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June 11, 2010

California Energy Commission
Attn: Docket No. 09AFC6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

Re: 09-AFC-6 Blythe Solar Power Plant Project

Dear Docket Clerk:

Enclosed are an original and one copy of **TESTIMONY OF MATTHEW F. HAGEMANN ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY FOR THE BLYTHE SOLAR POWER PROJECT**. Please process the document and provide us with a conformed copy in the envelope provided.

Thank you.

Sincerely,

/s/

Elizabeth Klebaner

EK:bh
Enclosures

2398-050a

STATE OF CALIFORNIA

California Energy Commission

In the Matter of: The Application for Certification for the Blythe Solar Power Project	Docket No. 09-AFC-6

TESTIMONY OF MATTHEW F. HAGEMANN ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY FOR THE BLYTHE SOLAR POWER PROJECT

June 11, 2010

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Attorneys for CALIFORNIA UNIONS FOR RELIABLE ENERGY

I. INTRODUCTION

I have been working for California Unions for Reliable Energy ("CURE") as a consultant since the data adequacy phase of the Blythe Solar Power Project ("Project" or "BSPP") proceeding. I have reviewed the Application for Certification ("AFC"), the Applicant's responses to the California Energy Commission Staff's data requests, the Staff Assessment and Draft Environmental Impact Statement ("Staff Assessment"), and the Revised Staff Assessment. I have also conducted my own independent investigations and analyses regarding the Project's potential environmental and health and safety impacts.

My testimony is based on the activities described above and the knowledge and experience I have acquired during more than 25 years of working on environmental issues. A summary of my education and experience is attached to this testimony as Attachment 1.

II. THE STAFF ASSESSMENT AND THE APPLICANT'S SUBMITTALS FAIL TO IDENTIFY BASELINE CONDITIONS AND THE ONGOING FEDERAL CLEANUP ACTIVITIES ON THE PROJECT SITE

The AFC and the Staff Assessment fail to accurately describe the existing physical conditions on and around the Project site and fail to identify the fact that portions of the Project site are now subject to federal cleanup activities under the Defense Environmental Restoration Program (DERP).

A. Prior Military Activities at the Project Site and its Vicinity

The Project footprint would encompass approximately 5,950 acres within a 9,400 acre right-of-way from the U.S. Bureau of Land Management (BLM).[1] The site includes about 7,030 acres that would be disturbed in some manner during construction and operation of the Project.[2] The Blythe Airport is south and east of the Project footprint.[3] The Blythe Airport is now leased by the City of Blythe from Riverside County; however, the Blythe Airport site and its surroundings were previously occupied and used by the U.S. Army.

[1] Staff Assessment, p. C.6-4.
[2] *Id.*
[3] *Id.*

On June 1, 1942, the U.S. Army entered into a lease with the County of Riverside to acquire use of 290.45 acres (later determined to be 282.61 acres), corresponding to the Blythe Airport.[4] Between 1942 and 1944 a total of 2,354.89 acres of public domain land were transferred to the War Department and all desert claims cleared through declaration of taking.[5] Additionally, the U.S. Army acquired another 1,896.04 acres in fee from various private parties.[6] A total of 6.54 acres of public domain land were acquired for right-of-ways as well as a 1.98 acre easement and 0.63 acre permit. The U.S. Army also encroached on 20.18 acres for which a permit was never acquired. By 1944, acquisition, including the encroachment, was 4,560.06 acres.[7] We have mapped the FUDS boundary in Figures 1, 1a, and 1b below. As shown and referenced in figures below, the FUDS boundaries have been inconsistently mapped by the Corps. For the purposes of this testimony, we have relied upon the boundary of the map created by the Corps in 2003 because it is more recent than the map included with the 1999 Findings and Determination of Eligibility.

[4] Blythe Army Airfield, Findings and Determination of Eligibility, Site Summary Sheet, Project Summary Sheet and Risk Assessment Procedure, DERP-FUDS Site No. J09CA024500, attached hereto as Attachment 2.
[5] *Id.*
[6] *Id.*
[7] *Id.*

