENTIAL Confidential 13 July 1944 (a)
(Date)

To: Captain of the Port
Room 503, Custom House
San Francisco, California

1. Permission is hereby requested to load dangerous cargo aboard the

SS E. A. BRYAN (Name of Vessel)	US (Registry)
WSA (Owner)	J. M. HENRICKSON (Master)
OLIVER J. OLSON (Operator)	NONE (Charterer)
SAME (Agent)	U S NAVY (Allocated)

starting See Adjacent (Time and Date) at Port Chicago----------7/13
Berr #4----------7/22 (Pier or Anchorage)

2. In support of this request, attached hereto is cargo stowage plan and manifest of entire dangerous and hazardous cargo. Compliance with the "Regulations Governing Transportation of Military Explosives on Board Vessels During Present Emergency"dated 1 October, 1942 (F.R. Vol. 7, No. 195, Page 7846, October 3,1942)and the "Regulations Governing Security of Ports and the Control of Vessels in the Navigable Waters of the United States" dated 5 October,1942, (F.R.Vol. 7, NO.200, Page 8026,October 10, 1942) is made a condition of the request.

3. As provided in Section 146.29-25(b) of the above quoted regulations, dated 1 October, 1942, a Coast Guard explosives loading detail is not declined.
~~is not declined~~

NOTE: Only commanding officers of facilities under the direct control and operation of the Navy or Army may decline Coast Guard explosives loading details.

(Signature)

N. F. LA FRENZ, Captain, USN (Ret.)
(Title)
Assistant Port Director
TWELFTH NAVAL DISTRICT
(Unit or Company)
SAN FRANCISCO, CALIFORNIA

Inclosures: (1) Manifest of Dangerous Cargo for the LT. COMDR. SHEPARD (Name of Vessel)
(2) Proposed Stowage Plan for the LT. COMDR. SHEPARD (Name of Vessel)

NOTE: Section 146.29-24 of the above regulations dated 1 October, 1942, states: "The owners, charterers, agents or master of a vessel or other person shall not accept on board a vessel any military explosives, as cargo, until a permit authorizing such loading has been granted by the Captain of the Port".

Exhibit 7 (1) Confidential

(a-2)

CONFIDENTIAL

Port Chicago Operation - Deck load Park #4

Proposed STOWAGE PLAN

VESSEL E. A. Bryan

START Port Chicago 12 July SAILED FROM

MASTER

NAVY DEPARTMENT
UNITED STATES COAST GUARD
SAN FRANCISCO, CALIFORNIA

Information hereon phoned to Lt. Morey at Port Chicago 0900 13 JUL ARF.

CONFIDENTIAL

CAPTAIN OF THE

WAIVERS See bottom remarks in Notes DANGEROUS CARGO COM

Smoke Screen Generators

F.S. Smoke Mixture

Verbal Approval of C.O.T.P. to H.H.C. to A.R.F. 0815a 13 July ARF

8'

Fuses

5"-38-25 Cal

Fixed and Semi-Fixed

8'

F.S. Smoke Rockets

8'

5"-38 and 25 Cal

Fixed and Semi-Fixed

5"-38 and 25 Cal

Fixed and Semi-Fixed

Smoke Pots - Floats

Signal Pyrotechnics

5"-38 and 25 Cal

Fixed and Semi-Fixed

3"-50 Cal Fixed

Rockets TNT

Tailvanes

Tailvanes

Tailvanes

5"-38 Projectiles and Charges

Incendiary H.E. Clusters (500 lb)

20 MM
40 MM

Bombs TNT

DEEP TANK

Bombs T.N.T.

Bombs TNT

WATER

Waivers (as which C.O.T.P. will approve, Conditional upon Magazines in #4 and #5 T/D

1. To permit Fuses in #5 T/D with Class A Ammunition
2. To permit Chemical Rockets in #4 T/D with Class A Ammunition
3. To permit White label Corrosives to be stowed on deck over explosives in #1 T/D

(a-1)

Confidential

(a-1)

AD-690

LOAD FOR BEVY AND FOLD AT PORT CHICAGO

7-13-44

NO. PKGS.	TYPE PKGS.	NO. RDS.	MATERIAL	BOSC	WEIGHT	CUBE
			BEVY-51 FROM HAW.			
1,500	Pcs.	1,500	AN-M64 G.P. 500-Lb. bomb	75637	405.	15,150
1,500	Crates	1,500	Fins for AN-M64 bomb		15.75	2,400
500	Pcs.	500	2000-Lb. G.P. bombs, AN-M66		521.	16,500
500	Crates	500	Finas for AN-M66 bomb		20.5	3,800
2,500	Pcs.	2,500	1000-Lb. G.P. bomb, AN-M65		1,291.75	44,000
2,500	Crates	2,500	Fins for AN-M65 bomb		55.	9,725
350	Bxs.	1,750	M1A1 Trunnion bands		1.3	1,820
650	Bxs.	3,250	M2A1 Trunnion Bands		3.19	5,789
		24,190	Navy Arming Wire Assembly		-	-
		48,380	Fahnestock Safety Clips		-	-
375	Bxs.	1,500	AN-Mk. 230 Fuze		17.06	638
61	Bxs.	1,464	AN-Mk. 219 Fuze		4.88	177
2,000	Crates	2,000	Smoke Float Mk. 2	71585	165.	20,000
2,000	Crates	6,000	Floating Smoke Pot, HC, Mk.4		50.2	2,160
710	Crates	710	100 - Lb. Frag. Cluster AN-M1A1	70771	68.9	2,840
200	Pcs.	200	700-Lb. Depth Bomb Mk. 49	69732	72.	2,212
200	Crates	200	Fins for Mk. 49		7.5	1,200
2,000	Crates	2,000	100 - Lb. Frag. Cluster AN-M4	69731	140.	3,240
100	Crates	100	500 - Lb. Incend. Cluster AN-M7		29.75	970
20	Bxs.	500	AN-M100A2 Fuze		1.23	62
113	Bxs.	2,815	AN-M101A2 Fuze		7.3	350
206	Bxs.	5,150	AN-M102A2 Fuze		15.76	824
189	Bxs.	4,725	AN-M103 Fuze		13.14	384
31	Bxs.	735	AN-Mk.219 Fuze		2.48	90
25	Bxs.	100	AN-Mk.220 Fuze		.94	43
500	Bxs.	500	350-Lb. Depth Bomb, AN-Mk. 47		81.25	3,140
5	Crates	500	Fins for AN-Mk. 47		10.75	1,740
78	Bxs.	310	Mk. 229 Fuze		3.50	183
230	Bxs.	920	AN-Mk. 230 Fuze		10.47	391
74	Bxs.	7,400	Primer Det. M14, Non-Delay		2.22	60
32	Bxs.	3,200	Primer Det. M14, .1 Sec Delay		.96	26

Confidential

Exhibit 7(3)

LOAD IN AB-690 CONT'D

Confidential

NO. PKGS.	TYPE PKGS.	NO. RDS.	MATERIAL	BOSC	WEIGHT	CUBE
15	Bxs.	1,453	Primer Det. M14, .01 Sec. Delay	69731	.47	12
5	Bxs.	500	Primer Det. M14, .025 Sec. Delay		.15	4
234	Bxs.	936	AN-Mk. 234 Fuze		6.3	150
100	Crates	100	500 - Lb. Incend. Cluster M7	85295	29.75	970
147	Bxs.	3,675	AN-M103 Fuze		10.2	298
20	Bxs.	500	AN-M100A2 Fuze		1.2	62
103	Bxs.	2,575	AN-M101A2 Fuze		6.64	360
40	Bxs.	1,000	AN-M102A2 Fuze		3.06	160
25	Bxs.	100	AN-Mk. 228 Fuze		.94	43
900	Bxs.	3,600	AN-Mk. 230 Fuze		40.95	1,530
50	Bxs.	200	AN-Mk. 234 Fuze		1.35	32
54	Bxs.	5,400	Primer Det. M14, Non-Delay		1.62	84
4	Bxs.	400	Primer Det. M14, .1 Sec. Delay		.12	3
4	Bxs.	400	Primer Det. M14., .01 Sec. Delay		.12	3
150	Bxs.	750	M1A1 Trunnion Bands		5.55	780
812	Crates	3,284	A/C Parachute Flare Mk. 6-3	85220	71.46	4,790
20	Crates	500	A/C Drift Signal, Night, AN-Mk. 5-1		1.25	90
50	Crates	1,000	Depth Charge Marker, Day, Mk. 1-1		3.	220
		14,565	Navy Arming Wires .064"	85295	-	-
		29,130	Fahnestock Safety Clips		-	-
			LOAD FOR BEVY-51 FROM M.I.			
50	Crates	1,000	Depth Charge Marker, Day, Mk. 1-1	85267	3.	220
250	Crates	3,000	Depth Charge Marker, Night, Mk.2		4.5	450
10	Bxs.	2,000	A/C Two Star Ctg, Red-Red Red Mk.4	50552	.5	30
10	Bxs.	2,000	A/C Two Star Ctg, Yellow-Red Yellow Mk. 1		.5	30
			LOAD FOR BEVY-136 FROM MI.			
9	Bxs.	25	Float Flares E5-2 W/1 Minute Delay	65370	.75	27
9	Bxs.	25	Float Flares E5-2 W/4 1/2 Min. Delay		.75	27
			LOAD FOR FOLD-19 FROM HAW.			
2,500	Bxs.	5,000	5"/38 Com. Projs.	76500	292.5	3,750
12,500	Bxs.	25,000	5"/38 AAC Proj.		837.5	18,750
1,000	Bxs.	2,000	5"/38 Illum. Proj.		67.	1,500
25,000	Tanks	25,000	5"/38 Ctgs. Flashless		468.75	35,000
24,000	Tanks	24,000	5"/38 Ctgs. Non-Flashless		450.	33,600
375	Tanks	375	5"/25 AAC Flashless		17.62	488

Confidential

Exhibit 7-(4)

Confidential

LOAD IE AB-690 CONT'D

NO. PKGS.	TYPE PKGS.	NO. RDS.	MATERIAL	BUSC	WEIGHT	CUBE
703	Bxs.	2,812	3"/50 H.C. Non-Flashless	76500	43.99	1,265
234	Tanks	936	3"/50 H.C. Flashless		14.63	421
314	Tanks	314	3"/50 H.C. Flashless		4.71	283
937	Bxs.	3,784	3"/50 AA Flashless		58.56	1,687
1,252	Tanks	1,252	3"/50 AA Flashless		18.78	1,127
937	Bxs.	3,784	3"/50 AA Non-Flashless		58.56	1,687
1,252	Tanks	1,252	3"/50 AA Non-Flashless		18.78	1,127
281	Bxs.	1,124	3"/50 A.P. Non-Flashless		17.56	505
376	Tanks	376	3"/50 A.P. Non-Flashless		5.64	338
1,125	Bxs.	4,500	3"/50 Illum. Flashless		70.31	2,025
1,500	Tanks	1,500	3"/50 Illum. Flashless		22.5	1,350
107	Tanks	749	3"/23 AA Non-Flashless		7.81	225
563	Bxs.	2,251	3"/23 AA Non-Flashless		33.78	845
6,250	Bxs.	100,000	40 MM H.E. Plugged		359.3	11,250
556	Bxs.	100,000	20 MM H.E.T.		33.36	723
1,112	Bxs.	200,000	20 MM H.E.I.		66.72	1,445
			LOAD FOR BEVY-51 FROM PUGET SOUND			
1,500	Pcs.	1,500	AN-M64 G.P. 500-Lb. bomb	75648	405.	15,150
1,500	Crates	1,500	Fins for AN-M64 bomb		21.	2,550
			LOAD FOR BEVY-51 FROM FALLBROOK			
2,000	Pcs.	2,000	AN-Mk. 54 Depth bomb 350-Lb.	85296	315.	6,440
2,000	Crates	2,000	Fins for AN-Mk. 54 bomb		40.5	6,060
1,500	Pcs.	1,500	AN-Mk. 47 Depth bomb 350-Lb.	76596	243.75	9,420
1,500	Crates	1,500	Fin Asm. for Mk. 41/47 bomb		32.25	5,220
			FROM HARE ISLAND			
			LOAD FOR FOLD-19			
7,50	Bxs.	15,000	5"/38 AAC Special	63344	502.5	11,250
1,500	Tanks	1,500	5" 25 AAC Special		70.5	1,950
75	Crates	75	Smoke Screen Gen. Tanks Mk. 2	57448	37	1,403
38	Bxs.	450	SDCP Impulse Chgs 1/3 No. 1,2,3.	76502	2.25	57

Confidential

Exhibit 7(5)

Confidential

LOAD IN AB-690 CONT'D

NO. PKGS.	TYPE PKGS.	NO. RDS.	MATERIAL	DODC	WEIGHT	CUBE
722	Tanks	722	5"/25 Illum. Flashless	85241	34.	939
			LOAD FOR FOLD-70			
20	Bxs.	500	A/C Drift Signal, night AN-Mk.5-1	41172	1.25	90
			LOAD FOR FOLD-104			
4	Bxs.	100	High Altitude Para. Flare	56800	.24	7
1	Bx.	2	Night Altitude Para. Flare Mortar		.02	1
			LOAD FOR FOLD-70-75			
150	Bxs.	600	4.5 Rocket Body Mk. 7(FS)	82504	7.5	255
		1,200	4.5 Rocket Body Mk.7(FS)	73860	15.	510
			LOAD FOR DIAL-112-11			
50	Bxs.	25,000	Shotgun Shells 12 GA. #8 shot	75610	1.75	50
			LOAD FOR FOLD-97			
6	Bxs.	6	20 MM Mk. 3-1 Empty	57765	.04	8
6	Bxs.	6	40 MM Mk. 1 Empty		.10	9
6	Bxs.	6	1.10/75 Mk. 1-1 Empty		.09	8
6	Bxs.	6	3/23 Mk. 8 Empty		.06	10
12	Bxs.	12	3/50 Mk. 6-1 Empty		.16	23
6	Bxs.	6	4/50 Mk. 4 Empty		.04	9
6	Bxs.	6	3" Mk. 1 for SDC Empty		-	-
6	Tanks	6	3"/23 Mk. 1-1 Empty		.10	13
12	Tanks	12	3"/50 Mk. 8 Empty		.05	12
6	Tanks	6	4/50 Mk. 4 Empty		.05	7
6	Tanks	6	5.25 Mk. 8 Empty		.05	10
6	Tanks	6	5/38 Mk. 9 Empty		.03	6
6	Tanks	6	6/47 Mk. 4 Empty		.05	16
6	Tanks	6	5/51 Mk. 10		.05	10
6	Tanks	6	6/53 Mk. 12 Empty		-	-
			LOAD FOR FOLD-19 FRC. LOAD HOLD.			
1,250	Bxs.	20,000	40 MM A.P.T.	58672	72.	2,250
			LOAD FOR BEVY-51			
500	Bxs.	2,000	A/C Para Flares Mk. 6-3	69742	44.	2,875
20	Bxs.	500	A/C Drift Signal, night AN-Mk.5-1		1.5	88

Exhibit 7(6)

Confidential

LOAD II AR-690 CONTD

NO.	TYPE PKGS.	WT. EA.	MATERIAL	BASIC	WEIGHT	CUBE
			LOAD FOR TUB-11 FROM I.I.			
		150	Mk. 119 Demolition Outfits.	76273	60.	-
			LOAD FOR DENY-75-3			
		300	Smoke Screen Generator Tanks Mk.2 filled with FS Mixture.	70221	147.	5,610
			LOAD FOR PLUJ-70-75			
1,500	Bxs.	6,000	4.5 Rocket Bodies, Mk.3	73859	74.	2,070
900	Bxs.	7,200	2.25 Rocket Motor Mk.9		39.	1,953
288	Bxs.	7,200	Mk. 137-1 Fuze		5.5	259
			LOAD FOR FOOD-71 FROM I.I.			
14	Tanks	98	3"/3 Illum.	29176	1.02	29
			LOAD FOR WOLD-70-75			
50	Bxs.	200	4.5 Rocket Bodies Mk. 7	02503	2.5	75
		200	Booster Tube for 4.2 Chem. Mortar		-	-
100	Bxs.	800	Rocket Motor Mk. 9		4.25	217
32	Bxs.	800	Mk. 137-1 Fuze		.59	29
				TOTAL:	8,363.08	451,617

PAGE FIVE

Exhibit 7(7)

Confidential

(A)

NOTE: A VESSEL LADEN WITH EXPLOSIVES MUST BE ABLE TO MANEUVER UNLESS TUGS ARE IN ATTENDANCE.

NAVY DEPARTMENT
UNITED STATES COAST GUARD
Twelfth Naval District

(B)

Captain of the Port
Room 503, Custom House
n Francisco, California

CONFIDENTIAL

13 July, 1944
(Date)

PERMIT TO LOAD OR UNLOAD EXPLOSIVES OR OTHER DANGEROUS CARGO

To: Oliver J. Olsen & Company, Inc.
260 California Street
San Francisco, California

In compliance with the request contained in your application of 13 July, 1944 signed by Capt. R.O. Wills, USNR for Capt. W.F. LaFrenz, USN (Ret), Ass't Port Director, 12th Naval District, and per telephone conversation with Miss Ayres, Port Directors Office 13 July, 44 permission is hereby granted the below named vessel to LOAD - ~~UNLOAD~~ dangerous cargo

on 13 July, 1944 until completed at Naval Magazine Port Chicago, California

Vessel SS E. A. BRYAN Registry US

Owner War Shipping Administration Master J. M. Hendrickson

Operator Oliver J. Olsen & Company, Inc. Charterer

Agent Oliver J. Olsen & Company, Inc. Allocated US NAVY

CARGO DESCRIPTION: Military ammunition and explosives per manifest and stowage plan that were made part of application herein referred to

Compliance with the "Regulations Governing Transportation of Military Explosives on Board Vessels During Present Emergency" dated 1 October, 1942 (F.R. Vol. 7, No. 195, Page 7846, October 3, 1942) and the "Regulations Governing Security of Ports and the Control of Vessels in the Navigable Waters of the United States" dated 5 October, 1942 (F.R.Vol. 7, No. 200, Page 8026, October 10, 1942) is made a condition of this permit. Other conditions are: As provided in Section 146.29-25(b) of the within quoted regulations dated 1 October, 1942, a Coast Guard detail is declined. (Reference is made to ltr. from Commanding Officer, MAD, Mare Island, California to Captain of the Port, 1 November, 1943.)

This permit shall be kept on board vessel until this cargo is discharged.
This permit is valid only for the time shown herein. In case you desire to change the movement of the foregoing explosives or ammunition, communicate with the office of the Captain of the Port.

cc Master, SS E. A. BRYAN
Port Director's Office
CO-Naval Magazine- Port Chicago
Lt. Comdr. Shepard
Vessel Control
Vessel Security
Waterfront Security

B. W. KING
Lieut., USCG
For P. B. CRONK
Commander, U.S.C.G.
Captain of the Port

Confidential

Exhibit 7 (B)

Appendix C2.4

U. S. NAVAL MAGAZINE, PORT CHICAGO

U. S. NAVAL MAGAZINE

N-CALIF-474

PORT CHICAGO, CALIFORNIA

U. S. NAVAL MAGAZINE

N-CALIF-474

PORT CHICAGO, CALIFORNIA

4.965 Acres of Unimproved Land

By: J. Oxley Moore, Valuation Engineer
Public Buildings Service
General Services Administration
San Francisco, California

December 22, 1953

TABLE OF CONTENTS

P A R T I

Preface

December 22, 1953

To: Elmo L. Buttle, Chief
Surplus Real Property Division, P.B.S.

From: J. Oxley Moore
Valuation Engineer, P.B.S.

Subject: N-Calif-474
U. S. Naval Magazine
Port Chicago, California

In accordance with your request a market value estimate has been prepared covering that small portion of captioned facility declared surplus to Governmental needs. The property consisting of two adjacent unimproved parcels of land totaling 4.965 acres is situated near the town of Concord.

This appraisement is based upon a careful personal inspection of the property, together with an analysis of all discoverable factors that index its value. The results of this investigation are contained in the accompanying report of 6 pages.

In my opinion the market value of the property, that is the amount the Government would be warranted in accepting, as of December 10, 1953 is:

Twenty Thousand Dollars $20,000.00

Respectfully submitted,

J. Oxley Moore, M.A.I.
Valuation Engineer

STATEMENT OF LIMITING CONDITIONS

1. It is assumed that the property location and size as reported by 12th Naval District on GSA Form 30 and map attachments are correct.

2. Sketches and maps are included in this report to assist the reader in visualizing the property. Preparation was based upon available documents that appeared to be reasonably correct.

3. No responsibility is assumed in the preparation of this report for matters that are purely legal in character. It is presupposed that title to the property is marketable, and that it will be conveyed by the Government without reservations.

P A R T II

Analysis and Conclusions

Purpose of Appraisal

To estimate the present worth of the property under consideration. Market value as defined by the Courts is the highest price estimated in terms of money which a property will bring if exposed for sale on the open market, allowing a reasonable time to find a purchaser who buys with knowledge of all uses to which it is adapted or for which it is capable of being used.

Legal Description

Reference is made to the files for the metes and bounds description covering the two parcels of land involved in this report. It is assumed that property location and size as indicated by Exhibit II of this report are correct.

Community Data

Subject property is located near the town of Concord, which in turn is situated in the North Central portion of Contra Costa County. The population growth for both political subdivisions has been substantial over the past ten years, as indicated by the latest U. S. Census. Statistics pertaining to Contra Costa County are 78,608 inhabitants in 1930; 100,450 in 1940 and 298,984 in 1950. This rate of increase has maintained if not accelerated from the year 1950 to date. Following a similar growth pattern, population figures for Concord are 1373 in 1940 and 6953 in 1950. To a large degree this rapid development is attributed to increased diversified industrial activities within the County.

Neighborhood Data

Property usage environing subject is predominately residential. With two exceptions the surrounding area is developed with new subdivisions that range in classification from extremely modest to good. Other land uses are small commercial areas along Willow Pass Road as established by the Contra Costa County Planning Commission and a U. S. Naval Magazine lying North and East of Willow Pass Road. See Exhibit I.

Recently the town of Concord extended its City Limits to embrace a non-contiguous residential subdivision lying Northeast of both the town proper and subject property. The interlying area so created is not acceptable for inclusion within the City Limits until connection to the Concord Sewage Disposal system has been accomplished. The trunk sewage line along Willow Pass Road connecting the recent annexation with the city sewer was installed at the petitioners' expense. A proportionate reimbursement of initial costs to the original developer is a city requisite prior to acceptance of adjacent land within its corporate limits.

Property Data

As indicated by Map Exhibit III, the two parcels of land under consideration are located on the Southerly line of Willow Pass Road at its intersection with Vincente Drive. Both segments are level, rectangularly shaped tracts of land that lie slightly below street grade. Fill, ranging from 1 to 3 feet in depth, will be required to correct the adverse drainage system before the property can be improved. The land constituting the Southwest corner of Willow Pass Road and Vincente Drive, identified as Parcel 17, is 124' x 350' in size which approximates .994 acres. This site has been zoned for Commercial use by the Contra Costa County Planning Commission. The Southeast corner of the previously designated streets is identified as Parcel 18. This tract of land is approximately 396' x 350' in size and contains 3.975± acres. Present zoning is for R-1 Residential use.

Present and Potential Use

Present zoning as established by the Contra Costa County Planning Commission is considered to be the property's highest and best use. Such use is in conformance with environing property utilization.

Valuation Methods

Market value of the land was determined through use of the comparative approach. This technique considers current sales prices of similar vicinage properties, adjusted for major points of difference, as bench marks in the establishment of value.

Valuation Analysis

Parcel 17 - Commercial

Willow Pass Road Frontage	- 124 F.F. @ $85.00	$10,540.00
Vincente Road Frontage	- 229 F.F. @ $30.00	6,870.00
		$17,410.00
Estimated Cost to fill & drain land area	-	7,410.00
	Present Market Value -	$10,000.00

Parcel 18 - Residential

4 Acres @ $3,500.00 per acre		$14,000.00
Estimated Cost to fill & drain land area	-	4,000.00
	Present Market Value -	$10,000.00

TOTAL MARKET VALUE - $20,000.00

Valuation Conclusions

The final value estimate considers the hazards arising in the minds of prospective purchasers connected with property development. A provident purchaser will require compensation for risks, plus a reasonable profit for efforts expended. These involve carrying charges and commissions earned for resale of lots. Based upon the foregoing, it is concluded that the market value of the two parcels of land involved is $20,000.00.

CERTIFICATION AND FINAL VALUE ESTIMATE

In completing the foregoing report, the undersigned certifies to the following statements:

1. That there is no present or contemplated interest in property under consideration.

2. That to the best of his knowledge and belief, the statements contained in this appraisement are correct and that no important facts have been withheld or overlooked.

3. That the preparation of this report was based upon a personal inspection of the facility.

4. That this appraisal was made in accordance with the rules of professional ethics of the American Institute of Real Estate Appraisers of which he is a member in good standing.

5. That the market value of the property herein described as of December 10, 1953 is:

Twenty Thousand Dollars $20,000.00

J. Oxley Moore, M.A.I.
Valuation Engineer

P A R T III

Exhibits

COMPARATIVE DATA

Attention is directed to Exhibit II, Comparative Data Map, which shows the location of vicinage sales in their relationship to subject property.

SALE NO. 1 is located on the Southerly line of Willow Pass Road approximately 250 feet Northeasterly of subject property. This 9.872 acre tract was sold May 15, 1951 by S. A. Dana to S. C. Lawrence for $17,500. The sale price approximates $1,775. per acre. This land was unimproved at time of sale and is substantially inferior to subject in every respect.