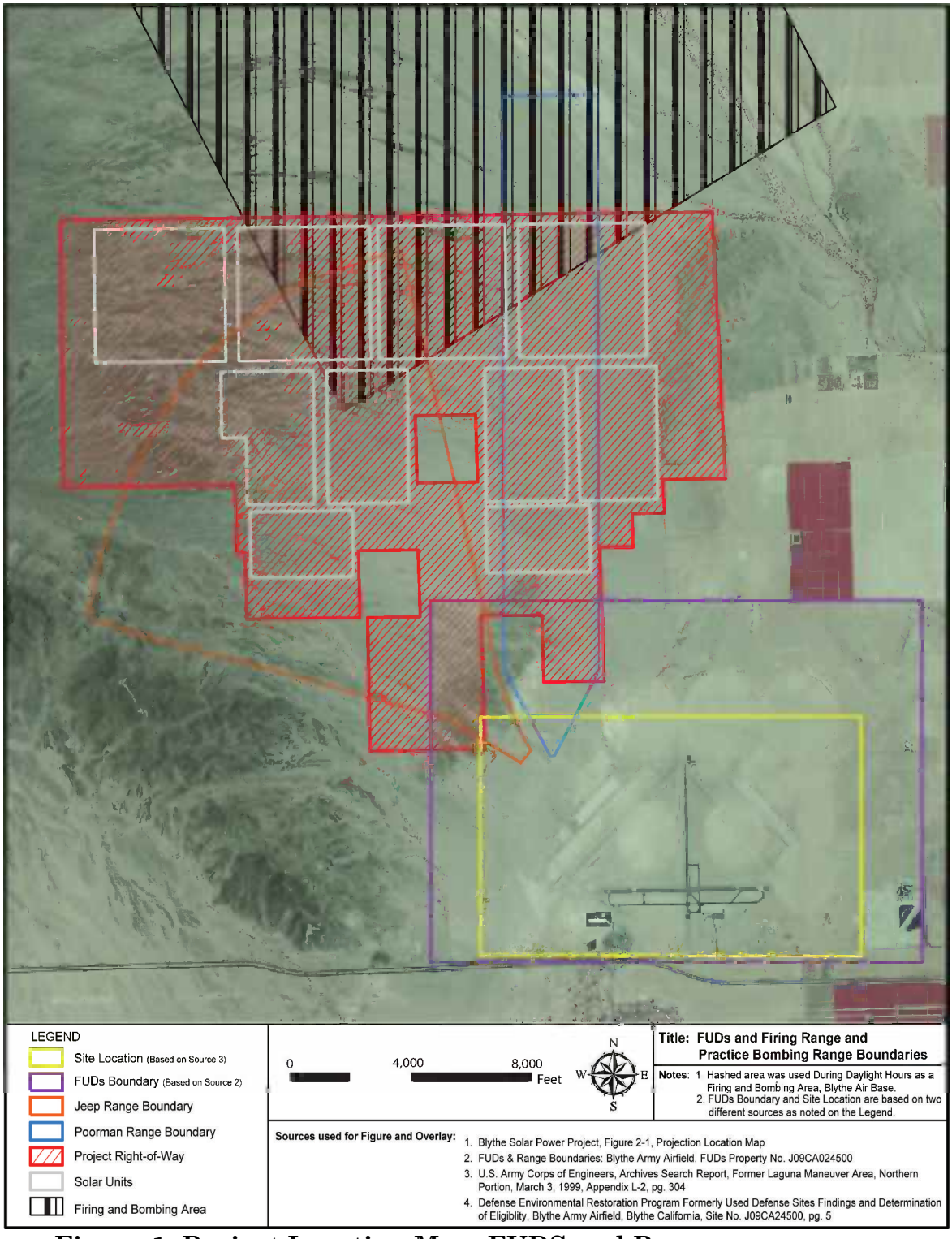

Figure 1: Project Location Map, FUDS and Ranges

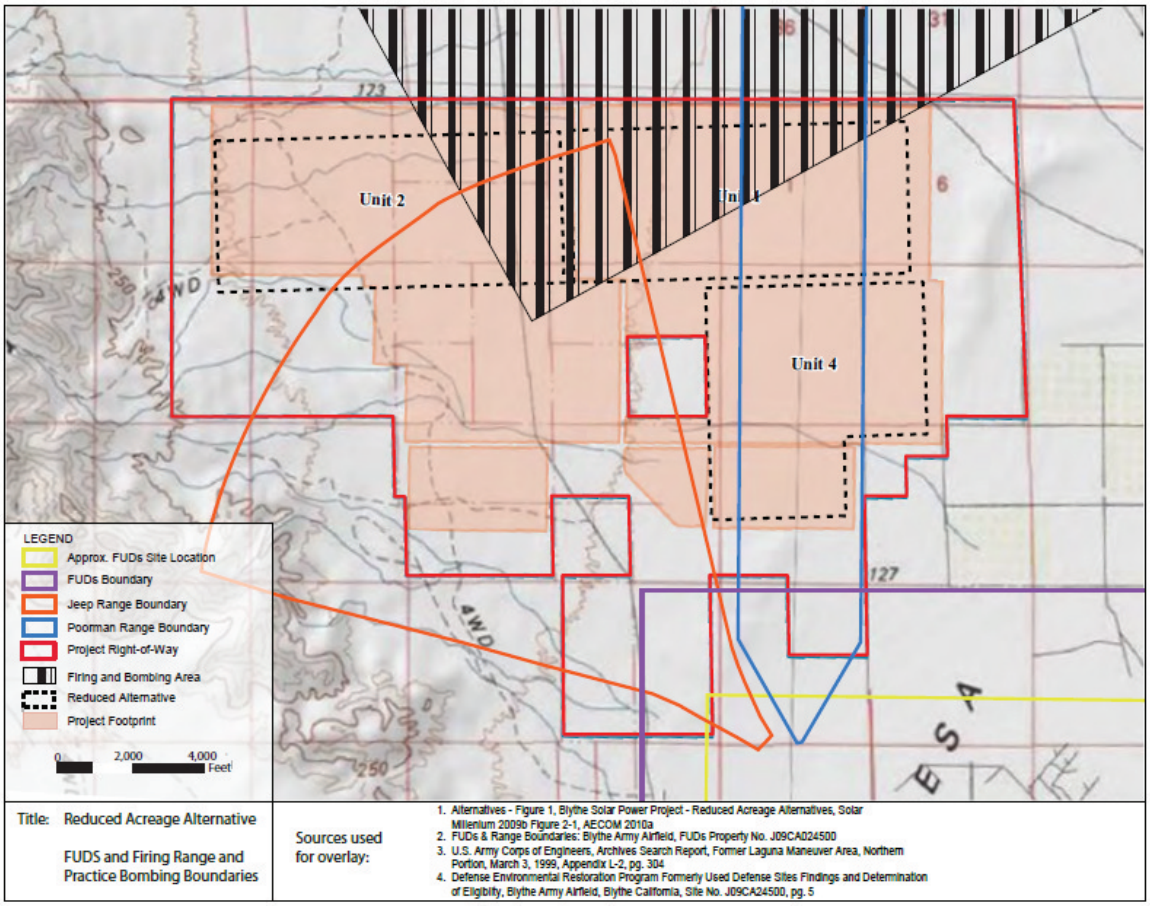

Figure 1a: Reduced Acreage Alternative Map, FUDS and Ranges

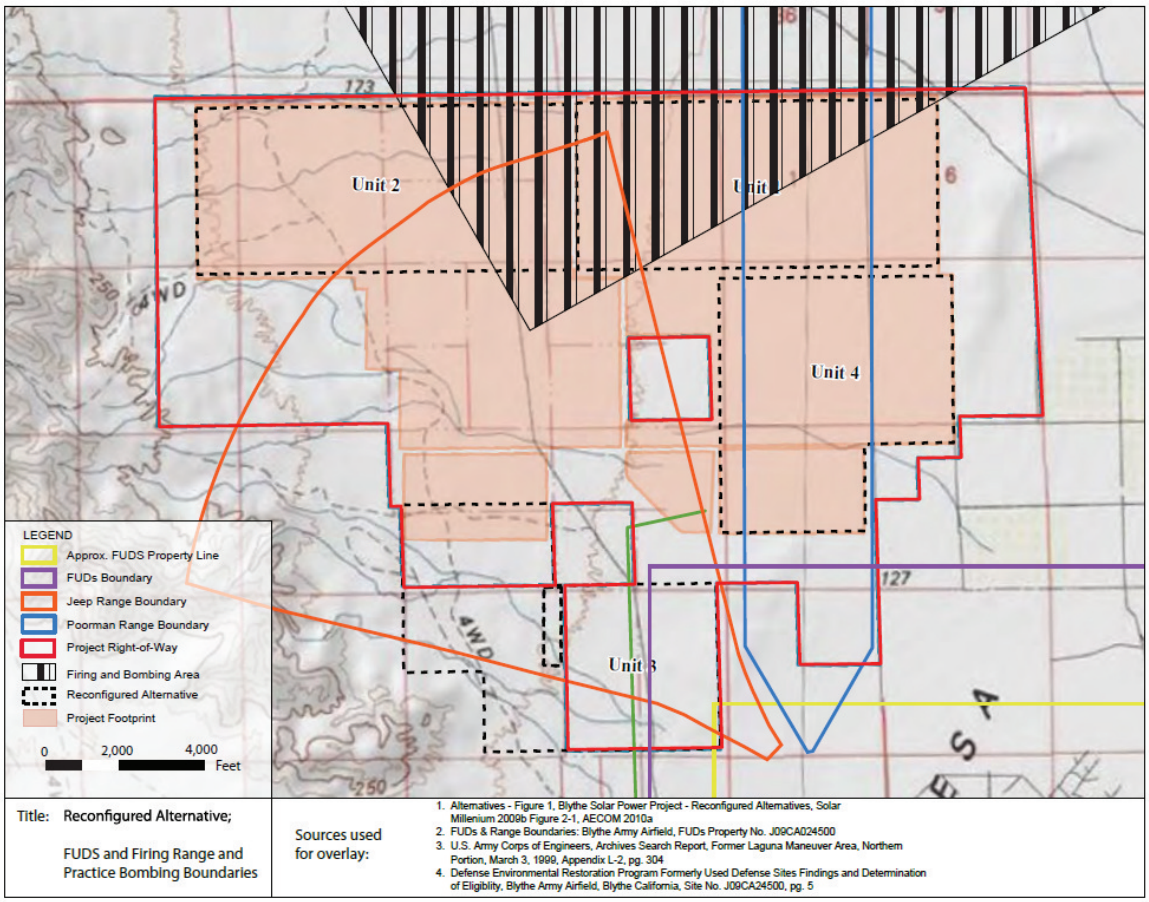

Figure 1b: Reconfigured Alternative Map, FUDS and Ranges

The Blythe Army Airfield was used for heavy bomber pilot and crew training for the Second Air Force heavy bombardment crew from 1943 to 1944. The 85th Bombardment Group and the 390th Bombardment Group were active at Blythe AAF in 1942 and 1943. Up to 75 B-17 bombers were flown and maintained at this site. During this period the military constructed over 650 buildings and other types of improvements including hangars, office buildings, barracks, warehouses, runways and taxiways, water and sewer systems, hospital, fuel and ordnance storage.[8]

A Poorman gunnery range, skeet range, and jeep type target range, all with ammunition storage, were constructed and used by Army personnel.[9] The locations of the ranges are excerpted in Figure 2 below as obtained from the National Archives.[10]

[8] *Id.*
[9] *Id.*
[10] Boundary Sketch, Blythe Army Airfield, September 1943.

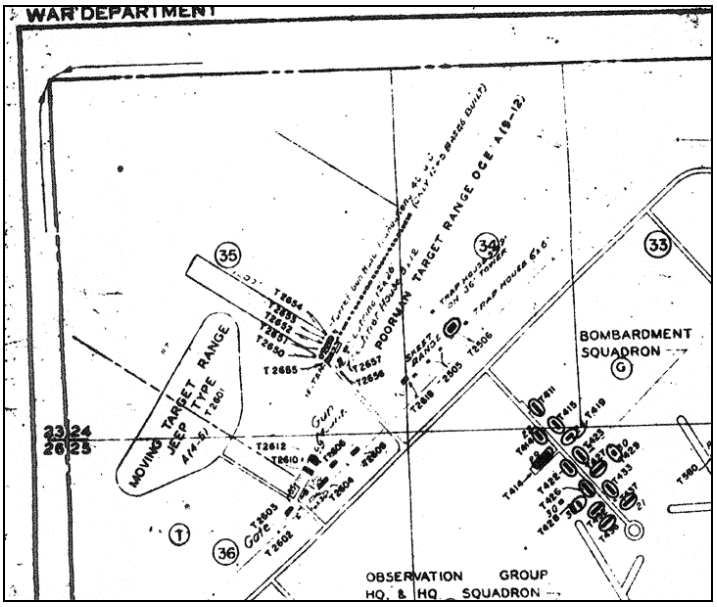

Figure 2: Excerpt from 1943 Boundary Sketch

Safety fans[11] associated with these ranges extend into the Project site, as shown in the figure below and in Attachment 4.[12,13]

The presence of up to five magazines indicates bombs, pyrotechnics and incendiary devices were likely stored at the airfield.[14] What is identified as a "Firing and Bombing Area" in documents provided by the Corps corresponds with the northern portion of the Project footprint (Figure 1).[15] The Firing and Bombing Area was likely used as a practice bombing range, consistent with mission of Blythe AAF and the types of ordnance that were stored at the base.

[11] Safety fans are areas where the bullets would have been directed at distances of up to five miles depending on the caliber and type of projectiles.

[12]Blythe Army Airfield, FUDS Property No. J09CA024500, Installation Map, http://deparc.xservices.com/PDFS/MMRP_MAPS/CA99799F537100.pdf.

[13] Please note that the Corps misidentified the locations of the fans: the location of the Poorman Range and the Jeep Range were switched in the map the Corps prepared (Attachment 4) when compared to the map prepared by the Army (Figure 2 and Attachment 3). We confirmed the transposition of the ranges by identifying the location of the Jeep Range in current aerial photographs in a location consistent with the Army map in Figure 2 and Attachment 3. For purposes of the mapping in Figure 1, we corrected the locations.

[14] Blythe Army Airfield, Findings and Determination of Eligibility, Site Summary Sheet, Project Summary Sheet and Risk Assessment Procedure, DERP-FUDS Site No. J09CA024500, p. 1, see Attachment 2.

[15] U.S. Army Corps of Engineers, Archives Search Report, Former Laguna Maneuver Area, Northern Portion, March 3, 1999 (p. 304 of the ASR).

1. Activities Associated with Poorman Ranges

Poorman ranges were used at bases across the U.S. for training in aerial gunnery. The ranges were developed to simulate conditions encountered by aerial gunners. The gunner learned turret operations and safety procedures while firing at silhouettes of a fighter that moved toward trainees on a track. The turrets generally had twin-mounted .50 caliber machine guns. The range fan associated with the Poorman Range at the Blythe Army Airfield is shown below in Figure 1 to extend more than 4 miles into the Project right of way.

Figure 3: Poorman Range in Operation[16]

2. Activities Associated with Jeep Ranges

Officially known as "moving target ranges, jeep type," these ranges were used to simulate moving targets for trainees using .30 and .50 caliber machine guns. The Jeeps were guided on tracks behind an earthen bunker with the target extending above the berm. Each gunner's projectiles were tipped with different color paint. Projectiles striking the target left traces of paint which the instructors counted to score the hits of each gunner.[17]

[16] http://www.bomberlegends.com/pdf/BL_Mag_v2-2-GunneryTrain.pdf.
[17] http://www.bomberlegends.com/pdf/BL_Mag_v2-2-GunneryTrain.pdf.

Figure 4: Jeep Range target[18]

The range fan associated with the Jeep Range at the Blythe AAF is shown below in Figure 1 to extend 3 miles into the Project right of way.

3. Firing and Bombing Range

A map of "Firing and Bombing Area" associated with the Blythe AAF was provided by the Corps and is included with my testimony as Attachment 4. The Firing and Bombing Area is northwest of the Blythe AAF and was annotated on the map as "used during daylight hours, Blythe Air Base." Although records about specific practice bombing activities were not available, typical practice bombing activities at similar ranges included the use of sand or cement filled practice bombs fitted black powder spotting charges or smoke charges, and use of incendiary devices. The use of the spotting, smoke and incendiary devices were to aid in the scoring of the accuracy of the bombardier trainees. This use is confirmed by a 1999 Archive Search Report which found that "large quantities of black powder spotting charges (for practice bombs) and high explosive bombs were stored on the base."[19]

The ASR for the Laguna Maneuver Area identified M38A2 practice bombs as having been utilized at the Blythe AAF.[20] The M38A2 was a one-hundred pound sand-filled bomb fitted with an M1A1 spotting charge. The M1A1 spotting charge contains three pounds of black powder with an inertia-type fuse containing a shotgun primer.[21]

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[18] http://www.bomberlegends.com/pdf/BL_Mag_v2-2-GunneryTrain.pdf.
[19] U.S. Army Corps of Engineers, Archives Search Report, Former Laguna Maneuver Area, Northern Portion, March 3, 1999, p. 29.
[20] U.S. Army Corps of Engineers, Archives Search Report, Former Laguna Maneuver Area, Northern Portion, March 3, 1999, p. 15.
[21] http://www.swf.usace.army.mil/pubdata/fuds/5points/specs/spotting.PDF.

The presence of high explosive bombs at Blythe AAF, as indentified in the ASR, suggests that they were also used for trainees. At other practice bombing ranges, trainees could conclude training with the use of high explosives.[22] Bomb fragments associated with high explosives were found at bombing ranges associated with Blythe AAF in Arizona.[23] Other evidence indicates use of 250 pound general purpose high explosive bombs.[24]

4. Other Activities

In addition to the ranges identified above, the Project area was heavily used during WW II maneuvers associated with the area known as the California Arizona Maneuver Area (CAMA) as evidenced by tanks tracks and numerous holes and depressions in the desert surface. These features are evident in the aerial photographs included with the Phase I ESA but were not identified or evaluated in the Phase I or in other materials that support AFC or the Staff Assessment and Revised Staff Assessment.