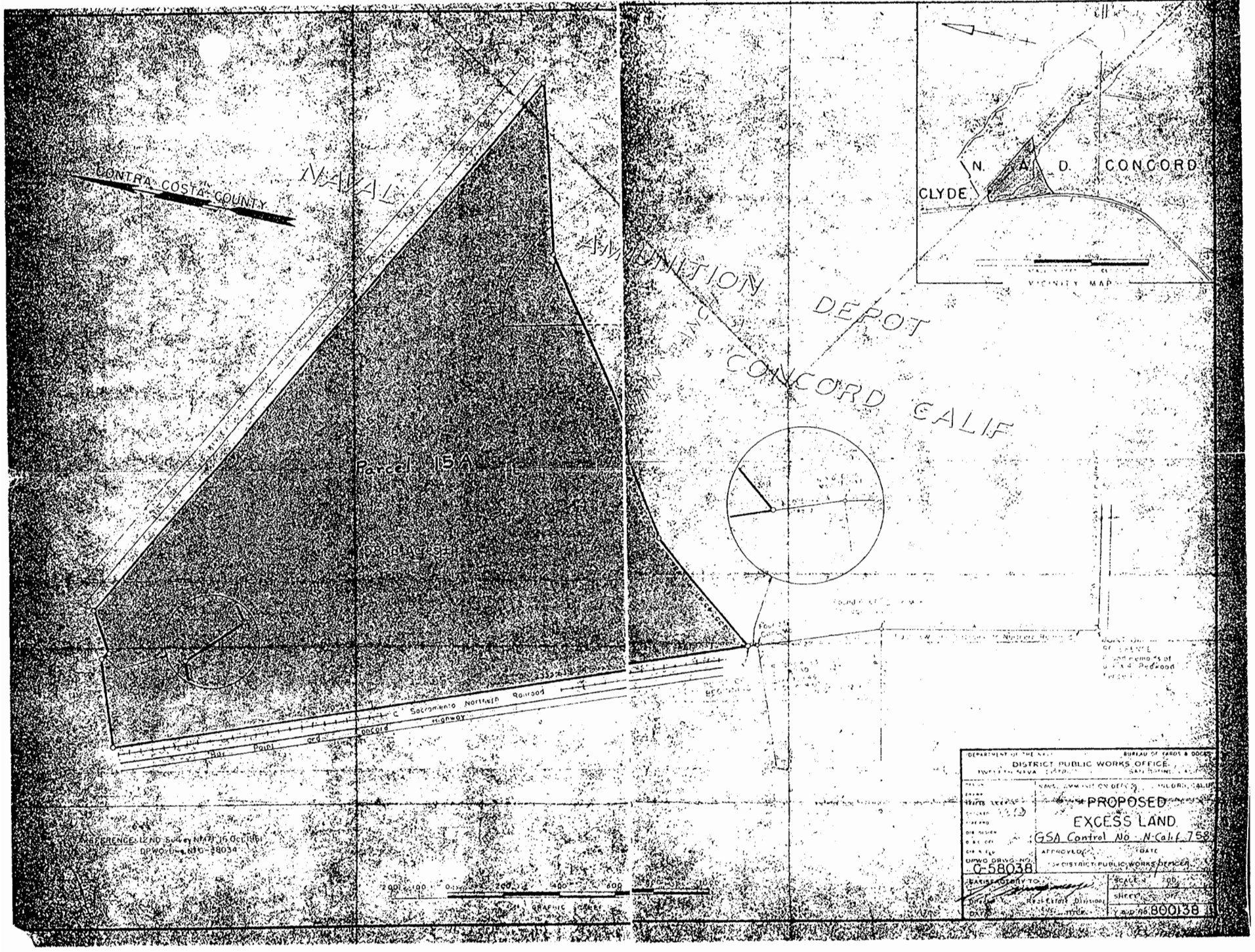
SALE NO. 2 is located contiguous to Sale No. 1 on its Southeasterly line. This property containing 19.972 acres was sold by S. E. Dana to S. C. Lawrence on December 12, 1951 for $35,000. This land was unimproved at time of sale. The sale price approximates $1,750. per acre. This property is considered to be substantially inferior to subject in every respect.

SALE NO. 3 is located approximately 3,200 feet Southeast of Willow Pass Road and approximately 200 feet Southeast of Sale No. 2. This property containing 46.25 acres was sold by W. W. Lobdell to L. F. Burror on April 2, 1953 for $102,500. The property is improved with a Walnut and Almond grove. The sale price approximates $2,200. per acre. Although this site is a prospective residential subdivision, it cannot be compared with subject property because of its size and location. The sale is reported merely to indicate prevailing price of good potential residential property.

SALE NO. 4 is located contiguous to subject property on its Southeasterly line. This 12.158 acre tract of land was sold by A. Granzotto to Diablo Annex Builders on June 1, 1949 for $24,000., which approximates $1,975. per acre. This tract of land was unimproved at the time of sale and is considered to be substantially inferior to subject by reason of location.

Appendix C2.5

PROPOSED EXCESS LAND


CONTRA COSTA COUNTY
NAVAL
AMMUNITION
DEPOT
CONCORD CALIF
Parcel 15A
Sacramento Northern Railroad
Concord
Highway
Mt. Diablo
Base
Line
CLYDE
N.
A.
D.
CONCORD
VICINITY MAP
DISTRICT PUBLIC WORKS OFFICE
PROPOSED
EXCESS LAND
GSA Control No. N-Calif. 758
DPWO DRWG. NO.
C-58038
APPROVED
DATE
DISTRICT PUBLIC WORKS OFFICER
SCALE
SHEET
OF
DRAWING NO.
800138
REFERENCE: LND 5.4 of NAVY 16 OCT 1961
DPWO Drwg. No. 38034
GRAPHIC SCALE

Appendix C3

SITE VISITS

Appendix C3.1

SAFETY INSPECTION SAFETY PLAN

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NO. J09CA102200

APPENDIX C3.1

SAFETY PLAN FOR SITE VISITS

Naval Weapons Station - Concord (Port Chicago) NO. J09CA102200.

GENERAL

This section deals with general site safety. The overlay maps for each site will include site specific safety hazards when identified and identify specific areas for the search to concentrate. Remember, **ALL ACTIONS MUST COMPLY WITH THE COMMON SENSE RULE!**

A. The Safety Officer has final authority on all matters relating to safety during the site visit. 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. Examples might be observing hazardous munitions or dangerous wild life at the site.

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

Rule 2- Do not step anywhere where you cannot see where you are placing your foot.

Rule 3- There will be no eating, drinking, or smoking while conducting a site survey. Personnel should wash their hands after the survey and prior to eating or drinking. This does not preclude emergency actions such as treatment for heat injuries.

B. The team, as a group, will determine the safety equipment to be used by the team on the site. The decisions will be based upon the type of terrain, the weather, the anticipated wildlife hazards, the hazards from the local population, and the anticipated munitions hazards. As a minimum the team will wear sturdy work clothing, safety glasses, hard hat (depending upon situation) , boots, will have a first-aid kit available, and will have cameras/binoculars for observing the site.

C. When walking the site the team will walk in a line abreast with the safety officer in the center. The distance between team members will be based upon the terrain; visibility of the ground and terrain features will be the determining factors. only team members will be present when walking the site unless local persons are required to accomplish the mission. (Such persons might be a plant safety manager or the property owner.)

Naval Weapons Station - Concord

The three sites associated with this facility were used as an explosion buffer and the navy made no physical use of the land other than to fence it. However, there have been explosions at the station that may have thrown munitions into this area. (There is no archival evidence of this happening). Munitions involved in an explosion can be more sensitive than would otherwise be expected. Personnel must take care to watch where they step.

****

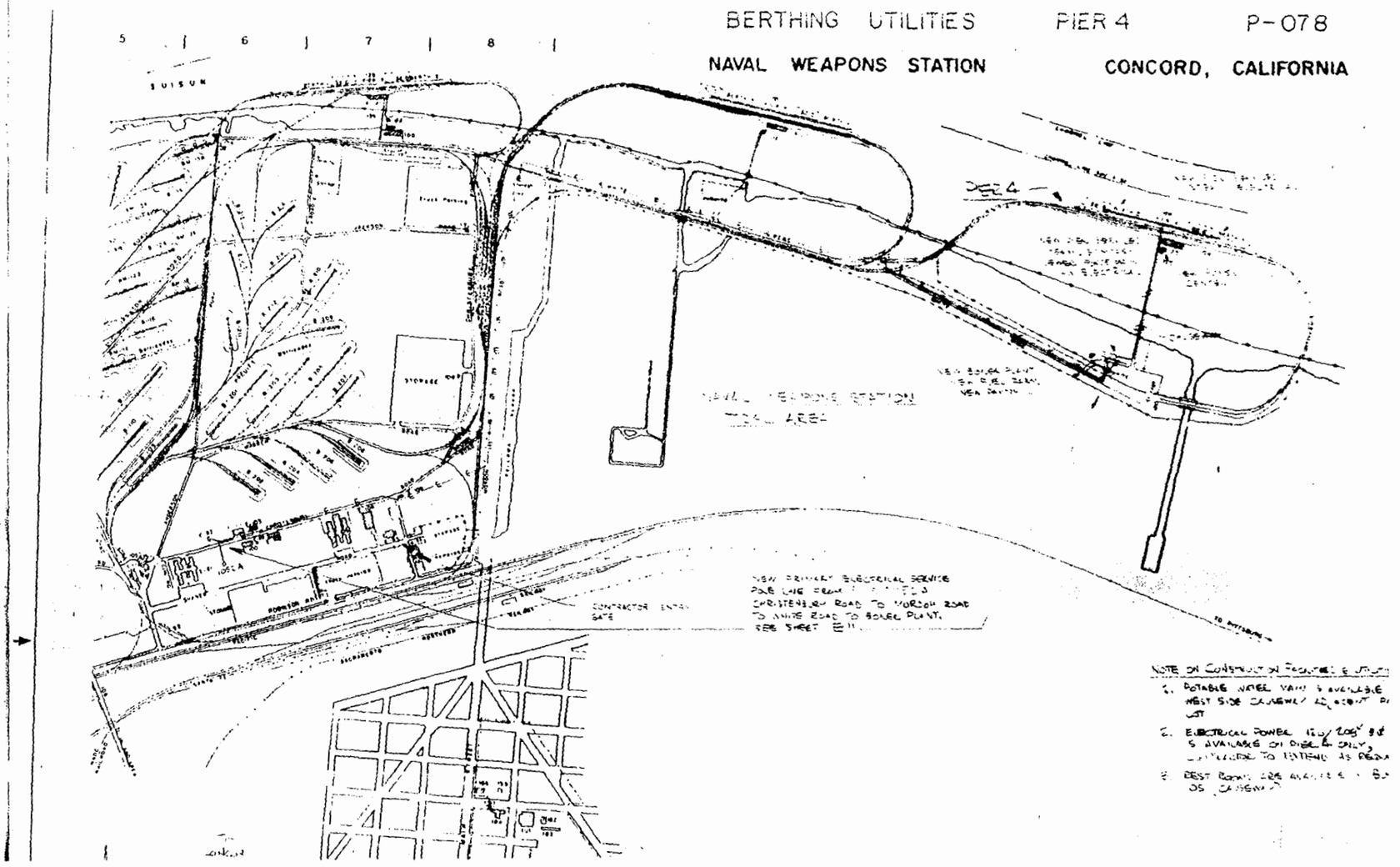
EMERGENCY NUMBERS

911

****

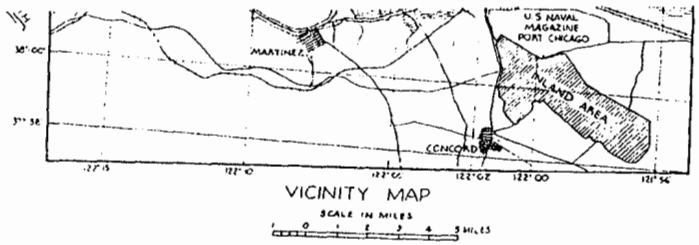
BERTHING UTILITIES PIER 4 P-078

NAVAL WEAPONS STATION CONCORD, CALIFORNIA



NOTE ON CONSTRUCTION FACILITIES & UTILITIES

1. POTABLE WATER MAIN IS AVAILABLE WEST SIDE CAISSON / AT ABOUT EL LIST
2. ELECTRICAL POWER 12 kV / 208Y 9 IS AVAILABLE ON PIER 4 ONLY, CONTRACTOR TO EXTEND AS REQUI
3. REST ROOMS ARE AVAILABLE ON BA ON CAISSON



VICINITY MAP

SCALE IN MILES

0 1 2 3 4 5 MILES

Bar covering except as noted shall be
2" where concrete is deposited in forms exposed to ground.
3" where concrete is deposited on ground
1" for wall bars
1" for slabs
¾" for flat slabs
1½" for beams and columns

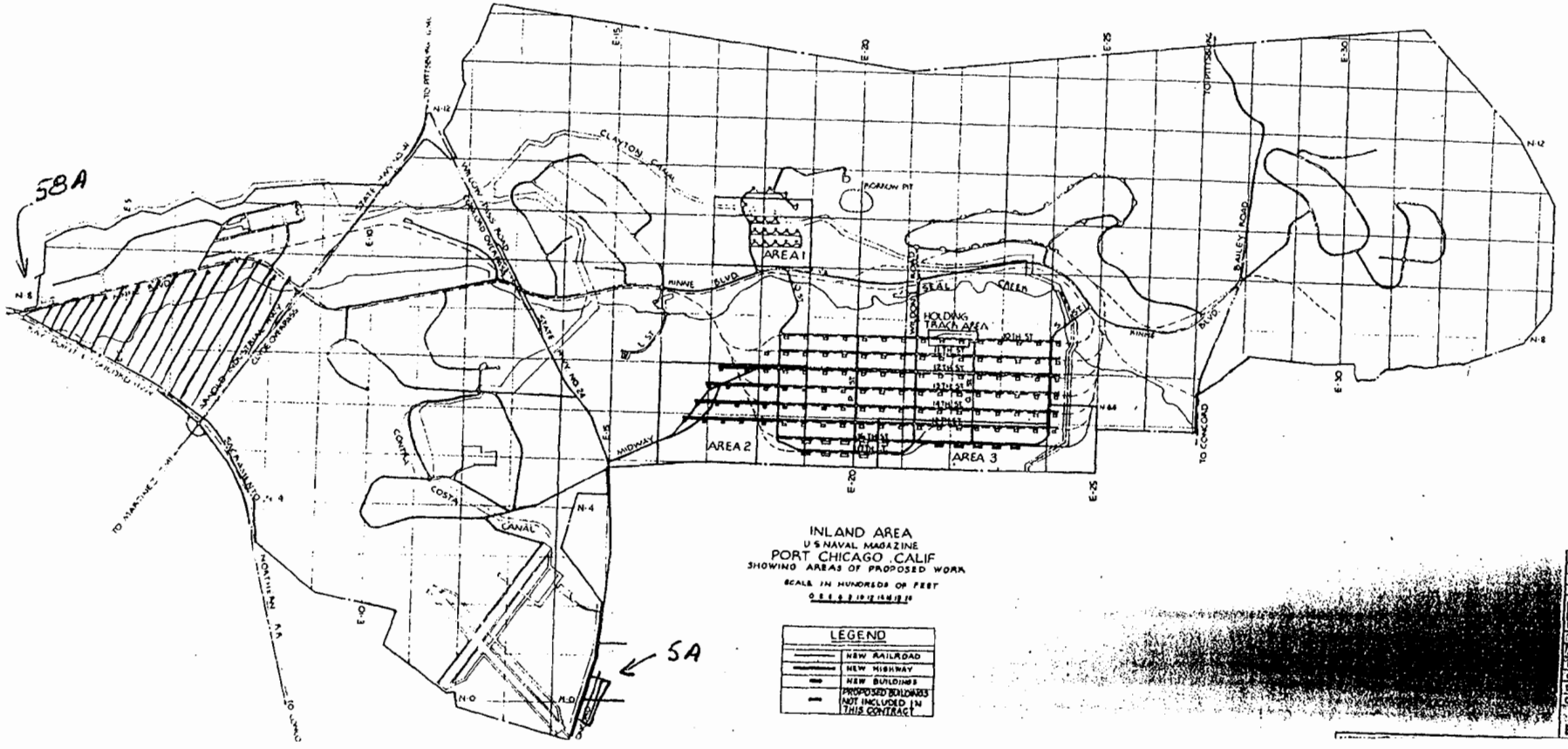
All concrete shall be class 01 as per Navy Bureau of Yards & Docks Specification 13 Yd. except concrete in floor slabs and landing docks which shall be class F1