Use of practice mines, grenades, mortars, and artillery have been documented in areas used for maneuvers in the CAMA.[25] Recently, a practice land mine was discovered in the course of special status species surveys within the Project study area by a biologist working for the Applicant.[26]

III. POTENTIALLY SIGNIFICANT HAZARDOUS CONDITIONS WITHIN THE PROJECT RIGHT OF WAY

The Applicant identified the Poorman and the Jeep ranges to be within the Project boundary in responses to Staff's data requests.[27] However, the Applicant and Staff failed to identify and analyze the range fans, or safety areas for the Poorman and the Jeep Ranges that would extend almost across the entire Project area.[28]

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[22] *See e.g.*, http://www.westmesaproject.com/CSM_West_Mesa_2_12Sept08.pdf, p. 2-1
[23] U.S. Army Corps of Engineers, Archives Search Report, Former Laguna Maneuver Area, Northern Portion, March 3, 1999, p. 35.
[24] U.S. Army Corps of Engineers, Archives Search Report, Former Laguna Maneuver Area, Northern Portion, March 3, 1999, p. 20.
[25] The Desert Training Center/California Maneuver Area, 1942 – 1944, Volume 2, Historical and Archeological Contexts for the Arizona Desert. p.43, Prepared for the Bureau of Land Management under contract with the U.S. Army Corps of Engineers, Statistical Research Inc., September 2008 (available at http://www.sricrm.com/publications/tech.html).
[26] Email from Shelly Dayman, AECOM, to Tannika Engelhard, U.S. Fish and Wildlife Service, May 26, 2009, attached hereto as Attachment 6.
[27] Applicant's Responses to CEC Data Requests, January 6, 2010, Waste Management, Response to DR-WM-253.
[28] *See* Figure 1.

The safety fans for the Poorman and the Jeep Ranges that extend beneath the Project right of way may be areas where spent .30 and .50 caliber bullets may be found during project construction. Bullets, when spent upon striking soil, impart metal fragments to the soil matrix. The bullets and impacted soil may contain lead and other metals, including copper, zinc, tungsten, arsenic, antimony, and nickel at concentrations that would pose a risk to workers excavating soil.[29] Lead has been found in association with .50 caliber rounds at a former jeep range at Nellis AFB in California.[30] Sampling for lead and other metals has been conducted at other former jeep ranges.[31] The Staff Assessment, the Revised Staff Assessment, and the Applicant's submittals did not recognize the potential for contamination to be associated with bullets that are likely to be found in the areas of the range fans beneath the Project and no sampling has been conducted to date.

Additionally, the potential for pyrotechnic, incendiary, or tracer ammunition to have been used at the Poorman and Jeep Ranges was not evaluated in the Staff Assessment, the Revised Staff Assessment or the Applicant's submittals. Pyrotechnic and incendiary magazines are identified in the map of Blythe AAF[32] and, therefore, pyrotechnic and incendiary devices were presumably used during training activities associated with the Poorman and Jeep ranges. Additionally, the Corps, in a 1999 assessment of the site, identified "munition (containers) containing White Phosphorus (WP) or other pyrophoric material (i.e.spontaneously flammable)"[33] providing further evidence of the use of pyrotechnics. Incendiaries are also classified as pyrotechnic munitions. Compounds of concern used in pyrotechnic munitions include perchlorates used as oxidizers.[34] Perchlorates are known to inhibit thyroid function[35] and are a risk to human health, primarily through ingestion of drinking water, although inhalation of soil dust is a known route of exposure.[36] Areas where pyrotechnic devices were detonated may present a health risk to construction worker at the Project site.

Worker safety and public heath may be significantly at risk without soil sampling in the areas of the Project underlain by the former Poorman

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[29] http://www.itrcweb.org/Documents/SMART-2.pdf, p. 3.
[30] http://uxoinfo.com/blogcfc/client/enclosures/Nellis_SmallArmsCom_ASR.pdf, and also attached hereto as Attachment 5.
[31] See for example, http://www.azdeq.gov/environ/waste/sps/download/state/031010fs1.pdf, http://www.propfirst.com/BellaVista/PinecastleRange.pdf, and http://www.itrcweb.org/Documents/SMART-2.pdf.
[32] Boundary Sketch, Blythe Army Airfield, September 1943
[33] Blythe Army Airfield, Findings and Determination of Eligibility, Site Summary Sheet, Project Summary Sheet and Risk Assessment Procedure, DERP-FUDS Site No. J09CA024500, see Attachment 2.
[34] http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/HWMP_WS_dPerch-Sec9.pdf.
[35] http://www.itrcweb.org/Documents/PERC-1.pdf.
[36] http://oehha.ca.gov/risk/pdf/120409Perchlorate.pdf.

and Jeep Ranges. Soil sampling should be undertaken to include the metals associated with the projectiles used in the firing ranges and to include components of the pyrotechnics, including perchlorates. The Applicant and Staff also failed to identify and analyze the former Firing and Bombing Area, corresponding to the northern portion of the Project footprint. This feature likely represents a former practice bombing range. A figure, depicting the Firing and Bombing Area was provided in1999 document prepared by the Corps.[37] UXO may be present in the Firing and Bombing Area in the form of practice bombs and incendiary devices. In addition to the explosion hazard represented by the UXO, chemicals may be found in soil to be associated with the practice bombs and incendiary devices.

UXO and the chemicals associated with practice bombing ranges across the country have been the subject of numerous Corps-led investigations to ensure public safety.[38] Worker safety and public heath may be significantly at risk without conducting a thorough Corps-led UXO survey under regulatory oversight. A soil sampling program is also necessary to protect health if UXO are found.

Finally, the Applicant and Staff failed to indentify and analyze WW II era activities associated with the California-Arizona Maneuver Area (CAMA), evidence of which also appear in the maps attached to the Applicant's Phase I ESA. CAMA activities are known to have included training and use of live ammunition.[39] Following military use in WW II, munitions have been recovered in the areas of training, including high explosive shells, hand grenades, antitank mines, fuses, rocket shells, flares and shrapnel.[40] The shells, grenades, mines and other UXO represent a significant hazard to workers.

IV. CONDITIONS OF CERTIFICATION WASTE-1 AND WASTE-2 ARE INADEQUATE

The Army Corps of Engineers, acting on behalf of the Secretary of Defense, maintains oversight responsibility for formerly used defense sites

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[37] U.S. Army Corps of Engineers, Archives Search Report, Former Laguna Maneuver Area, Northern Portion, March 3, 1999, Appendix L-2, California-Arizona Maneuver Area Firing and Bombing Area Map, Circa 1943 (B-56).

[38] See for example, http://www.sac.usace.army.mil/?action=programs.formerly_used_defense_sites_projects, and http://www.trabuco-bombrange.com/welcome.php.

[39] The Desert Training Center/California Maneuver Area, 1942 – 1944, Volume 2, Historical and Archeological Contexts for the Arizona Desert. p.43, Prepared for the Bureau of Land Management under contract with the U.S. Army Corps of Engineers, Statistical Research Inc., September 2008 (available at http://www.sricrm.com/publications/tech.html).

[40] Id., p. 60.

(FUDS) under the Defense Environmental Restoration Program (DERP) Act. DERP assigns DoD the responsibility to conduct response actions at FUDS subject to and consistent with CERCLA and the National Contingency Plan.[3]

For FUDS that are not listed on the CERCLA National Priorities List, the U.S EPA defers regulatory oversight to the states. In California, the Corps' assessment and cleanup of FUDS is overseen by the Department of Toxic Substances Control (DTSC). FUDS containing unexploded ordnance are subject to the regulatory investigation and cleanup standards of the National Contingency Plan, which requires the following regulatory response process:

1. Inventory: The Corps verifies that a property is eligible as a FUDS and evaluates the potential issues or concerns at the site. The findings of this phase are presented in an Inventory Project Report, or INPR, also referred to as a remedial Preliminary Assessment.

2. Preliminary Assessment (PA): The PA phase consists of collecting readily available property information and conducting a property visit. The PA identifies potential projects within the FUDS and whether the projects qualify for cleanup under the DERP. In addition, the PA results are used to assess the need for cleanup and to estimate the severity of the issue.

3. Military Munitions Response Program Site Investigation (SI): The SI phase involves visiting the property to confirm the data that was collected during the PA. Additional site-specific data is collected, and limited environmental investigations are performed to confirm the presence of military munitions.

4. Remedial Investigation (RI)/Feasibility Study (FS): This phase includes conducting an RI to characterize the nature and threat posed by the military munitions identified during the SI and gathering data necessary to assess the extent to which these pose a threat to human health, safety, or the environment. Then, an FS is conducted to ensure that appropriate remedial alternatives are developed and evaluated, and an appropriate remedy is selected.

5. Response: This phase consists of developing the engineering design and doing what is necessary to remove military munitions.

6. Public Review and Comment: Response plans, along with supporting analyses, are made available for public comment and review. Following this review, a remedy is selected.

The Corps has undertaken numerous responses at firing ranges and practice bombing ranges across the county that follow the above process.[41]

The Applicant and the Staff Assessment fail to recognize ongoing state and federal response actions at the Project site. The Corps first designated the Blythe Army Airfield (AAF) a formerly used defense site (FUDS) subject to DERP in 1987.[42] The DERP-FUDS INPR that the Corps completed for this project in 1987 recommended an environmental restoration project to address 13 aviation fuel underground storage tanks and building concerns on the site. According to the Corps' documents, the tanks were removed and that DERP project was completed in 1987. The Corps completed a supplemental Project Summary Sheet for the site in 1999 following a site visit by Mr. Kyle Cook a consultant to the Corps, which identified the potential presence of bombs, explosive materials and incendiary and pyrotechnic materials on the site. Mr. Cook prepared a risk assessment of the site in accordance with the Corps' guidelines and recommended that the Corps initiate a PA of these potential contaminants.

Pursuant to the Corp's guidelines, Risk Assessment Code (RAC) scores are assigned on a scale from 1 to 5, with 1 being the highest risk. The RAC score of a site consists of two factors: risk severity and risk probability. Risk severity RAC scores are determined primarily by the types of munitions known or suspected to have been used at the installation. The RAC calculated potential hazards associated with the "gunnery range and explosives magazines on-site, and the possible presence of incendiary and pyrotechnic magazines"[43] On the basis of the evaluation, a RAC of 3 was calculated. Mr. Cook described the "hazard severity" of the site as "catastrophic." Because the site was deemed remote and risk probability low, Mr. Cook recommended a RAC score of 4. Mr. Cook determined that the total hazard severity value of the site was 28. This investigation and cleanup project was found eligible for evaluation under the DERP on September 30, 1999. However, no documentation was available from the Corps of Engineers to indicate that further action had been taken. Further evaluation of Blythe AAF is indicated by the date of the maps that were created by the Corps of the FUDS boundary and the Poorman and the Jeep Ranges included as Attachment 4: the date of these maps is February 28, 2003 and March 10, 2003, respectively.[44] The Project site is also under active oversight by DTSC.

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[41] See for example, http://www.westmesaproject.com/West_Mesa_Fact_Sheet_2.pdf, and http://www.saj.usace.army.mil/Divisions/ProgramProjectMgt/Branches/Interg_IntSvcs/FUDS/DOCS/Pinecastle/Presentations/2008-02-26RABPresent.pdf .