All bolts bearing on wood shall have malleable iron washers unless otherwise noted

Reinforcing bars on the following drawings are called for by size, round or square. New bar numbers for these bars are as follows

SIZE	NUMBER
¼" ø	2
⅜" ø	3
½" ø	4
⅝" ø	5
¾" ø	6
⅞" ø	7
1" ø	8
1" ø	9
1⅛" ø	10
1¼" ø	11

Contract No.	Serial No.	
B-9505	534935	Railroads
B-9507	534937	Railroads
B-9506	534932	Highways
B-9509	534933	Highways & Railroads
B-9510	534934	Fire Protection & Telephones
B-9511	534935	Telephone Systems Details
B-9512	534936	Drainage
B-9513	534937	Drainage
B-9514	534938	Drainage
B-9515	534939	Drainage
B-9516	534940	Drainage



INLAND AREA
U.S. NAVAL MAGAZINE
PORT CHICAGO, CALIF.
SHOWING AREAS OF PROPOSED WORK

SCALE IN HUNDREDS OF FEET

0 2 4 6 8 10 12 14 16 18 20

LEGEND

	NEW RAILROAD
	NEW HIGHWAY
	NEW BUILDINGS
	PROPOSED BUILDINGS NOT INCLUDED IN THIS CONTRACT

DEPARTMENT OF THE NAVY
DISTRICT PUBLIC WORKS
WILTON, SMITH & BAUM

B-9496

APPENDIX C3.2

SITE VISIT TRIP REPORT

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX C3.2 -- SITE VISIT TRIP REPORT

==========

MEMORANDUM FOR: Mike Dace 30 June 1993

SUBJECT: Port Chicago Naval Magazine (J09CA102200) and Turlock CWS Plant (J09CA098100) Site Visit; and Coordination with Sacramento District, U.S. Army Corps of Engineers.

The following personnel (in last name alphabetical order) participated on this trip:

Jerry Schwalbe	CELMS-PM-M
George Sloan	CELMS-PD-PA
Philip Springer	CELMS-PM-M
Natalie Sterling	CESPK-ED-A, DERP-FUDS Coord. (Part time)

Site Visit

On Wednesday afternoon, 2 June 1993, the Alpha West team arrived in Concord, CA in preparation for the site investigation of the Port Chicago Naval Magazine. On 3 June, the team conducted field investigations of three potentially contaminated locations formerly associated with the active Port Chicago Naval Magazine. These areas of the FUDS had been identified during the Archival Search Task conducted by Mr. Sloan. Later that day, the team proceeded to Modesto, CA where we remained overnight. The following day interviews with current property owners were conducted; and then the team proceeded with a survey of the former Turlock CWS Plant (a.k.a., Turlock Bomb Filling Plant). Ms Sterling participated in both the Turlock site visit and an interview with Mr. Kent D. Johnson. Earlier in the day, St. Louis representatives had met with and interviewed Mr. Jim Hughes, prior to joining Ms Sterling at a scheduled appointment with Mr. Johnson at his office on the Chemurgic Agricultural Chemicals property. After completion of site investigations, Messrs. Sloan and Springer drove to the San Francisco airport and departed to St. Louis, arriving late Friday 4 June 1993. Ms Sterling and Mr. Schwalbe spent a short time visiting again with Mr. Jim Hughes, and then returned to the Sacramento District where a recently Finalized Report and other information on the Santa Rosa AAF FUDS (J09CA002600) was collected by Mr. Schwalbe. The St. Louis District had

requested Huntsville Division approval to forgo the site visit to Santa Rosa. This variance in the Scope was based upon the level of prior completed detailed investigations by Sacramento District staff (and others), including previous site visits, and other factors. Mr. Schwalbe returned to St. Louis late Saturday 5 June 1993.

Archive Searches and Interviews

Interviews and telephone conversations relating to this site are summarized in attachments. Mr. Hughes indicated in the past he has recovered OEW items on his farmland.

Findings of Site Investigations

The Port Chicago Naval Magazine FUDS inspection involved visiting and taking current photographs at three seperate locations. No visual evidence of munitions or CWM contamination were observed by the inspection party at any of the three locations: a 58 acre area of the FUDS, which is currently a public golf course; a 5 acre site currently developed in housing and a strip mall; and the primary and previously addressed by draft INPR, 15 acre site, which is undeveloped grazing land located nearby a commercial chemical plant. Again, there was no evidence of OEW or CWM usage or contamination present on this site.

The team contacted Mr. Johnson of Chemurgic Agricultural Products to discuss the Turlock site, and then conducted the site inspection on that portion of the FUDS owned by the Chemurgic. Mr. Johnson conducted the team tour of their property. The site is routinely inspected, (all buildings remaining on the site are frequently inspected) as part of ongoing ground water quality checks conducted on the site. All of the buildings have had the ordnance assembly equipment removed. The only remaining items, associated with the time frame the plant was in incendiary bomb production, visible on the site are a group of 55 gal drums suspected of containing carbon and paint residue. This portion of the site contained all of the known manufacturing parts of the plant. No evidence of ordnance contamination of any type was observed on this portion of the site. The List of buildings attached to the Declaration of Surplus Real Property report indicate that the sewage system used on this site was a septic tank. It is speculative, but possible, that OEW items may have been disposed of improperly by dropping them in the latrine. It was beyond the capability of this team to fully investigate this possiblity in our site visit.

The team contacted Mr. Hughes and obtained permission to enter and survey the portion of the FUDS under his ownership. His property contained the completed bomb storage pad areas, the ordnance test area, and the explosive storage bunkers. Mr. Hughes had removed most of the concrete pads used to store completed or partially completed bombs and those pads not removed were in use as part his farm. One of the explosive bunkers had been removed, and the remaining five were in use for storage by Mr. Hughes. There was no evidence of OEW in these locations. He did indicate the location

where he thought that the ordnance items were tested, and also where a burn pit might have existed on his land. This area is in a field routinely plowed and planted. The team surveyed this site and no indication of ordnance or residue was observed. Mr. Hughes stated that he had not recently observed any ordnance residue in his fields; but he had occasionally found items when he first started using the land.

Philip Springer George Sloan Jerry Schwalbe

APPENDIX C4.

ENDANGERED OR THREATENED SPECIES.

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX C4. - ENDANGERED OR THREATENED SPECIES.

The following sensitive species are known to occur in the vicinity of the Port Chicago Naval Magazine, Contra Costa County, California: burrowing owl (Achene Cunicularia), California tiger salamander (Ambystoma Californiense), delta tule pea (Luthyrus Jepsonii), giant garter snake (Thamnophis Gigas), Swainson's hawk (Buteo Swainsoni), delta smelt (Hypomesus Transpacificus), San Joaquin kit fox (Vulpes Macrotis Mutica), valley elderberry longhorn beetle (Desmocerus Californicus Dimorphus), palmate-bracted bird's beak (Cordylanthus Palmatus), Sacremento splitail (Pogonichthys Macrolepidotus), western spadefoot toad (Scaphiopus Hammondi), southwestern pond turtle (Clemmys Marmorata Pallida), riparian brush rabbit (Sylvilagus Bachmani Riparus), San Joaquin Valley woodrat (Neotoma Fuscipes Riparia), Pacific western bigeared bat (Plecotus Townsendii), slough thistle (Cirsium Crassicaule), delta coyote-thistle (Eryngium racemosum), California hibiscus (Hibiscus Californicus), and the tricolored blackbird (Agelaius Tricolor).

APPENDIX D

HISTORICAL PHOTOGRAPHS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX D – HISTORICAL PHOTOGRAPHS

D. Copies of Photographs-

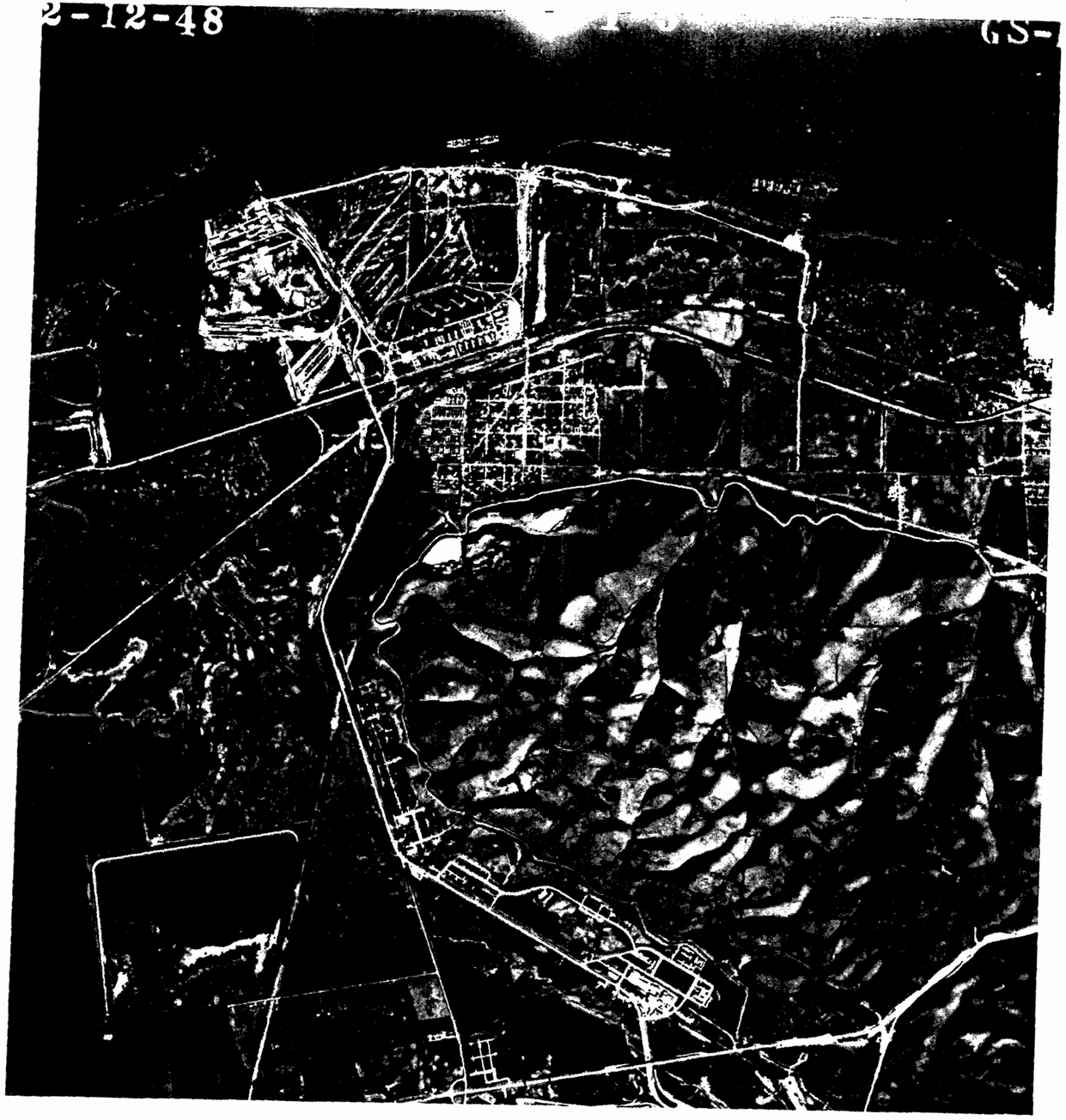
D-1 1948. 5 Acre Site.
EROS, Horizon Photography, Photo frame 1-5 GS-EF.

D-2 1952. 15 Acre Site.
EROS, Horizon Photography, Photo frame AV-104-04-05.

D-3 1965. 15 Acre Site.
EROS, Horizon Photography, Photo frame CC-2-21.

D-4 1965. 5 Acre Site.
EROS, Horizon Photography, Photo frame CC-2-52.

D-5 1992. 15 Acre Site.
EROS, Horizon Photography, Photo frame CC AV-4230-21-5/21-7.



N

D-1

1948 PHOTO
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO CALIFORNIA

PROJ. DATE:	DATE OF PHOTO:
	NOT TO SCALE

N

D-2

1952 PHOTO
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO CALIFORNIA

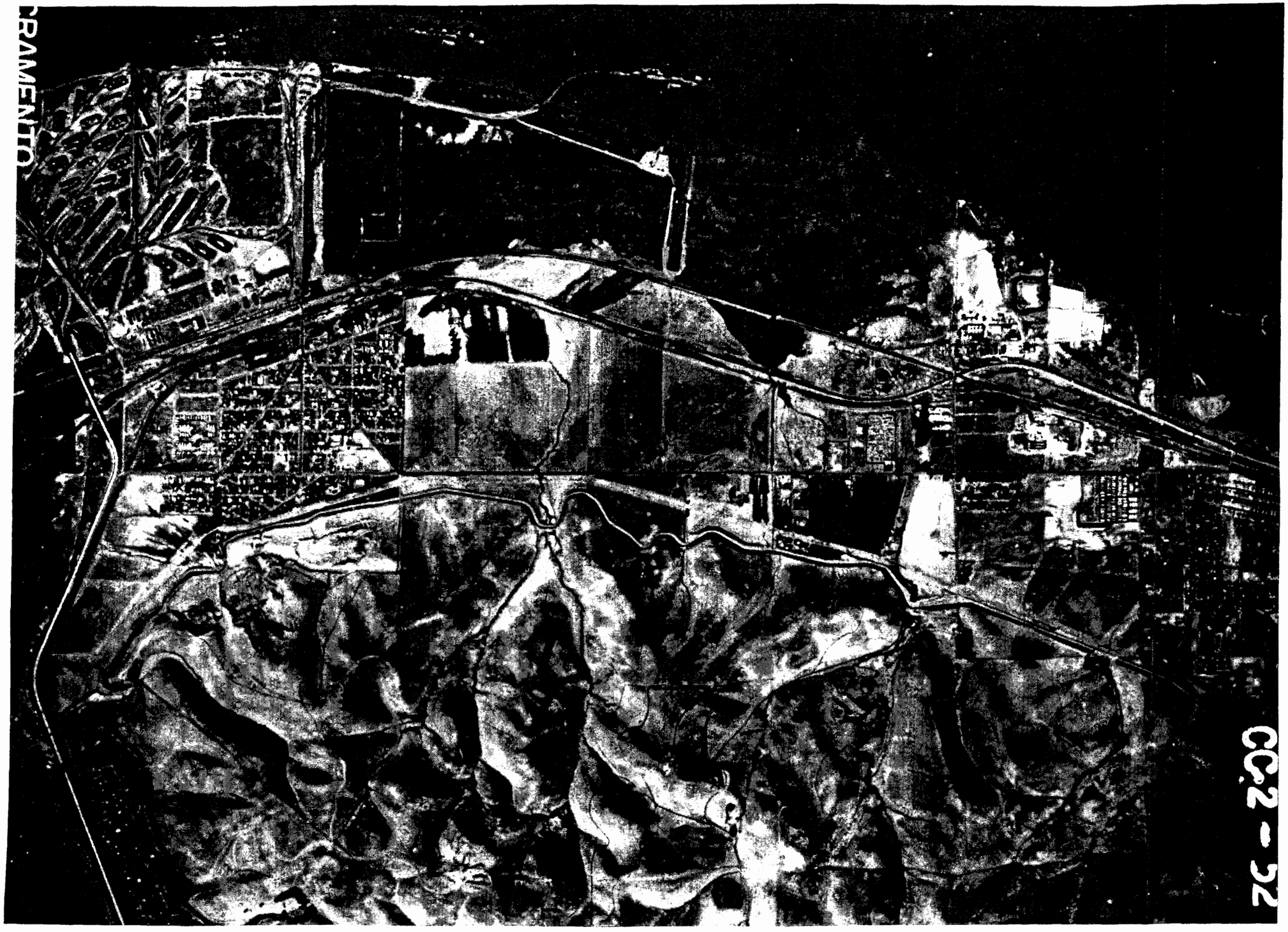
PROJ. DATE:	DATE OF PHOTO:
	NOT TO SCALE

N

D-3

1965 PHOTO
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO CALIFORNIA

PROJ. DATE:	DATE OF PHOTO:
	NOT TO SCALE



N

D-4

1965 PHOTO
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO CALIFORNIA

PROJ. DATE:	DATE OF PHOTO:
	NOT TO SCALE

N

D-5

1992 PHOTO
PORT CHICAGO NAVAL MAGAZINE
PORT CHICAGO CALIFORNIA

PROJ. DATE:	DATE OF PHOTO:
	NOT TO SCALE

APPENDIX E

INTERVIEWS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX E -- INTERVIEWS

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE 12 April 1993

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

SUBJECT OF CONVERSATION Santa Rosa Army Air Field, Port Chicago, and Turlock CWS Plant		
INCOMING CALL		
PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION
PERSON CALLED	OFFICE	PHONE NUMBER AND EXTENSION
OUTGOING CALL		
PERSON CALLING George Sloan	ADDRESS PD-AC	PHONE NUMBER AND EXTENSION 8796
PERSON CALLED SGT Davis	OFFICE 87th Ord Det (EOD) Presidio of San Francisco, CA	PHONE NUMBER AND EXTENSION (415) 561-2437

SUMMARY OF CONVERSATION: Asked about incidents at Santa Rosa, Port Chicago, and Turlock CWS Plant which are in the 87th EOD's operational area. SGT Davis stated that he was familiar with Santa Rosa AAF but that the only information they had about it was the incident involving the Gas Training Kit vials. Additionally he stated that the navy EOD would handle Port Chicago area and that I would have to contact their EOD about incidents. He had no information about Turlock CWS Plant.

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE 12 April 1993

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

SUBJECT OF CONVERSATION Alpha West 3rd Quarter Sites		
INCOMING CALL		
PERSON CALLING	ADDRESS	PHONE NUMBER AND EXTENSION
PERSON CALLED	OFFICE	PHONE NUMBER AND EXTENSION
OUTGOING CALL		
PERSON CALLING Chris Pulliam	ADDRESS PD-AC	PHONE NUMBER AND EXTENSION (314) 331-8789
PERSON CALLED Suzanne Dewberry	OFFICE National Archives Laguna Niguel, California	PHONE NUMBER AND EXTENSION (714) 643-4241

SUMMARY OF CONVERSATION:

Suzanne indicated that she knew of no information on our 3rd quarter sites in either the National Archives or the Federal Records Center at Laguna Niguel. She informed me that a person, Scott Tajak, from Resources Applications, Inc. had been in contact with her regarding the Owl 4X Plant (Azusa Chemical Corps Depot) in Azusa, California. Suzanne told me that he was a contractor working for the Omaha District of the Corps of Engineers and that she would give him my name and telephone number so he could speak with me directly. She also stated that there was no information, to the best of her recollection, in these two repositories on the Waiakea Forest Reserve in Hawaii.

APPENDIX F

NEWSPAPERS/JOURNALS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX F -- NEWSPAPERS/JOURNALS.

F1. Emery, Edwin.
1944. Investigation of Disaster Launched by Navy, Ships Instantly Sink From Sight. Contra Costa Gazzette, 18 July 1944, page 1.

F2. Not Listed.
1944. Future of Stricken Port Chicago Rests In War Risk Verdict. Contra Costa Gazzette, 30 July 1944, page 9.

7-18-1944

INVESTIGATION OF DISASTER LAUNCHED BY NAVY

Ships Instanly Sink From Sight

By EDWIN EMERY

(United Press Staff Correspondent)

An earth-rocking explosion of two ammunition ships being loaded at the U. S. Naval Ammunition Depot at Port Chicago caused "heavy casualties" and extensive damage, 12th Naval District headquarters announced today.

"The casualties will be heavy," the Navy said, "but not as severe as early unofficial reports indicated." These estimates had ranged as high as 600 dead and injured.

As the Navy continued the investigation, officers estimated that between 200 and 250 enlisted men and nine officers could be listed as "missing and presumed dead." An additional 100 Navy personnel had been taken to military hospitals.

SHIPS DISAPPEAR

Not a sign remained of the two ammunition ships, which had been anchored alongside the loading wharf at Port Chicago. Cause of the blast remained unknown, with no report from possible survivors yet made public.

An Associated Oil Company barge was anchored between the two ships, and was reported destroyed, along with several other small ships anchored nearby.

Coast guardsmen, who reached the scene within 10 minutes, picked up four seriously injured men. They said strong winds and tides swept other possible survivors and debris up-channel.

Small craft had been warned away from the port area, 35 miles northeast of San Francisco, since live ammunition was reported floating on oilslicked waters, the Navy said.

"There was a flash that went 1,000 feet into the air," one eye-witness said. "Then pieces of metal rained down like hail."

A 150-pound piece of metal, 18 feet long, was blown through the air for a mile.

BLINDING FLASH

The first blinding flash mushroomed into the sky, turning night into day, and then fell apart into myriads of red incandescent streaks, cascading downward like giant tracer bullets, eye-witnesses recounted.

Within a few moments the roar of the blast shot out across the San Francisco Bay area, causing rumors of an earthquake as windows shattered and plaster fell from ceilings and walls 30 miles away.

Don Cramer, Red Cross director for the Pacific area, reported that an early visit to the explosion scene showed that four deaths had been reported among civilians outside the post. He said numerous casualties were reported from flying glass.

Cramer reported that "Port Chicago was badly wrecked."

Casualties were being evacuated to hospitals at nearby Concord and Martinez, Cramer said. The Red Cross arranged for shelters for those made homeless by the blast and aided in other relief duties for the 1,000 population of Port Chicago.

The hospital at Martinez was reported filled, with injured in the halls. Red Cross, military and civilian disaster officials mobilized and injured were being taken to all nearby hospitals, including that at the Mare Island Navy Yard at Vallejo.

Communications throughout the area were disrupted by the blast, adding to the confusion at the scene.

Red Cross officials said the Martinez Chapter was preparing to feed from 1,000 to 1,500 people at Port Chicago, and reported from 150 to 200 homes appeared uninhabitable. Not a single building in the town escaped damage, and most were described as "complete losses."

Doc Stork Makes Landing in Midst Of Blast Turmoil

It never fails department:

As doctors and nurses at Martinez Comunity Hospital rushed frantically to give aid to scores of casualties rushed here after the explosion at Port Chicago, Mrs. Mark E. Hatch, Martinez, gave birth to a 7½-pound boy. Mother and son are doing well, hospital attendants reported.

FORESIGHT OF OFFICIAL IS AID TO COUNTY

Contra Costa county is fully protected with insurance against damage done last night, due to the foresight of Purchasing Agent Morrow. Last year he recommended to the Board of Supervisors that the courthouse and hall of records be covered with war damage insurance, and the supervisors accepted his recommendation.

Many business concerns in the city are protected through war risk insurance, which covers damage to their property.

Mayor C. A. Ricks today estimated plate glass damage in Martinez to be approximately $25,000, which, he added, was a conservative figure.

CONTRA COSTA GAZETTE
7-21-44

(9)

Future of Stricken Port Chicago Rests In War Risk Verdict

Battered and bruised, the unincorporated town of Port Chicago today dug itself out of the debris of the worst tragedy in Contra Costa's history—its future in the lap of the gods and its present in the hands of the Red Cross, the Army, the county's civilian setup, the Salvation Army, the sheriff's office and the resources of its 1,200 inhabitants.

Minus gas and lights, minus windows and doors, and most of them without habitable dwellings, the townspeople and the proprietors of the 27 business establishments bore their troubles without complaint as they awaited the answer to the question of the hour.

Will their war risk insurance cover damage caused by Monday night's explosion, which took upward of 350 lives and caused loss running into the millions? Adjusters, meeting today in San Francisco said war risk wouldn't apply, but a final determination depended upon the cause of the blast.

An answer to the question was due this afternoon following a conference of federal, state and county agencies, and the report of a naval board of inquiry. If caused by sabotage, claims would be paid.

State War Council Director Dick Graves was sending a man here to confer with local officials on what aid might be forthcoming from a special state war disaster fund and the federal representatives were to go into a huddle with insurance officials this morning.

RED CROSS MOVES IN

Meanwhile, the Red Cross, with a mobile canteen from Oakland Chapter, undertook the task of feeding Port Chicagoans this morning. The 14 canteen workers, headed by Mrs. Lex Jensen and Mrs. W. R. Childs, and transported to Port Chicago in four trucks and station wagons, set up shop in a classroom of the Bay Point grammar school, prepared to feed 400 persons.

Several hundred residents, unable to prepare warm food in their own damaged homes, and many of them injured by the Monday night blast, trooped in. Adjacent was a Red Cross first aid station, manned by Captain F. R. Mixer, an Army doctor of the Presidio, and Mrs. Blanche Coffee.

NO LOOTING REPORTED

Sheriff James N. Long, whose staff had been augmented by scores of officers from neighboring cities and by a company of soldiers from the Presidio, established headquarters in the grammar school, with Inspectors Barden Carlson, Ray Stoffels and Norman Wilson in command on alternate shifts. A curfew was declared to prevent looting.

The Western Union also set up a special office in the school and B. L. Damerell of San Francisco revealed that hundreds of telegrams have been received and dispatched since the big blast.

REHABILETATION PLANNED

County Defense Coordinator L. J. Bower and Red Cross Disaster Relief Director Don Cramer, both residents of Antioch, were putting their heads together on plans for temporary relief for the homeless.

Bower announced that the Red Cross is providing 120,000 feet of wallboard and that members of County Surveyor Joe Barkley's staff, acting as individuals, are making a survey to determine the extent of damage to the the 350 homes in the community. The wallboard will be issued to patch windows and doors where homes can be made habitable.