[42] See Attachment 2.

[43] See Attachment 2 at p. 18/18.

[44] Blythe Army Airfield, FUDS Property No. J09CA024500, Installation Map, http://deparc.xservices.com/PDFS/MMRP_MAPS/CA99799F537100.pdf.

The DTSC website lists the cleanup status of Blythe AAF as "Inactive, needs evaluation as of 7/12/2005."[45]

Staff proposes WASTE-1 and WATE -2 as mitigation for worker exposure to unexploded ordnance and potential soil contamination. This condition is inadequate because it does not comply with the procedures of the National Contingency Plan and the DERP. The AFC and the Staff Assessment fail to recognize: (1) the regulatory context of the former military site and associated UXO, including the roles and responsibilities of federal and state agencies; (2) the extent and type of the military use of the project site; and (3) the potential safety issues represented by the UXO to construction workers involved in the excavation of 8.3 million cubic yards of soil[46] over a nine square mile area,[47] large portions of which are known to have been used for weapons training and practice bombing.

Condition of Certification WASTE-1 provides only for a plan to train construction workers and other site workers in the recognition of potential UXO. Condition of Certification WASTE-2 requires that a Professional Engineer or Professional Geologist to be available during site characterization (if needed), excavation, grading, and demolition activities. The Professional Engineer or Professional Geologist will be given authority by the project owner to oversee any earth-moving activities that have the potential to disturb contaminated soil and impact public health, safety, and the environment. Without additional conditions of certification, however, the site represents significant safety issues to the construction workers.

Presumably, Staff drafted WASTE-1 and WASTE-2 without knowledge of the safety fans associated with jeep range and Poorman ranges, or evidence and parameters of the Firing and Bombing Area on the Project site. Typically, where such hazards are known, extensive geophysical surveys would be conducted under regulatory oversight well in advance of earthmoving activities. Such surveys require that a project site be systemically traversed by vehicles using GPS to document the areas that have been assessed.[48] The location of debris is marked and the debris evaluated and removed if determined to be inert. Any potentially live ordnance would be marked for proper evaluation and detonation. Such evaluations must be completed prior to the start of any construction to avoid potentially significant risk to worker safety. Staff must specifically require in the condition of certification that the Applicant undertake the appropriate

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[45] http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=80000199.
[46] Revised Staff Assessment, p. C.9-40.
[47] Revised Staff Assessment, p. C.12-15.
[48] See for example, http://www.corpsfuds.org/reports/Map/J09NV1112map_debrisRemoval2.pdf.

surveys, testing, removal, and closure actions on the entirety of the Project disturbance area before construction can begin. In my opinion, given the extensive military use as a Poorman Range, a Jeep Range and a practice bombing range, it is not possible to begin earth moving activities without compromising worker safety until the entire Project disturbance area has been surveyed for UXO and the soil has been sampled for chemical constituents.

Given that a portion of the BSPP is underlain by a FUDS, the Blythe AAF, the Corps of Engineers has the responsibility to conduct geophysical surveys and to identify any UXO associated with the firing ranges and the practice bombing range. A condition of certification should be required to include a thorough geophysical survey, conducted by the Corps under the oversight of DTSC, to identify any UXO that may present a hazard to construction and site personnel. The failure to recognize the role of the oversight agencies, the extent and significance of military operations, and the potential threat to worker safety without a thorough UXO evaluation under agency oversight represent significant shortcomings in the Staff Assessment. Staff must require the applicant to engage the Corps of Engineers to undertake an evaluation under DTSC oversight to ensure that federal and state requirements for assessing UXO on a former military site will be met before construction can begin.

DECLARATION

I, Matt Hagemann, declare as follows:

I have reviewed the above testimony regarding the Blythe Solar Power Project. To the best of my knowledge, all of the facts in my testimony are true and correct. To the extent that this testimony contains opinion, such opinion is my own.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief. This declaration is signed at Newport Beach , California.

Dated: 6/10/2010 Signed:

ATTACHMENT 1

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

2503 Eastbluff Dr.
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Newport Beach, California92660
Tel: (949) 887-9013
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Matthew F. Hagemann, P.G.

Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Regulatory Compliance
CEQA Review
Expert Witness

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certification:

California Professional Geologist, License Number 8571.

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Senior Environmental Analyst, Komex H2O Science, Inc (2000 -- 2003);
- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);

- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a project to provide technical assistance to a comunity adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Lead analyst in the review of numerous environmental impact reports under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions and geologic hazards.
- Lead analyst in the review of environmental issues in applications before the California Energy Commission.
- Technical assistance and litigation support for vapor intrusion concerns.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.
- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of

wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the dischrge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.
- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.

- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

ATTACHMENT 2

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

BLYTHE ARMY AIRFIELD
BLYTHE, CALIFORNIA
SITE NO. J09CA024500

FINDINGS OF FACT

1. Between 1942 and 1944, the Army acquired 4,248.12 acres in fee from various private parties, 6.54 acres of public domain land via transfer, a 282.61 acre leasehold from the County of Riverside, a 1.98 acre easement and 0.63 acre permit. Additionally, the Army encroached on another 20.18 acres for which a real estate agreement was never signed. Total acquisition, including the encroachment, was 4,560.06 acres.

2. The Army Air Corps established the Blythe Army Airfield which was used for heavy bomber pilot and crew training during 1943 and 1944. Numerous military improvements were constructed at this airfield including hangars, office buildings, barracks, warehouses, runways and taxiways, water and sewer systems, hospital, and fuel and ordnance storage. A poorman gunnery range, skeet range, and jeep type target range, all with ammunition storage, were constructed and used by Army personnel. Bombs, pyrotechnics and incendiary devices may have also been stored in magazines at the airfield.

3. The entire airfield was declared surplus to the needs of the Army in 1946 and was reported to the General Services Administration (GSA) for disposal. On 10 September 1948 the U.S. Government conveyed title and interest in the entire 4,560.06 acre site, including the leasehold and encroachment, to the County of Riverside via quitclaim deed. The County of Riverside has leased the airport to the City of Blythe which operates it as municipal airport facility. Only a few military improvements remain including five buildings and portions of the runways and parking apron.

SITE No. J09CA024500
Original: 18 February 1987
Supplemental: 26 August 1999

DETERMINATION

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

30 Sep 99
DATE

for PETER T. MADSEN
Colonel (P), U.S. Army
Commanding

SITE SURVEY SUMMARY SHEET
FOR
DERP-FUDS SITE NO. J09CA024500
BLYTHE ARMY AIRFIELD
Original: 18 February 1987
Supplemental 26 August 1999

SITE NAME: BLYTHE ARMY AIRFIELD, Blythe Army Airbase.

LOCATION: Riverside County, California. This site is approximately 6 miles due west of the City of Blythe on West Hobsonway, adjacent to Interstate 10.

SITE HISTORY: The Army entered into a lease on 1 June 1942 with the County of Riverside to acquire use of 290.45 acres (later determined to be 282.61 acres) consisting of the Blythe Airport. Between 1942 and 1944 a total of 2354.89 acres of public domain land were transferred to the War Dept. and all desert claims cleared through declaration of taking. A total 1,896.04 acres were acquired in fee from various private parties. A total of 6.54 acres of public domain land were acquired for right-of-ways as well as a 1.98 acre easement and 0.63 acre permit. The Army encroached on 20.18 acres for which a permit was never acquired. Total acquisition, including the encroachment, was 4,560.06 acres. The Army established Blythe Army Airfield (BAA) which was a 2nd Air Force heavy bombardment crew training base during WWII. The 85th Bombardment Group and the 390th Bombardment Group were active at BAA in 1942 and 1943. Up to 75 B-17 bombers were flown and maintained at this site. During this period the military constructed over 650 buildings and other types of improvements including hangars, office buildings, barracks, warehouses, runways and taxiways, water and sewer systems, hospital, fuel and ordnance storage.

The DERP-FUDS Inventory Project Report (INPR) completed for this site in 1989 recommended an environmental restoration project to address 13 aviation fuel underground storage tanks and building safety concerns, all DOD improvements. This project has begun and may be near completion.

Historical records and drawings indicate that bombs and explosive materials, and possibly incendiary and pyrotechnic materials, were stored on-site in up to five magazines or bunkers. A poorman gunnery range, skeet range, and jeep type target range, all with ammunition storage, were constructed and used by Army personnel. The 1989 INPR made no mention of the presence or use of ordnance or explosive materials at BAA, and

no OE investigation was recommended. Documentation indicates the site was decontaminated.

This site is currently owned by Riverside County and leased to the City of Blythe. The main runways and a few remaining buildings constructed by DOD are beneficially used by the city as an airport. Ail other improvements constructed by DOD have been demolished.

SITE VISIT: The site was visited on 2 June 1999 by Mr. Kyle Cook of Science Applications International Corporation, San Diego, CA.

CATEGORY OF HAZARD: CON/HTRW, **OE.**

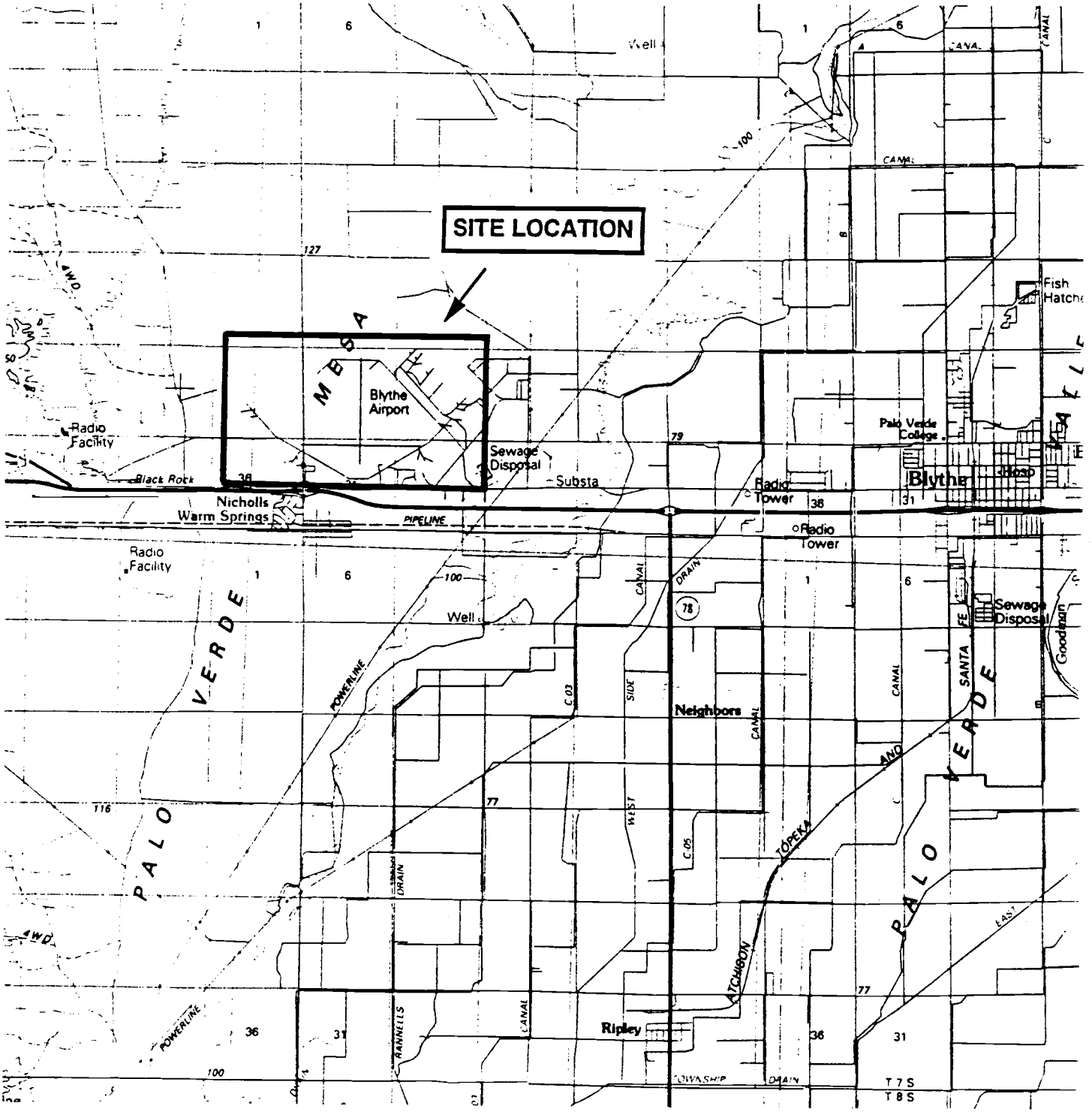
PROJECT DESCRIPTION: There are two potential projects.

a. CON/HTRW: Eleven (11) 25,000 gallon and two (2) 12,000 gallon USTS were installed by the Army during WWII, were not beneficially used, and are eligible for removal. A project has already been approved and completed.

b. OE: Recommend Huntsville Engineering and Support Center make a determination regarding further investigation at this site.

AVAILABLE STUDIES AND REPORTS: Information about the historical use and storage of ordnance and explosive materials at BAA was recently published in the Archives Search Report Findings for the Former Laquna Maneuver Area, September 1998.

DISTRICT POC: Jeffery B. Armentrout, Los Angeles District, (213) 452-3720.



CALIF

QUADRANGLE LOCATION

N

Scale

0 4 miles

Reference: USGS Topographic Blythe, Calif.-Arizona 1:100.000, 1986. R21E and T6S.

SAIC®

Science Applications International Corporation

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SITE LOCATION MAP
Supplemental 26 August 1999
BLYTHE ARMY AIR FIELD
J09CA024500
Blythe, CA

PROJECT NO.		
01-0255-04-1541		
DRAWN BY	CHECKED BY	DATE
EB	KC	08-99

PROJECT SUMMARY SHEET
FOR
DERP-FUDS CON/HTRW PROJECT NO. J09CA024501
BLYTHE ARMY AIRFIELD
SITE NO. J09CA024500
Original: 18 February 1987
Supplemental 26 August 1999

PROJECT DESCRIPTION: The project consists of the removal of thirteen underground storage tanks (USTs) and demolition of one building. The tanks were installed during WWII. There were eleven (11) tanks containing aviation fuel with 25,000 gallon capacities. The remaining two tanks had a capacity of 12,000 gallons and contained fuel oil.

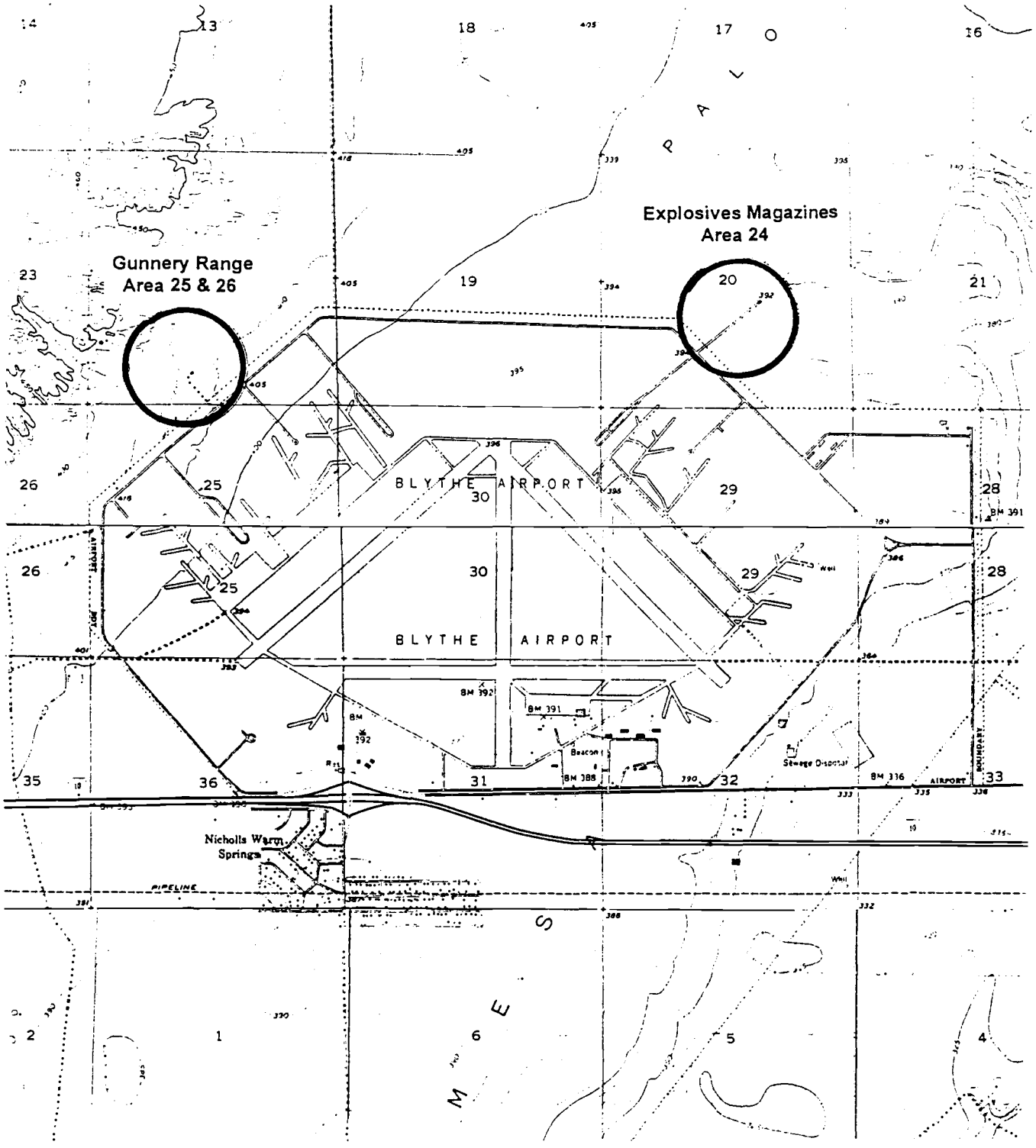
PROJECT ELIGIBILITY: The DOD controlled this property from approximately 1942 until 1946. No beneficial use of these thirteen tanks is known to have occurred by the County of Riverside or any other entity.

POLICY CONSIDERATIONS: The quitclaim deed transferring title to the County of Riverside contains a provision releasing the U.S. Government from all liability for restoration or damage. However, this does not preclude the County from seeking reimbursement for the necessary rehabilitation or repair of pubic airports covered under Section 17 of the Federal Airport Act.

PROPOSED PROJECT: The project has been completed with the removal of all thirteen tanks.

DD 1391: Attached.

DISTRICT POC: Mr. Jeffery B. Armentrout, (213) 452-3720.



Reference: USGS Quadrangle McCoy Wash, Calif., Scale 1:24,000; Photorevised 1970 and USGS Quadrangle Ripley, Calif., Scale 1:24,000; Photorevised 1975. R21E and T6S.

N

Scale

0 1 mile

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CON/HTRW PROJECT MAP
Supplemental 23 June 1999
BLYTHE ARMY AIRFIELD
J09CA024501
Blythe, CA

PROJECT NO.		
01-0255-04-1541		
DRAWN BY	CHECKED BY	DATE
EB	KC	08-99

PROJECT SUMMARY SHEET
FOR
DERP-FUDS OE PROJECT NO. J09CA024502
BLYTHE ARMY AIRFIELD
SITE NO. J09CA024500
Supplemental 26 August 1999

PROJECT DESCRIPTION: During a recent investigation by the Rock Island District of the U.S. Army Corps of Engineers for preparation of an Archives Search Report (ASR) for the nearby Laguna Maneuver Area, it was discovered that a gunnery range was located on Blythe Army Airfield and large quantities of black powder spotting charges (for practice bombs) and high explosive bombs were stored in magazines. The ASR recommended further investigation of this site for OE potential. During a site visit on 2 June 1999 by Mr. Kyle Cook, remnants of the gunnery range were found, and spent 50-caliber slugs were observed scattered around the gunnery range. No evidence of ammunition storage at the gunnery range, or of explosives magazines structures, bombs, or explosive materials was observed during the site visit. Property disposal documentation indicates the site was decontaminated but no details of this process are provided.