At the same time, Bower revealed that the War Manpower Commission officials announced they would clear as many carpenters from other jobs as necessary to repair the damaged community.

WATER SUPPLY OKEH

The restoration of light and power will follow a check by power company workers. A fire truck will stand by as each resident is checked and the power turned on. Gas probably will not be restored for some time.

The town's water supply was back to normal today and found to be satisfactory for drinking. When the explosion ripped up mains at the naval ammunition depot, some 3,000,000 gallons from the reservoir was lost and pressure dropped to 20 pounds. Pressures are now back to normal of 60 pounds.

Bower said a conference will be held this afternoon with leaders of the community to map a plan of rehabilitation but he set no time. It was revealed that a Red Cross checkup put the average damage per home at $800. The cost will be heavier for the 27 business structures of the town.

FOOD CHECK STARTED

Dr. W. A. Powell's county health office staff is making a check of foods, particularly those in exposed packages which might be penetrated by flying glass splinters. If insurance covers the loss, all suspected foods will be destroyed; otherwise all packages will be painstakingly checked.

The Port Chicago Post Office was functioning again today, its facade sheated by a large panel of wallboard across which Postmaster George German had scrawled in frontier fashion "Post Office, Port Chicago." Yesterday German kept the mails rolling, but under handicap.

Some stores were doing a catch-as-catch-can business, but most were awaiting word on insurance before disturbing their damaged stocks and the merchants were devoting their energy to clearing away rubble.

Justice Otto Lichti, proprietor of the town's drug store, put his damage at $15,000, and said it was probably the greatest individual loss because of the nature of his stock.

An urgent query from Congressman Albert E. Carter was received by Lichti, as secretary of the Port Chicago Chamber of Commerce, asking what could be done for the striken town from Washington and extending his sympathies to the townspeople. Carter's wire was but one of hundreds received by the County and Area Defense Office and by other officials.

Chief Neilson Lauds Civilian Defense Unit

Local citizens today are singing the praises of Civilian Defense groups. Martinez War Council, of which Chief of Police Steve Neilson is commander, demonstrated its efficiency and effectiveness when the disaster alarm was sounded. Auxiliary firemen and police reported rapidly to Neilson's office.

"To me, the prompt response and effective work of our forces demonstrates forcibly the value of the training we have hadd and the reward the community has received for the money expended. As a matter of fact, it can be well said that the expense we incurred was all returned to us Monday night in the hard and efficient work of our group. I have only the heartiest commendation for everyone who participated. It shows what we can do in a crisis," said Chief Neilson this morning.

The promptness with which street crews went to work in removing broken glass was another highlight of the evening. Under direction of Street Superintendent Vanni the crews worked throughout the night. The glass was removed to the city dumps—and there was a lot of it.

APPENDIX G

PRESENT SITE PHOTOGRAPHS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

DERP-FUDS SITE NOS. J09CA102200

APPENDIX G -- PRESENT SITE PHOTOGRAPHS.

Sheet G-1.

Photo #2. Looking away from 5 acre property at the active base.

Photo #3. School on the rear of the 5 acre property.

Sheet G-2.

Photo #4. Looking south into the subdivision on the 5 acre site.

Photo #6. Looking north out of the subdivision on the 5 acre site. The main road and active base is in the distance.

Sheet G-3.

Photo #8. Looking north across the golf coarse from the parking lot.

Photo #9. Looking southeast across the golf coarse from the parking lot.

Sheet G-4.

Photo #15. Looking north-northwest at the chemical plant on the backside of the 15 acre site.

Photo #16. Looking north down the property line of 15 acre site. Railroad tracks are the back property line.

PHOTO #2. LOOKING AWAY FROM 5 ACRE PROPERTY AT THE ACTIVE BASE.

PHOTO #3. SCHOOL ON THE REAR OF THE 5 ACRE PROPERTY.

SHEET G-1

1993 PHOTO OF SITE
NAVAL MAGAZINE
PORT CHICAGO, CALIFORNIA

NOT TO SCALE

DATE: | DATE OF PHOTO: 1993

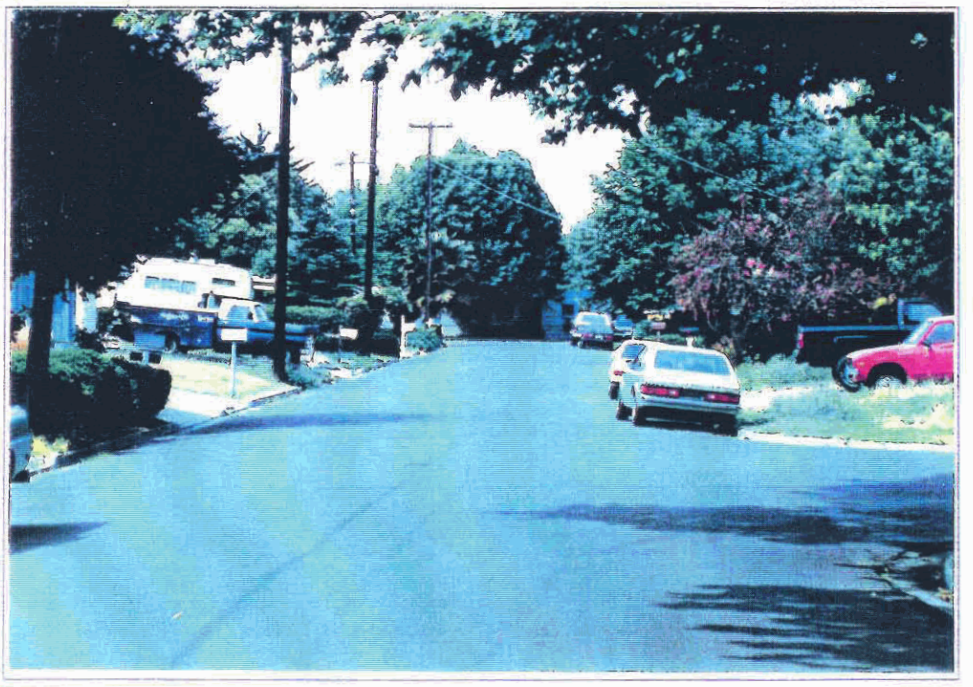


PHOTO #4. LOOKING SOUTH INTO THE SUBDIVISION ON THE 5 ACRE SITE.

PHOTO #6. LOOKING NORTH OUT OF THE SUBDIVISION ON THE 5 ACRE SITE. THE MAIN ROAD AND ACTIVE BASE IS IN THE DISTANCE.

SHEET G-2

1993 PHOTO OF SITE
NAVAL MAGAZINE
PORT CHICAGO, CALIFORNIA

NOT TO SCALE

DATE:

DATE OF PHOTO:1993

PHOTO #8. LOOKING NORTH ACROSS GOLF COARSE FROM THE PARKING LOT.

PHOTO #9. LOOKING SOUTHEAST ACROSS THE GOLF COARSE FROM THE PARKING LOT.

1993 PHOTO OF SITE
NAVAL MAGAZINE
PORT CHICAGO, CALIFORNIA

NOT TO SCALE

DATE:

DATE OF PHOTO: 1993

PHOTO #15. LOOKING NORTH-NORTHWEST AT THE CHEMICAL PLANT ON THE BACKSIDE OF THE 15 ACRE SITE.

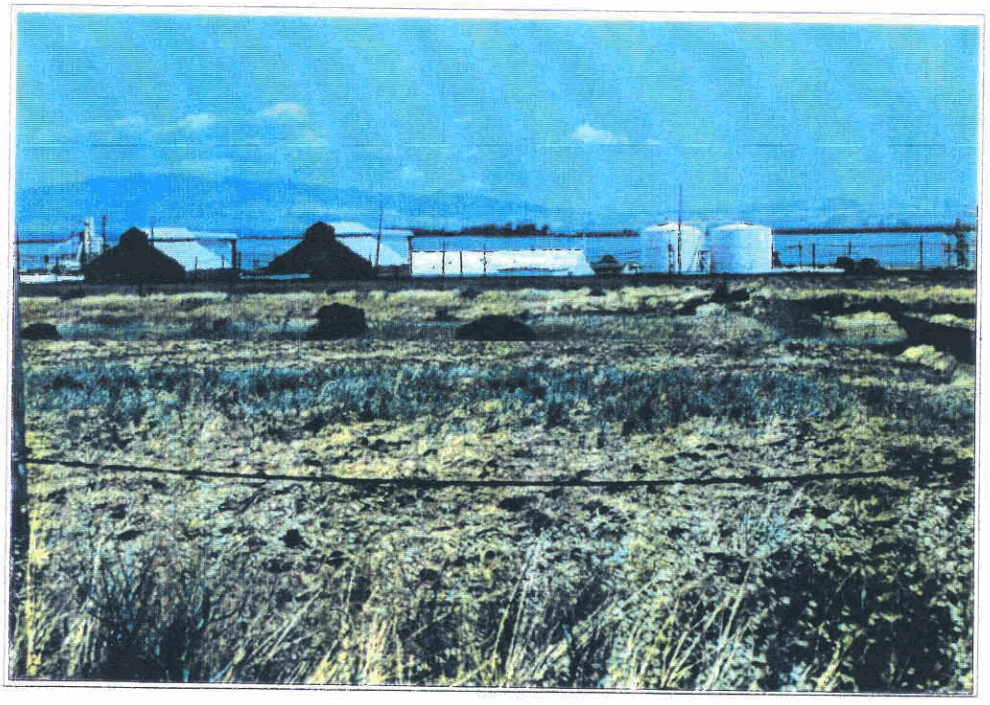


PHOTO #16. LOOKING NORTH DOWN THE PROPERTY LINE OF 15 ACRE SITE. RAILROAD TRACKS ARE ON BACK OF PROPERTY.

SHEET G-4

1993 PHOTO OF SITE
NAVAL MAGAZINE
PORT CHICAGO, CALIFORNIA

NOT TO SCALE

DATE: | DATE OF PHOTO: 1993

APPENDIX H

HISTORICAL MAPS/DRAWINGS

ORDNANCE AND EXPLOSIVE WASTE
CHEMICAL WARFARE MATERIALS
ARCHIVES SEARCH REPORT
FOR
PORT CHICAGO NAVAL MAGAZINE
CONTRA COSTA COUNTY, CA