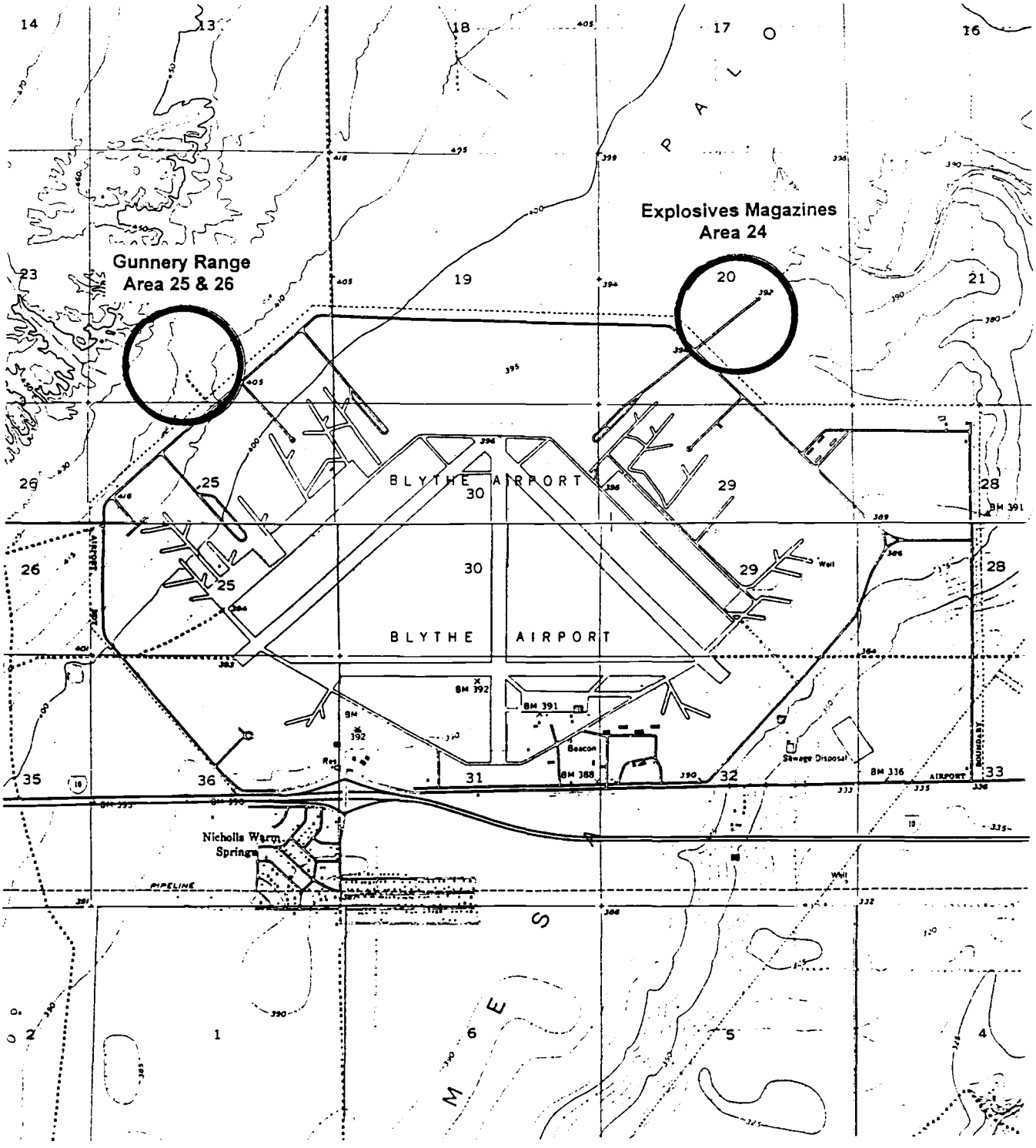
PROJECT ELIGIBILITY: The DOD controlled this property from approximately 1942 until 1944. Any OE found may be the result of past DOD activity.

POLICY CONSIDERATIONS: No policy considerations affect the proposal of this project.

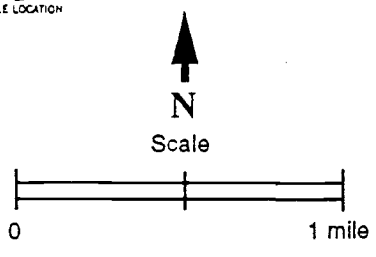
PROPOSED PROJECT: Recommend Huntsville Engineering and Support Center make a determination if further action is appropriate.

RAC FORM: Attached.

DISTRICT POC: Request CEHNC inform Mr. Jeffery B. Armentrout at (213) 452-3720 when a determination is made regarding project status.



Reference: USGS Quadrangle McCoy Wash, Calif., Scale 1:24,000; Photorevised 1970 and USGS Quadrangle Ripley, Calif., Scale 1:24,000; Photorevised 1975. R21E and T6S.



Science Applications International Corporation
An Employee-Owned Company

OE PROJECT MAP
Supplemental 23 June 1999
BLYTHE ARMY AIRFIELD
J09CA024502
Blythe, CA

PROJECT NO.		
01-0255-04-1541		
DRAWN BY	CHECKED BY	DATE
EB	KC	06-99

18 June 1999

RISK ASSESSMENT PROCEDURES FOR ORDNANCE AND EXPLOSIVES (OE) SITES

Site Name Blythe Army Airfield
Site Location Blythe, CA
DERP Project # J09CA024502
Date Completed 23 June 99

Rater's Name Kyle Cook - SAIC
Phone Number (619) 546-6117
Organization L-A-Dist.
Score 3 Recommended-4

OE RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Team (USAESCH-OE) to prioritize the remedial action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) Detachments actions, field observations, interviews, and measurements. This information is used to assess the risk involved based on the potential OE hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability. Personnel involved in visits to potential OE sites should view the USAESCH-OE videotape entitled "A Life Threatening Encounter: OEW".

Part 1. 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: (Circle all that apply)	VALUE
A. Conventional ordnance and ammunition:	
Medium/large caliber (20mm and larger)	10
Bombs, explosive	(10)
Grenades, hand or rifle, explosive	10
Landmine, explosive	10
Rockets, guided missile, explosive	10
Detonators, blasting caps, fuzes, boosters, bursters	6
Bombs, practice (w/spotting charges)	(6)

Grenades, practice (w/spotting charges)	4
Landmine, practice (w/spotting charges)	4
Small arms, complete round (.22 cal -.50 cal)	(1)
Small arms, expended	(0)
Practice ordnance (wo/spotting charges)	0

Conventional ordnance and ammunition (largest single value) 10

What evidence do you have regarding conventional unexploded ordnance? Site drawings and correspondence indicate storage of bombs and explosive materials. Expanded 50-caliber bullets found on the site

B. Pyrotechnics (for munitions not described above):

	VALUE
Munition (containers) containing White Phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	(10)
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	(6)
Flares, signals, simulators, screening smokes (other than WP)	4

Pyrotechnics (select the single largest value) 10

What evidence do you have regarding pyrotechnics? Site drawings only. No other records of use of these materials.

C. Bulk High Explosives (HE) (not an integral part of conventional ordnance; uncontainerized):

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

Military dynamite	6
Less sensitive explosives (Ammonium Nitrate, Explosive D, etc.)	3

High explosives (select the largest single value) 8

What evidence do you have regarding bulk explosives? Correspondence indicates storage and use of black powder spotting charges.

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

	VALUE
Solid or liquid propellants	6

Propellants 0

What evidence do you have regarding bulk propellants? _____

E. Chemical Warfare Materiel (CWM) and Radiological Weapons:

	VALUE
Toxic chemical agents (choking, nerve, blood, blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control Agents (vomiting, tear)	5

Chemical and Radiological (select the largest single value 0

What evidence do you have regarding chemical or radiological? _____

TOTAL HAZARD SEVERITY VALUE (Sum of value A through E (maximum of 61) 28

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

**If hazard severity value is 0, you do not need to complete Part II of this form. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

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

AREA, EXTENT, ACCESSIBILITY OF OE HAZARD (Circle all 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 (select the single largest value) 2

What evidence do you have regarding location of OE? Based on site observations there were no unexploded hazards on the surface, only spent bullets.

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 (select the single largest value) 3

What are the nearest inhabited structures/buildings? Airport administration and operation and fire department

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 15	(3)
6 to 10	2
1 to 5	1
0	0

Number of buildings (select the single largest value) 3

Narrative: Airport and some residential farther away from airport

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

Educational, child care, residential, hospitals hotels, commercial, shopping centers (5)

Industrial, warehouse, etc. (4)

Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of buildings (select the single largest value	5

Describe the types of buildings: Fire department, airport operations, residential housing

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
Isolated site	(1)
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 (select the single largest value)	1

Describe the site accessibility: The site is somewhat remote and not easily accessible

F. Site Dynamics. This deals with site conditions 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
None anticipated (0)

Site dynamics (select value) 0

Describe the site dynamics;

TOTAL HAZARD PROBABILITY VALUE (sum of largest values for A through F (maximum of 30) 14

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

TABLE 2
HAZARD PROBABILITY

DESCRIPTION	LEVEL	HAZARD PROBABILITY VALUE
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	(D)	(8 to 14)
IMPROBABLE	E	less than 8

*Apply Hazard Probability Level to Table 3.

Part III. Risk Assessment. The risk assessment value for this site is determined using the following Table. 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	5
MARGINABLE III	2	3	4	4	5
NEGLIGIBLE IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

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

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

(RAC 3) Complete INPR-Recommend further action by USAESCH.

RAC 4 Complete INPR-Recommend further action by USAESCH.

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

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.

See attached justification.

RAC JUSTIFICATION
FOR
PROJECT NO. J09CA024502
BLYTHE ARMY AIRFIELD
DERP-FUDS SITE NO. J09CA024500
BLYTHE, CALIFORNIA
Supplemental: 26 August 1999

This site is currently the Blythe City Airport. A few airport administration and operations buildings are present on the site and some residential dwellings are located across the Interstate from the site. However, the outer portions of the airfield where ordnance and explosive (OE) materials were used and stored are mostly undeveloped desert land that is somewhat remote. Some of this area was cleared and used for agricultural purposes (crops), but this has been discontinued.

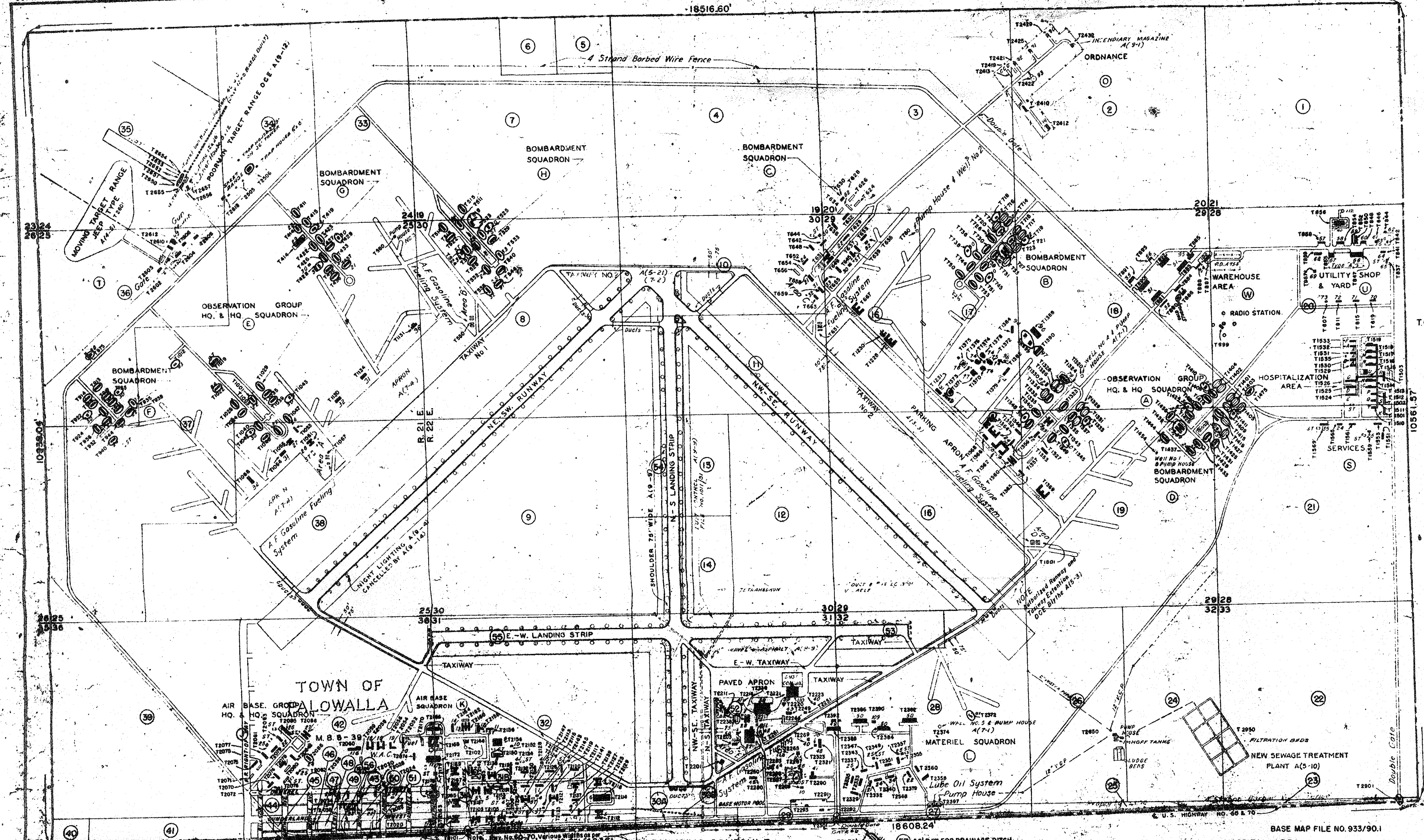
Historical documents indicate the presence and use of a gunnery range and explosives magazines on-site, and the possible presence of incendiary and pyrotechnic magazines. Remnants of the gunnery range and spent 50-caliber bullets in this area still exist. No remnants of the explosives or other magazines were found on-site. OE was not discovered during the recent site inspection, but may still be a concern. Property disposal documentation indicates the site was decontaminated but no details of this process are provided.

An OE risk assessment score of three (3) was calculated for this site. This score is calculated based primarily on the historical accounts of ordnance storage and use. The findings for the site do not appear to support this calculated score. A score of 4 is recommended indicating the potential threat of subsurface ordnance or munitions to personnel be evaluated.

ATTACHMENT 3

WAR DEPARTMENT

CORPS OF ENGINEERS. U.S. ARMY



ACQUIRED IN FEE EXCEPT AS NOTED

TRACT NO.	TRANSFERRED TO U.S. BY (OWNER OR ENTRYMAN)	ACRES INC. [illegible]
1	ERNEST A. MONTGOMERY	[illegible]
2	FRANK MC. WREATH	160.00
3	WILLIAM W. FITCH, DECEASED	160.00
4	EDDY W. REIDER, DECEASED	160.00
5	MARGARET THORNTON	10.00
6	T. SPENCER BROWN	10.00
7	LOUISE M. THORNTON	147.21
8	EDWIN I. AMES, DECEASED	167.37
9	CARL BROWNING	167.39
10	HENRIETTA BOICE	80.00
11	HENRIETTA B. COOK ET. AL.	55.77
12	CLARA B. SAXMAN	80.00
13	GEORGE M. SAXMAN	16.79
14	RAY H. & ORA B. SAXMAN	18.00
15	MARGARET E. HATTON, DECEASED	160.00
16	GUS O. DODSON	80.00
17	DORA A. DIETRICH	80.00
18	ANTHONY H. WITTMAN	160.00
19	JOHN A. PAINTER, DECEASED	160.00
20	GEORGE V. MORRISON	160.00
21	EDGAR VERTREES	160.00
22	ERNST WILHELM HUBNER	160.00
23	ALICE & FLORENCE M. KIMBALL	1.92
24	FRANK W. & GRACE E. BENDIX	80.00
25	MABEL G. NICHOLLS	4.67
26	GENEVIEVE FARRINGTON	80.00
27	FAY M. MANATT	7.34
28	CLARENCE E. VERTREES	143.00
29	STATE OF CALIFORNIA (STATE)	5.03
30A	STATE OF CALIFORNIA "	3.03
30B	COUNTY OF RIVERSIDE (LEASE)	3.05
31A	STATE OF CALIFORNIA (STATE)	12.12
31B	PUBLIC DOMAIN	3.60
32	GENE RANSOM	134.65
33	LONELL V. SHEPHERD	80.15
34	EDWIN V. ZUMBIEL, DECEASED	80.15
35	ROBERT H. HARDING	159.90
36	ELLA B. STEPHENS, DECEASED	119.90
37	JULIAN F. CUMBERLAND, DECEASED	320.04
38	ALBERT E. & MABEL G. NICHOLLS	200.00
39	ALBERT E. & MABEL G. NICHOLLS	160.00
40	STATE OF CALIFORNIA	2.82
41	KATHLEEN WARD JAMIESON	38.81
42	LYMAN FARWELL	167.62
43	EDWARD V. ZUMBIEL	.23
44	BYRON A. BEARGE	3.73
45	PACIFIC SECURITIES COMPANY	.37
46	ANDREW MOORE, DECEASED	.24
47	RALPH CALVERT MOORE	.11
48	R. H. MOORE	1.02
49	MARGARET E. HATTON, DECEASED	.19
50	FREDERICK M. & EDGAR L. LEWIS	.55
51	PACIFIC SECURITIES COMPANY	.60
52	COUNTY OF RIVERSIDE (LEASE)	160.00
53	COUNTY OF RIVERSIDE "	17.00
54	COUNTY OF RIVERSIDE "	69.44
55	COUNTY OF RIVERSIDE "	32.85
56	B. O. DRIVER	[illegible]
57	FAY M. MANATT (USE PERMIT)	[illegible]

EXHIBIT 'A'

(OS) BUILDINGS FOR OFF-SITE USE.

CHAPEL

LEGEND

RUNWAYS, TAXIWAY
BUILDING AUTHORIZED OR CONSTRUCTED
35 CCC BUILDINGS RELOCATED AND MODERNIZED
FENCE
AREA SYMBOLS
SEPTIC TANK - *FILLED WITH EARTH AND BY PASSED A(5-10)*
DRAIN

NOTE: TRUCK TURNOUT AND FUELING SYSTEMS FOR AREAS A-B-C-D-E AUTHORIZED BY OCE ORDER A(5-3)

DUST CONTROL
By straw mulching and seeding - A(5-11)

[illegible]ORMAN TARGET RANGE PADE A CONSTR. NO. A 18860-A (8-12)

NIGHT LIGHTING SYSTEM *A(8-4) CANCELLED A(9-14)*
RANGE LIGHT - GREEN & YELLOW
CONTACT LIGHT - WHITE & YELLOW
CONTACT LIGHT - CLEAR

REF: POST ENGR. DWG. "ARMY AIR BASE" MARCH 20, 1944
REF: DWG. 226-F.P. R.E. DIV. L.A. SUB-OFFICE

BASE MAP FILE NO. 933/90.1

(57) 50' R/W FOR DRAINAGE DITCH

BUILDING SCHEDULE

OCE ORDER NO	BLDG NO	DESIGNATION	AREA	TYPE	PLAN NO	UNITS
Blythe A(2-1)	NONE	Barracks 20x100	All	TBE-34	557/33	88
	1	Officers Quarters 20x100	K	TOQ-24	557/90	17
	2	Mess Cadets 84x130	K	350Man	499/1.1	1
	3	Recreation Bldg 20x100	K	TOM-1	562/43.8	1
	4	Lavatory 18x24	All	L-2	700-285	8
A(4-6)	5	Officers Quarters 112x112	K	TOQ-48	955/18	14
A(4-6)	6	Service Club 70x173	K	SER-E-M	700-3665	1
A(2-1)	7	Tel & Tel Bldg 25x90	K	TT-4	800-907.1	1
	8	Chapel W/ORGAN 37x98	K	CH-1	800-550	1
	9	Recreation Building 88x124	K	TRB-1	562/69	1
	10	Lavatory 18x24	KL	L-2	574/76	2
	11	Photo Laboratory 20x100	K	TPL-1	562/79	1
Add PDA-567	12	Post Office & Addition	K	TPO-1	984/90	1
A(2-1)	13	Post Headquarters 100x100	K	T3A-6	562/57	1
	14	Finance Bld W/vault 20x100	K	TA-6	562/56	1
A(5-8)	15	Mess Civil 40x174	K	C-CWH	900-1520	1
A(2-1)	16	Post Exchange 140x160	K	TPXL	562/71	1
	17	Theater 76x181	K	TH-1036S	800-500	1
A(5-1)	18	Barracks (W.A.)	K	B-B-T Mod	969/12	1
	19	Rec, Adm & Supply (W.A.)	K	RBA-AT	700-5816	1
A(5-3)	20	Mess	K	MHT	700-6400	1
A(2-1)	21	Administration Bld 20x100	All-AEJ	TA-6	557/86	8
	22	Day Room 20x84	All	TRB-4	567/89	11
	23	Mess 25x106	K	M-172	800-605	1
	24	Supply 20x76	All	TSA-2	557/30	12
	25	Lavatory 18x36	LKJS	L-3	700-255	8
	26	Mess 25x130	J	M-228	800-805	1
	27	Administration Bldg 60x100	AJE	T-2A-6	557/86	3
	28	Operation Bldg 60x100	ALE	T-2A-6	557/86	3
	29	Mess 25x130	All LKJ	M-248	800/805	6

OCE ORDER NO	BLDG NO	DESIGNATION	AREA	TYPE	PLAN NO	UNITS
Z-1	30	Lavatory 25x36	[illegible]	L-4	700-285	16
	31	Operation Bldg 20x100	ABO	TA-6	557/97	6
	32	Crew Chief Bldg. 20x76	BJH	TSA-2	557/30	6
	33	Photo Laboratory 20x60	BCD FGH	TSA-1	557/94	6
	34	Mess 40x108	L	M-300	800-1166	1
	35	Mess	S	M-112	800-805	1
	36	Squadron Armament	G	T-0	562/50	1
ADD A(5-22)	37	Base Eng Shop Bldg 122x161.9	L	BES-2	924/37	1
	38	Base Eng Maint Insp Bldg 80x200	L	A-C	695-425	1
	39	Crash Truck Bldg 47x32	L	TF-1	557/87	1
	40	Oil Storage Bld 14x16	L	OSH-1	800-644	2
	41	Control Tower 15x15	L	STD Wood	1000-675	1
	42	Lavatory 18x21	L	L-1	700-285	1
A(2-1)	43	Paint, Dope, Oil Bld 25x54	L	SH-11	700-323	1
	44	Parachute Building 24x62	L	STD	700-379	1
	45	Link Trainer Bld 20x124	L	SH-9 Mod	800-664	1
	46	Guard House 20x100	L	TGH-38	562/42	1
	47	Fire Station (Mod) 47x92	L	TF-2	557/91	1
	48	AC Adm Supply Bldg 20x100	L	TA-6	557/97	1
	49	AC Warehouse (CON FL) 80x200	L	A-C	528/55	1
	50	Warehouse 48x192	L	A-C	557/28	3
	51	Q M Warehouse 48x192	W	A-C	557/28	4
	52	Post Qtr Master Office 20x143	W	TA-10	562/65	1
	53	Commissary 25x110	W	SH-9	800-550	1
	54	Equipage & Repair 20x100	W	TCERS	562/64	1
	55	Q M Warehouse 20x100	W	QBAT	700-5201	1
A(4-3)	56	Chemical Whse No /Office 20x48	W	QBKD Mod	700-5201	1
	57	Ordnance Warehouse 20x100	U	SH-AT	700-6003	1
A(2-1)	58	Motor Repair Shop 32x96	U	TSP-2	562/67	1
	59	Grease Rack 9x84	U	Wood	700-340	1