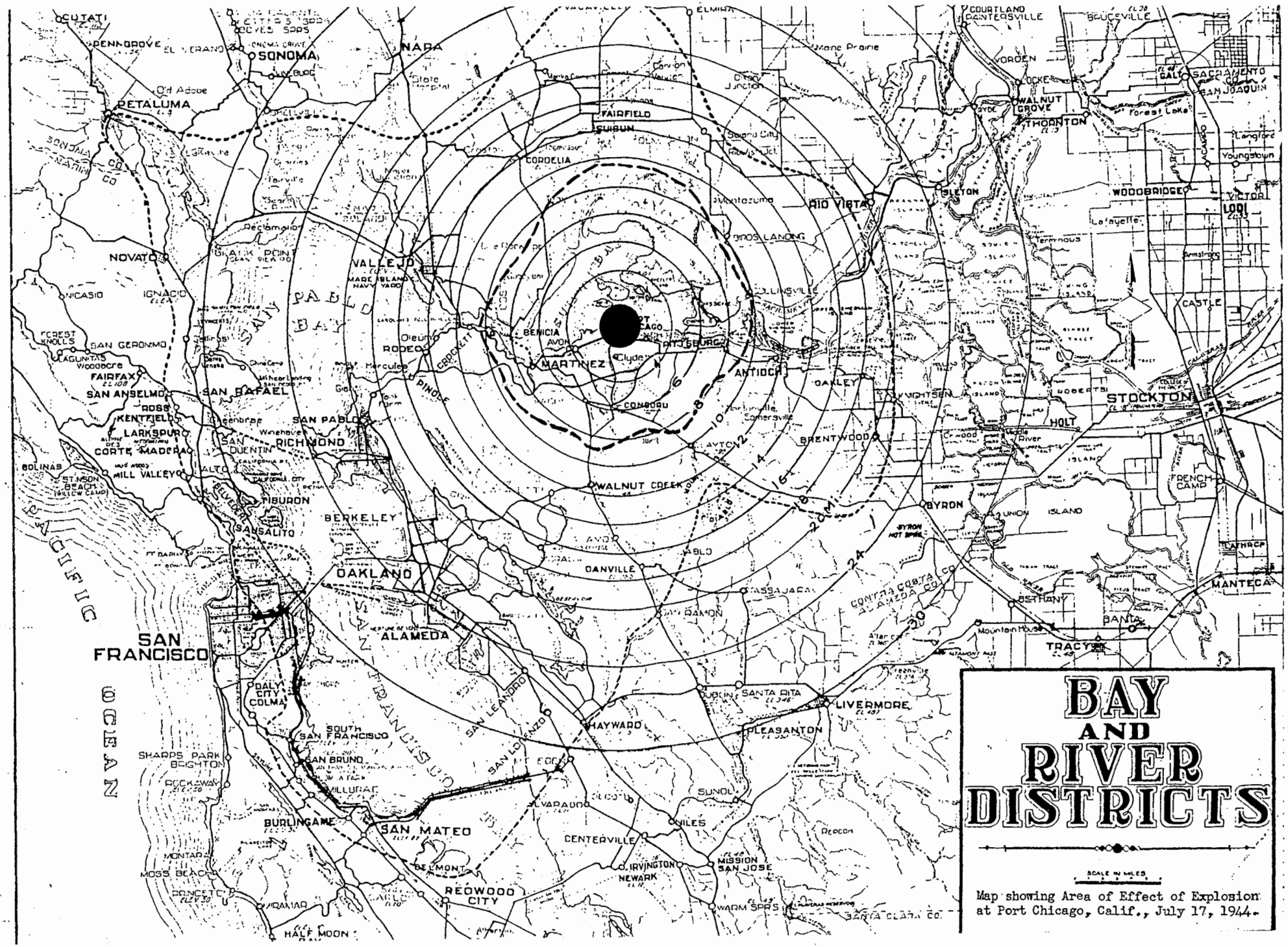
DERP-FUDS SITE NOS. J09CA102200

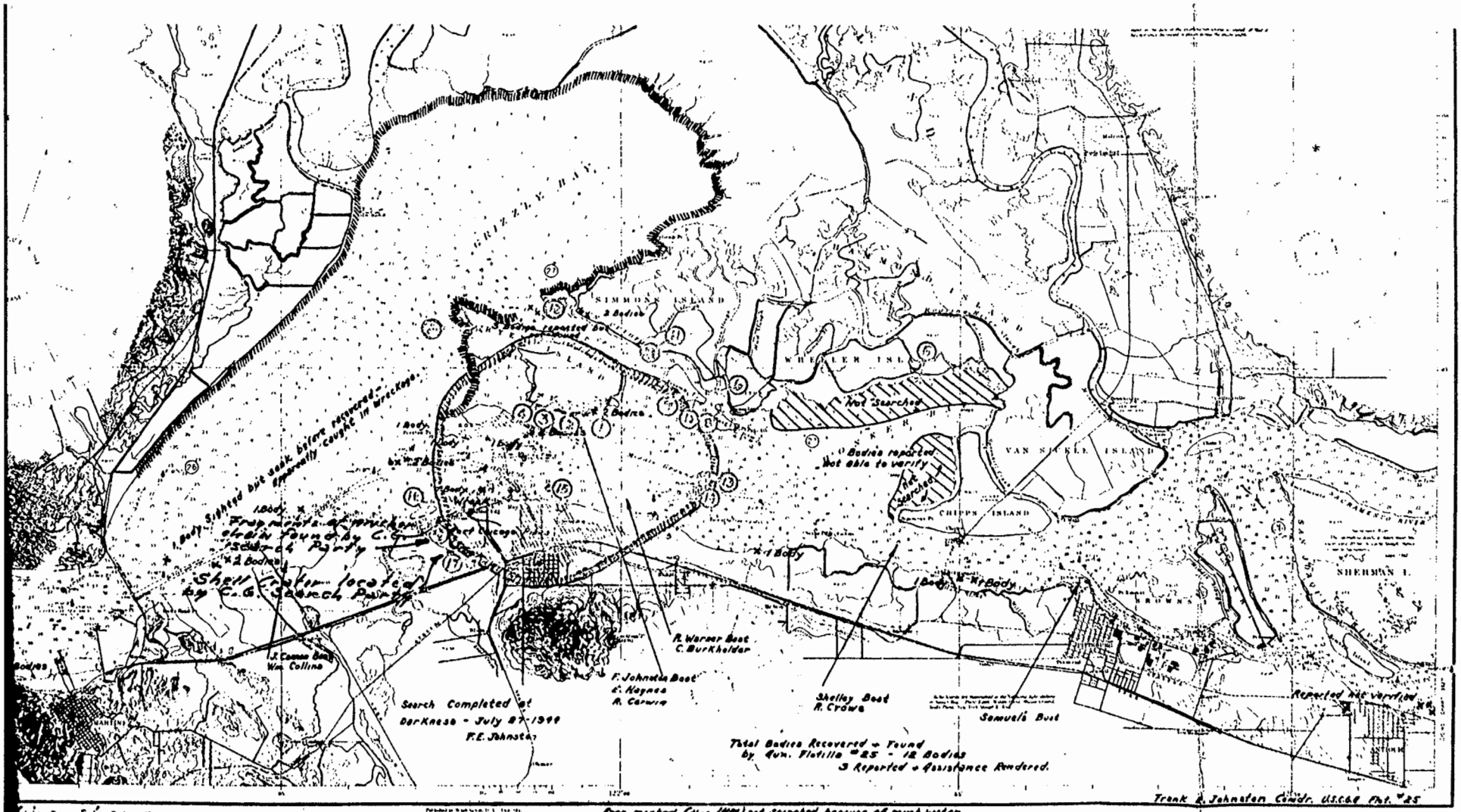
APPENDIX H

HISTORICAL MAPS/DRAWINGS

H1. 1944. Area of Effect of Explosion at Port Chicago. Historical Office for Port Chicago, 17 July 1944.

H2. 1944. Debris Survey of the Explosion Blast Zone. Historical Office for Port Chicago.


BAY AND RIVER DISTRICTS
Map showing Area of Effect of Explosion at Port Chicago, Calif., July 17, 1944.
SCALE IN MILES
SAN FRANCISCO BAY
SAN PABLO BAY
PACIFIC OCEAN
SAN FRANCISCO
OAKLAND
ALAMEDA
BERKELEY
RICHMOND
SAN PABLO
VALLEJO
MARE ISLAND NAVY YARD
MARTINEZ
BENICIA
PITTSBURG
ANTIOCH
CONCORD
WALNUT CREEK
DANVILLE
SAN RAMON
PLEASANTON
LIVERMORE
HAYWARD
SAN LEANDRO
SAN MATEO
BURLINGAME
REDWOOD CITY
MENLO PARK
PALO ALTO
MILL VALLEY
SAN RAFAEL
NOVATO
PETALUMA
SONOMA
NAPA
FAIRFIELD
SUISUN
VACAVILLE
VALLEJO
RIO VISTA
BRENTWOOD
OAKLEY
BYRON
TRACY
MANTECA
STOCKTON
LODI
WOODBRIDGE
THORNTON
WALNUT GROVE
SACRAMENTO
SAN JOAQUIN
CORDELIA
CROCKETT
RODEO
HERCULES
PINOLE
SAN LORENZO
CENTERVILLE
IRVINGTON
NEWARK
MISSION SAN JOSE
SUNOL
LIVERMORE
DUBLIN
SANTA RITA
CONTRA COSTA CANAL
ALAMEDA CREEK
2 Mi
4
6
8
10
12
14
16
18
20
24
30



...shows ...tion area as Lt. Comdr. Port Chicago...

Orange Hachures indicate limits of fragmentation as discovered by Coast Guard Search Party....

Exhibit 145 (14)

Black - Preliminary Search
Red - Exhaustive Search

(Suisun Bay) USCGS 5534

APPENDIX I

RISK ASSESSMENT CODE PROCEDURE FORMS

RISK ASSESSMENT PROCEDURES FOR
MILITARY MUNITIONS RESPONSE PROJECTS
(Revised 29 October 2003)

Property Name:	Port Chicago Naval Magazine	Rater's Name:	Daniel Linehan
Property Location:	Clyde, CA	Phone Number:	9184208867
DERP Project #:	J09CA102200	Organization:	SJMAC-ESM
Property Type:	Explosive Exclusion Area; Area A	Date Completed:	4/8/2004
Score:	5		

RISK ASSESSMENT:

This risk assessment (RAC) procedure was developed to address explosives safety hazards related to munitions. This procedure does not address environmental hazards associated with munitions constituents. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Directorate (CEHNC-OE) developed this procedure in accordance with MIL-STD 882C and AR 385-10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Corps of Engineers to prioritize the response action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) actions, field observations (site visits), and interviews. This information is used to assess the risk involved based on the potential MMR hazards identified for the project. The risk assessment evaluates two factors, hazard severity and hazard probability.

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

TYPE OF ORDNANCE: (Check all that apply)

A. Conventional ordnance and ammunition:	VALUE	
Projectiles, explosive (20 millimeter and larger)	10	☐
Bombs, explosive	10	☐
Grenades, hand or rifle, explosive	10	☐
Landmine, explosive	10	☐
Rockets, guided missile, explosive	10	☐
Other Explosive item not previously stated	10	☐
Bomb, practice (w/spotting charge)	6	☐
Detonators, blasting caps, fuses, boosters, bursters	6	☐
Practice ordnance (w/ spotting charges, other than bombs)	4	☐
Small arms, complete round (.50 cal or less)	1	☐
Small arms, expended (.50 cal or less)	0	☐
Practice ordnance (w/o spotting charges)	0	☒
Conventional ordnance and ammunition (enter largest single value checked)		0

What evidence do you have regarding conventional unexploded ordnance? None.

B. Pyrotechnics (for munitions not described above):

	VALUE
Munitions 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)	10☐
Containers containing WP or other pyrophoric material or flame or incendiary material	6☐
Flares, signals, simulators, screening/burning smokes (other than WP)	4☐
Pyrotechnics (enter the single largest value checked)	0

What evidence do you have regarding pyrotechnics? NONE

C. Bulk Explosives (HE) (not an integral part of conventional ordnance; un-containerized):

	VALUE
Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10☐
Secondary explosives (Demolition charges, PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8☐
Insensitive explosive substances (explosive contaminated soils, ammonium nitrate)	3☐
Bulk Explosives (HE) (enter the single largest value checked)	0

What evidence do you have regarding bulk explosives? NONE

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

	VALUE
Solid or liquid propellants	6☐
Bulk Propellants (select 6 or 0)	0

What evidence do you have regarding bulk propellants? NONE

E. Recovered Chemical Warfare Materiel (RCWM), Weaponized Industrial Chemicals and Radiological Materiel:

	VALUE
Toxic chemical agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite)	25☐
Chemical Agent Identification Sets	20☐
Radiological Materiel (If rad waste is identified please call the HTRW–CX at 402-697-2555)	15☐
Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG)	10☐
Riot Control Agents (vomiting, tear)	5☐
Chemical and Radiological (enter the single largest value checked)	0

What evidence do you have regarding chemical or radiological? None.

TOTAL HAZARD SEVERITY VALUE (Sum of value A through E, maximum of 61) 0
Apply this value to Table 1 to determine Hazard Severity Category

TABLE 1
HAZARD SEVERITY*

DESCRIPTION	CATEGORY	HAZARD SEVERITY VALUE
CATASTROPHIC	I ☐	21 and/or greater
CRITICAL	II ☐	10 to 20
MARGINAL	III ☐	5 to 9
NEGLIGIBLE	IV ☐	1 to 4
**NONE	V ☒	0

*Apply Hazard Severity Category to Table 3 and complete Part II of this form.
**If hazard severity value is 0, complete Part II of this form. Then 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, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

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

A. Locations of OE hazards:

	VALUE
On the surface	5☐
Within tanks, pipes, vessels, or other confined areas	4☐
Inside walls, ceilings, or other building/structure	3☐
Subsurface	2☐
Location (enter the single largest value checked)	0

What evidence do you have regarding the location of OE? NONE

Property Name:
Project Number:
Property Type:

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard (road, park, playground, building, etc.).

	VALUE
Less than 1,250 feet	5☐
1,250 feet to 0.5 mile	4☐
0.5 mile to 1.0 mile	3☐
1.0 mile to 2.0 Miles	2☐
Over 2 miles	1☐
Distance (enter the single largest value checked)	0

What are the nearest inhabited structures/buildings? NONE

C. Number(s) of building(s) within a 2-mile radius measured from the OE hazard area, not the installation boundary.

	VALUE
26 and over	5☐
16 to 25	4☐
11 to 16	3☐
6 to 10	2☐
1 to 5	1☐
0	0☒
Number of buildings (enter the single largest value checked)	0

Narrative: NONE

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

	VALUE
Educational, childcare, residential, hospitals, hotels, commercial, shopping centers	5☐
Industrial, warehouse, etc.	4☐
Agricultural, forestry, etc.	3☐
Detention, correctional	2☐
No buildings	0☒
Types of buildings (enter the single largest value checked)	0

Describe the types of buildings: NONE

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

	VALUE
No barrier nor 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☐
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the area; and, a means to control entry at all times through the gates or other entrances (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the area).	0☒
Accessibility (enter the single largest value checked)	0

Describe the site accessibility: NONE

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 on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.

	VALUE
Expected	5☐
Not anticipated	0☒
Site Dynamics (enter the single largest value checked)	0

Describe the site dynamics: NONE

TOTAL HAZARD PROBABILITY VALUE 0
(Sum of largest values for A through F (maximum of 30). Apply this value to Hazard Probability Table 2 to determine the Hazard Probability Level.

TABLE 2
HAZARD PROBABILITY*

DESCRIPTION VALUE	LEVEL	HAZARD PROBABILITY
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. Enter 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 ☐	4 ☐
MARGINABLE III	2 ☐	3 ☐	4 ☐	4 ☐	4 ☐
NEGLIGIBLE IV	3 ☒	4 ☐	4 ☐	4 ☐	4 ☐

None (V) = RAC 5 ☒

RISK ASSESSMENT CODE (RAC)

RAC 1-4	Recommend and approve further action as appropriate. Refer to EP 1110-1-18 for discussion of MMR projects and the process to be followed for project execution.
RAC 5	Usually indicates that No DOD Action Indicated (NDAI) is necessary. Recommend and approve NDAI and follow instructions for project closeout in accordance with current program guidance.

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.
No OE was discovered during the site investigation. There are no areas of confirmed or potential OE presence. The property was used as an explosive exclusion area. Recommend RAC 5.

Property Name:
Project Number:
Property Type:

RISK ASSESSMENT PROCEDURES FOR
MILITARY MUNITIONS RESPONSE PROJECTS
(Revised 29 October 2003)

Property Name:	Port Chicago Naval Magazine	Rater's Name:	Daniel Linehan
Property Location:	Clyde, CA	Phone Number:	9184208867
DERP Project #:	J09CA102200	Organization:	SJMAC-ESM
Property Type:	Explosive Exclusion Area; Area B	Date Completed:	4/8/2004
Score:	5		

RISK ASSESSMENT:

This risk assessment (RAC) procedure was developed to address explosives safety hazards related to munitions. This procedure does not address environmental hazards associated with munitions constituents. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Directorate (CEHNC-OE) developed this procedure in accordance with MIL-STD 882C and AR 385-10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Corps of Engineers to prioritize the response action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) actions, field observations (site visits), and interviews. This information is used to assess the risk involved based on the potential MMR hazards identified for the project. The risk assessment evaluates two factors, hazard severity and hazard probability.

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

TYPE OF ORDNANCE: (Check all that apply)

A. Conventional ordnance and ammunition:	VALUE
Projectiles, explosive (20 millimeter and larger)	10 ☐
Bombs, explosive	10 ☐
Grenades, hand or rifle, explosive	10 ☐
Landmine, explosive	10 ☐
Rockets, guided missile, explosive	10 ☐
Other Explosive item not previously stated	10 ☐
Bomb, practice (w/spotting charge)	6 ☐
Detonators, blasting caps, fuses, boosters, bursters	6 ☐
Practice ordnance (w/ spotting charges, other than bombs)	4 ☐
Small arms, complete round (.50 cal or less)	1 ☐
Small arms, expended (.50 cal or less)	0 ☐
Practice ordnance (w/o spotting charges)	0 ☒
Conventional ordnance and ammunition (enter largest single value checked)	0

What evidence do you have regarding conventional unexploded ordnance? None.

B. Pyrotechnics (for munitions not described above):

	VALUE
Munitions 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)	10☐
Containers containing WP or other pyrophoric material or flame or incendiary material	6☐
Flares, signals, simulators, screening/burning smokes (other than WP)	4☐
Pyrotechnics (enter the single largest value checked)	0

What evidence do you have regarding pyrotechnics? NONE

C. Bulk Explosives (HE) (not an integral part of conventional ordnance; un-containerized):

	VALUE
Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10☐
Secondary explosives (Demolition charges, PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8☐
Insensitive explosive substances (explosive contaminated soils, ammonium nitrate)	3☐
Bulk Explosives (HE) (enter the single largest value checked)	0

What evidence do you have regarding bulk explosives? NONE

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

	VALUE
Solid or liquid propellants	6☐
Bulk Propellants (select 6 or 0)	0

What evidence do you have regarding bulk propellants? NONE

E. Recovered Chemical Warfare Materiel (RCWM), Weaponized Industrial Chemicals and Radiological Materiel:

	VALUE
Toxic chemical agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite)	25☐
Chemical Agent Identification Sets	20☐
Radiological Materiel (If rad waste is identified please call the HTRW–CX at 402-697-2555)	15☐
Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG)	10☐
Riot Control Agents (vomiting, tear)	5☐
Chemical and Radiological (enter the single largest value checked)	0

What evidence do you have regarding chemical or radiological? None.

TOTAL HAZARD SEVERITY VALUE (Sum of value A through E, maximum of 61) 0
Apply this value to Table 1 to determine Hazard Severity Category

---

Property Name:
Project Number:
Property Type:

TABLE 1
HAZARD SEVERITY*

DESCRIPTION	CATEGORY	HAZARD SEVERITY VALUE
CATASTROPHIC	I ☐	21 and/or greater
CRITICAL	II ☐	10 to 20
MARGINAL	III ☐	5 to 9
NEGLIGIBLE	IV ☐	1 to 4
**NONE	V ☒	0

*Apply Hazard Severity Category to Table 3 and complete Part II of this form.
**If hazard severity value is 0, complete Part II of this form. Then 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, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

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

A. Locations of OE hazards:

	VALUE
On the surface	5☐
Within tanks, pipes, vessels, or other confined areas	4☐
Inside walls, ceilings, or other building/structure	3☐
Subsurface	2☐
Location (enter the single largest value checked)	0

What evidence do you have regarding the location of OE? NONE

Property Name:
Project Number:
Property Type:

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard (road, park, playground, building, etc.).

	VALUE
Less than 1,250 feet	5☐
1,250 feet to 0.5 mile	4☐
0.5 mile to 1.0 mile	3☐
1.0 mile to 2.0 Miles	2☐
Over 2 miles	1☐
Distance (enter the single largest value checked)	0

What are the nearest inhabited structures/buildings? NONE

C. Number(s) of building(s) within a 2-mile radius measured from the OE hazard area, not the installation boundary.

	VALUE
26 and over	5☐
16 to 25	4☐
11 to 16	3☐
6 to 10	2☐
1 to 5	1☐
0	0☒
Number of buildings (enter the single largest value checked)	0

Narrative: NONE

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

	VALUE
Educational, childcare, residential, hospitals, hotels, commercial, shopping centers	5☐
Industrial, warehouse, etc.	4☐
Agricultural, forestry, etc.	3☐
Detention, correctional	2☐
No buildings	0☒
Types of buildings (enter the single largest value checked)	0

Describe the types of buildings: NONE

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

	VALUE
No barrier nor 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☐
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the area; and, a means to control entry at all times through the gates or other entrances (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the area).	0☒
Accessibility (enter the single largest value checked)	0

Describe the site accessibility: NONE

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 on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.

	VALUE
Expected	5☐
Not anticipated	0☒
Site Dynamics (enter the single largest value checked)	0

Describe the site dynamics: NONE

TOTAL HAZARD PROBABILITY VALUE 0
(Sum of largest values for A through F (maximum of 30). Apply this value to Hazard Probability Table 2 to determine the Hazard Probability Level.

TABLE 2
HAZARD PROBABILITY*

DESCRIPTION VALUE	LEVEL	HAZARD PROBABILITY
FREQUENT	A ☐	27 or greater
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*Apply Hazard Probability Level to Table 3.

Part III - Risk Assessment. The risk assessment value for this site is determined using the following Table. Enter 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 ☐	4 ☐
MARGINABLE III	2 ☐	3 ☐	4 ☐	4 ☐	4 ☐
NEGLIGIBLE IV	3 ☐	4 ☐	4 ☐	4 ☐	4 ☐

None (V) = RAC 5 ☒

RISK ASSESSMENT CODE (RAC)

RAC 1-4 Recommend and approve further action as appropriate. Refer to EP 1110-1-18 for discussion of MMR projects and the process to be followed for project execution.

RAC 5 Usually indicates that No DOD Action Indicated (NDAI) is necessary. Recommend and approve NDAI and follow instructions for project closeout in accordance with current program guidance.

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.

No OE was discovered during the site investigation. There are no areas of confirmed or potential OE presence. The property was used as an explosive exclusion area. Recommend RAC 5.

Property Name:
Project Number:
Property Type:

RISK ASSESSMENT PROCEDURES FOR
MILITARY MUNITIONS RESPONSE PROJECTS
(Revised 29 October 2003)

Property Name:	Port Chicago Naval Magazine	Rater's Name:	Daniel Linehan
Property Location:	Clyde, CA	Phone Number:	9184208867
DERP Project #:	J09CA102200	Organization:	SJMAC-ESM
Property Type:	Explosive Exclusion Area; Area C	Date Completed:	4/8/2004
Score:	5		

RISK ASSESSMENT:

This risk assessment (RAC) procedure was developed to address explosives safety hazards related to munitions. This procedure does not address environmental hazards associated with munitions constituents. The U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Directorate (CEHNC-OE) developed this procedure in accordance with MIL-STD 882C and AR 385-10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Corps of Engineers to prioritize the response action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) actions, field observations (site visits), and interviews. This information is used to assess the risk involved based on the potential MMR hazards identified for the project. The risk assessment evaluates two factors, hazard severity and hazard probability.

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TYPE OF ORDNANCE: (Check all that apply)

A. Conventional ordnance and ammunition:	VALUE	
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Grenades, hand or rifle, explosive	10	☐
Landmine, explosive	10	☐
Rockets, guided missile, explosive	10	☐
Other Explosive item not previously stated	10	☐
Bomb, practice (w/spotting charge)	6	☐
Detonators, blasting caps, fuses, boosters, bursters	6	☐
Practice ordnance (w/ spotting charges, other than bombs)	4	☐
Small arms, complete round (.50 cal or less)	1	☐
Small arms, expended (.50 cal or less)	0	☐
Practice ordnance (w/o spotting charges)	0	☒
Conventional ordnance and ammunition (enter largest single value checked)		0

What evidence do you have regarding conventional unexploded ordnance? None.

B. Pyrotechnics (for munitions not described above):

	VALUE
Munitions 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)	10☐
Containers containing WP or other pyrophoric material or flame or incendiary material	6☐
Flares, signals, simulators, screening/burning smokes (other than WP)	4☐
Pyrotechnics (enter the single largest value checked)	0

What evidence do you have regarding pyrotechnics? NONE

C. Bulk Explosives (HE) (not an integral part of conventional ordnance; un-containerized):

	VALUE
Primary or initiating explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.)	10☐
Secondary explosives (Demolition charges, PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8☐
Insensitive explosive substances (explosive contaminated soils, ammonium nitrate)	3☐
Bulk Explosives (HE) (enter the single largest value checked)	0

What evidence do you have regarding bulk explosives? NONE

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

	VALUE
Solid or liquid propellants	6☐
Bulk Propellants (select 6 or 0)	0

What evidence do you have regarding bulk propellants? NONE

E. Recovered Chemical Warfare Materiel (RCWM), Weaponized Industrial Chemicals and Radiological Materiel:

	VALUE
Toxic chemical agents (H-Mustard, G-Nerve, V-Nerve and L-Lewisite)	25☐
Chemical Agent Identification Sets	20☐
Radiological Materiel (If rad waste is identified please call the HTRW–CX at 402-697-2555)	15☐
Weaponized Industrial Chemicals (Hydrogen Cyanide AC; Cyanogen Chloride, CK; Phosgene, CG)	10☐
Riot Control Agents (vomiting, tear)	5☐
Chemical and Radiological (enter the single largest value checked)	0

What evidence do you have regarding chemical or radiological? None.

TOTAL HAZARD SEVERITY VALUE (Sum of value A through E, maximum of 61) 0
Apply this value to Table 1 to determine Hazard Severity Category

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TABLE 1
HAZARD SEVERITY*

DESCRIPTION	CATEGORY	HAZARD SEVERITY VALUE
CATASTROPHIC	I ☐	21 and/or greater
CRITICAL	II ☐	10 to 20
MARGINAL	III ☐	5 to 9
NEGLIGIBLE	IV ☐	1 to 4
**NONE	V ☒	0

*Apply Hazard Severity Category to Table 3 and complete Part II of this form.
**If hazard severity value is 0, complete Part II of this form. Then 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, explosives, incendiary, pyrotechnic, radiological, or RCWM materials on a formerly used Department of Defense (DOD) site.

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

A. Locations of OE hazards:

	VALUE
On the surface	5☐
Within tanks, pipes, vessels, or other confined areas	4☐
Inside walls, ceilings, or other building/structure	3☐
Subsurface	2☐
Location (enter the single largest value checked)	0

What evidence do you have regarding the location of OE? NONE

B. Distance to nearest inhabited location/structure likely to be at risk from OE hazard (road, park, playground, building, etc.).

	VALUE
Less than 1,250 feet	5☐
1,250 feet to 0.5 mile	4☐
0.5 mile to 1.0 mile	3☐
1.0 mile to 2.0 Miles	2☐
Over 2 miles	1☐
Distance (enter the single largest value checked)	0

What are the nearest inhabited structures/buildings? NONE

C. Number(s) of building(s) within a 2-mile radius measured from the OE hazard area, not the installation boundary.

	VALUE
26 and over	5☐
16 to 25	4☐
11 to 16	3☐
6 to 10	2☐
1 to 5	1☐
0	0☒
Number of buildings (enter the single largest value checked)	0

Narrative: NONE

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

	VALUE
Educational, childcare, residential, hospitals, hotels, commercial, shopping centers	5☐
Industrial, warehouse, etc.	4☐
Agricultural, forestry, etc.	3☐
Detention, correctional	2☐
No buildings	0☒
Types of buildings (enter the single largest value checked)	0

Describe the types of buildings: NONE

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

	VALUE
No barrier nor 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☐
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) which completely surrounds the area; and, a means to control entry at all times through the gates or other entrances (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the area).	0☒
Accessibility (enter the single largest value checked)	0

Describe the site accessibility: NONE

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 on beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.

	VALUE
Expected	5☐
Not anticipated	0☒
Site Dynamics (enter the single largest value checked)	0

Describe the site dynamics: NONE

TOTAL HAZARD PROBABILITY VALUE 0
(Sum of largest values for A through F (maximum of 30). Apply this value to Hazard Probability Table 2 to determine the Hazard Probability Level.

TABLE 2
HAZARD PROBABILITY*

DESCRIPTION VALUE	LEVEL	HAZARD PROBABILITY
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. Enter 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 ☐	4 ☐
MARGINABLE III	2 ☐	3 ☐	4 ☐	4 ☐	4 ☐
NEGLIGIBLE IV	3 ☐	4 ☐	4 ☐	4 ☐	4 ☐

None (V) = RAC 5 ☒

RISK ASSESSMENT CODE (RAC)

RAC 1-4	Recommend and approve further action as appropriate. Refer to EP 1110-1-18 for discussion of MMR projects and the process to be followed for project execution.
RAC 5	Usually indicates that No DOD Action Indicated (NDAI) is necessary. Recommend and approve NDAI and follow instructions for project closeout in accordance with current program guidance.

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.
No OE was discovered during the site investigation. There are no areas of confirmed or potential OE presence. The property was used as an explosive exclusion area. Recommend RAC 5.

Property Name:
Project Number:
Property Type:

APPENDIX J

REPORT DISTRIBUTION LIST

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