OCE ORDER NO	BLDG NO	DESIGNATION	AREA	TYPE	PLAN NO	UNITS
A(2-1)	60	Washrack (5 Car) 25x60	U	MOB	700-348	1
	61	Dispatcher House 12x14	U	DH-11	800-305	1
	62	Oil Storage 14x16	U	OSH-1	574/66	1
	63	Gasoline St 2 Pumps	U	1600 GAL TANK	800-601	1
	64	Carpenter Shop 20x84	U	TO Mod	568/68	1
	65	Administration Bld 20x68	U	TO Mod	562/66	1
	66	QM Warehouse 48x192	U	TSH-18	557/28	1
	67	Equipment Shed 48x48	U	TO Mod	562/73	1
	68	Sheet Metal Shop 20x92	U	TO Mod	562/62	1
	69	Lavatory 18x21	U	L-1	574/76	1
	70	Plumbing Shop 20x76	U	TO Mod	562/60	1
	71	Electric Shop 20x76	U	TO Mod	562/61	1
	72	Blacksmith Shop 20x64	U	TO Mod	562/63	1
	73	Paint Shop 20x36	U	TO Mod	562/64	1
A(5-2)	74	Celestial Nav Train 37x37	B	CEL-A-A	1000-180	4
	75	Boiler House 14x32	B	CEL-A-A	1000-183	1
PD-A-108	76	Bomb Sight Storage 24x50	B	Bomb-A	1000-175	1
PD-A-59	77	Bomb Trainer Bldg 61x80	B	BT-B-1	800-623	1
A(4-1)	78	Infirmary Bldg 25x90	A	INF-A-H	1100-620	1
A(5-6)	79	Camouflage Inst Bldg 50x108	A	SPEC	981/14	1
A(5-9)	80	Motor Repair Shop 64x144	U	MSAT	700-6008	1
A(5-12)	81	Exposure Rack 6x24	L	SPEC	984/33	1
A(5-13)	82	Lavatories 20x40	ABCD	LDT	700-6604	8
A(3-2)	83	Gas Instruction Bldg 20x40	E	GAS 1	903/53	1
A(3-2)	84	Inert Storehouse 20x100	E	QBAT Mod	934/55	1
A(4-5)	85	Ammunition Storage 12x12	T		947/101	1
	86	Range Service Bldg 26x72	T		926/69	1
	87	Moving Target	T	JEEP		
PD-A-340	88	Fire Station 32x88	T	FS-A-T	700-6616	1
A(6-2)	89	ADD WING TO MESS 25x130	A B C D	M-248	800-805	4

OCE ORDER NO	BLDG NO	DESIGNATION	AREA	TYPE	PLAN NO	UNITS
A(2-1)	90	SA Ammunition 14x16	O	OSH-1	574/66	1
	91	Pyrotechnic Mag 14x16	O	OSH-1	574/66	1
	92	2 Bay Seg Storage 10x14	O	MS2	499/88	1
PD-A-319	93	Iglow	O	MAG-H-O	652-1012	1
A(7-5)	94	NAVI. TRAINER BLDG. 20x64	B	SHBT	700-3008	1
A(6-1)	95	BAKERY 75x75	W	BAKG-M	700-4546	1
A(8-1)	96	SERVICE CLUB 70x173	B	SER-D-M	700-8677	1
A(8-1)	97	CHAPEL	B E	CHAT	700-5846	2
A(7-7)	98	LINK TRAINER BLDG 25x36	U	A-A	1000-760	1
A(6-3)	99	TURRET TRAN. BLDG. 32x96	T	MRS-A-T	700 6012M	1
PD-A-754	100	WAREHOUSE & FENCE 20x124	W	SH-A-T	[illegible]	1
A(6-4)	101	SQD. OPERAT. BLDG. U SHAPE	B	100x140		4
A(9-5)	102	SQD. HANGARS CANCELLED BY A(9-13)	B	HANGOR	1000-1250	2
A(9-2)	103	OFFICE BLDG. U 100x140	A	OBNT	700-5208	1
A(9-6)	104	CELESTIAL OFFICE BLDG.	B	OB-A-T	700-5201	1
A(9-3)	105	RADIO RANGE BLDG.	L	RAD-A-S	1200-1000	1
PD-A-830	106	RECLAMATION SHOP YARD	L	RECL-A-A	1000-5045	1
PD-A-776	107	LAVATORY W/DOUBLE FENCE	L	LAT	700-6601A	1
PD-A-859	108	LATRINE 10x16	L	LTBT Mod	1009/65	1
	109	LATRINE 10x80	L	LTBT Mod	1009/65	1
A(9-8)	110	HANGAR CONCRETE FOUNDATION 130x160	A	PREFAB		1
A(9-12)	111	SM ARMS AMMUNIT STORAGE	O	OBOT	700-5201	2
A(10-1)	112	OIL STORAGE HOUSE CANCELLED BY A(10-3)	[illegible]	OIL-A-O	652-1038	4
A(9-2)	113	BEACON TOWER	L			1
BY POST ENGINEER	114	SWIMMING POOL 60'x110'	K			1
	115	C.O. RESIDENCE 32'x42'	K			1
	116	DORMITORY 34'x186'	K			1

HOSPITAL AREA

OCE ORDER NO	BLDG NO	DESIGNATION	SIZE	TYPE	PLAN NO	UNITS
A(2-1)	A	Barracks	20x100	TBE-34	557/33	4
	B	Latrine	18x30	L-3		1
A(2-1)	C	Mess E.M.	25x144	M-8 Mod	574/48	1
	D	Storehouse	20x125	SH-5	571/58	1
	E	Storehouse	20x156	TSH-7	562/59	1
A(4-3)	F	Day Room	28x72	RB-B-T	700-5800	1
	G					
	H					
SPD(HE)A-15	J	Ward Standard	25x150	W-1	700-462	2
A(4-3)	K	Nurses Rec Building	20x72	RB-BT Mod	918/1	1
A(2-1)	M	Ward Combination	25x158	W-2	1100/665	1
	N	Ward Std (CH)	25x158	W-1	1100/660	2
	O	Ward Combination	25x158	W-4	1100/665	1
	P	Infirmary	25x84	I-2	800-1429	1
	Q	Flight Surgeon	25x78	FS-1	1100-615	1
	R	Administration Bld	26x148	A-1	700-4300	1
	S	Nurses Quarters & Mess	29x150	HQM-20	700-1250	1
A(5-4)	T	Dentist Clinic	25x70	DC-3	800-1451	1
A(2-1)	U	Heating Plant	25x61		579/51	1
	V					
	W					
	X					
PD-A-340	Z	Fire Station	32x88	FS-A-T	700/6616	1

DATE	REVISION	REV.	CHK.	APP.
10/7/46	ADDED BUILDING NUMBERS	W.W.M.	L.C.S.	
	REVISED APR. [illegible]	J.M.M.		

SURPLUS FACILITIES

BOUNDARY SKETCH
BLYTHE ARMY AIRFIELD
BLYTHE, CALIFORNIA

SCALE 1 IN. = 600 FEET

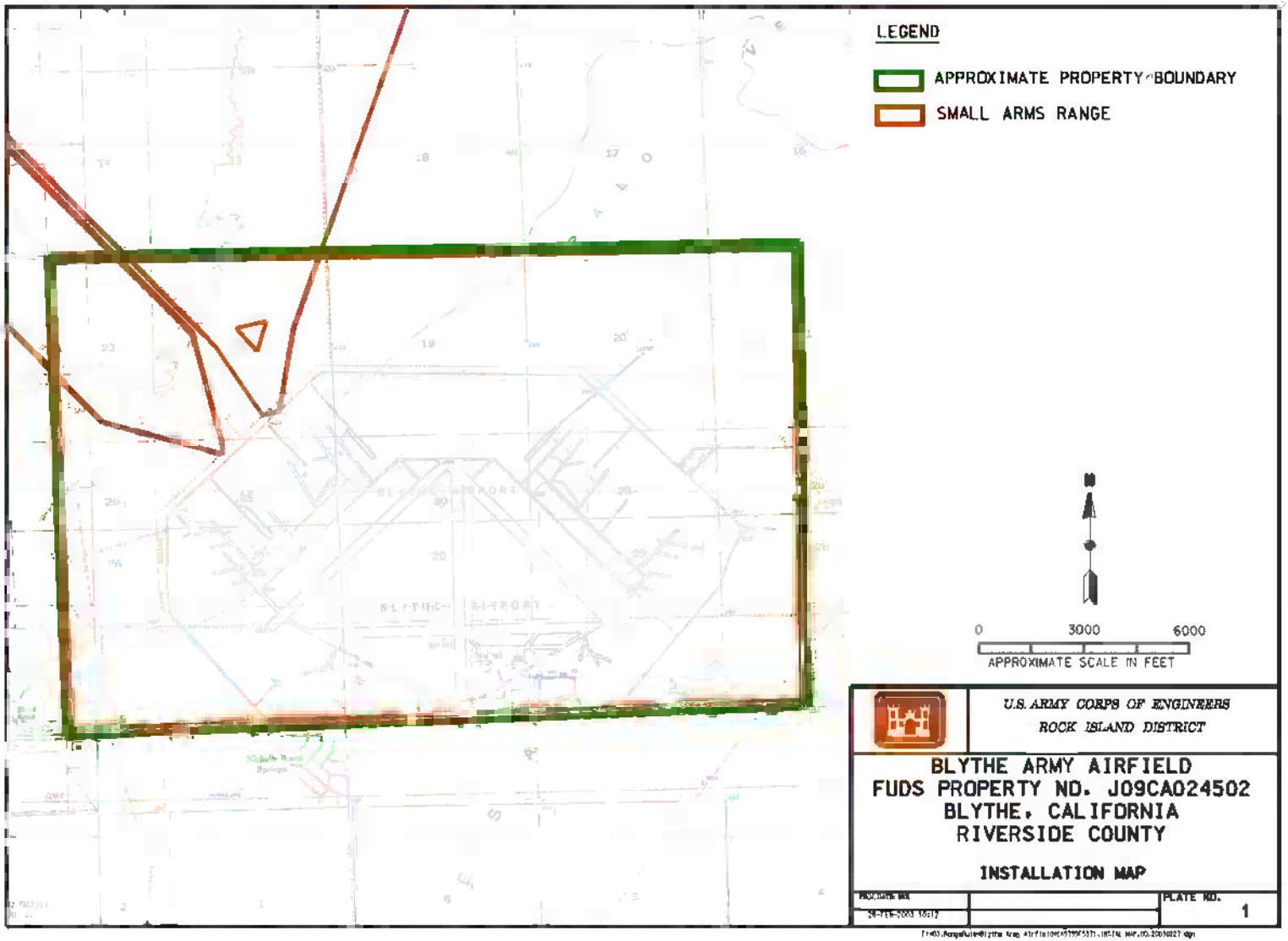
U. S. ENGINEER OFFICE, LOS ANGELES, CALIF., SEPT. 1945

PREPARED UNDER THE DIRECTION OF
COLONEL R. C. HUNTER
DISTRICT ENGINEER

FILE NO.	DRAWN	TRACED	CHECKED	TO ACCOMPANY
RW D099/3142-70-F	J.M.M.	G.T.E.	L.C.S.	DATED:

Riverside

ATTACHMENT 4

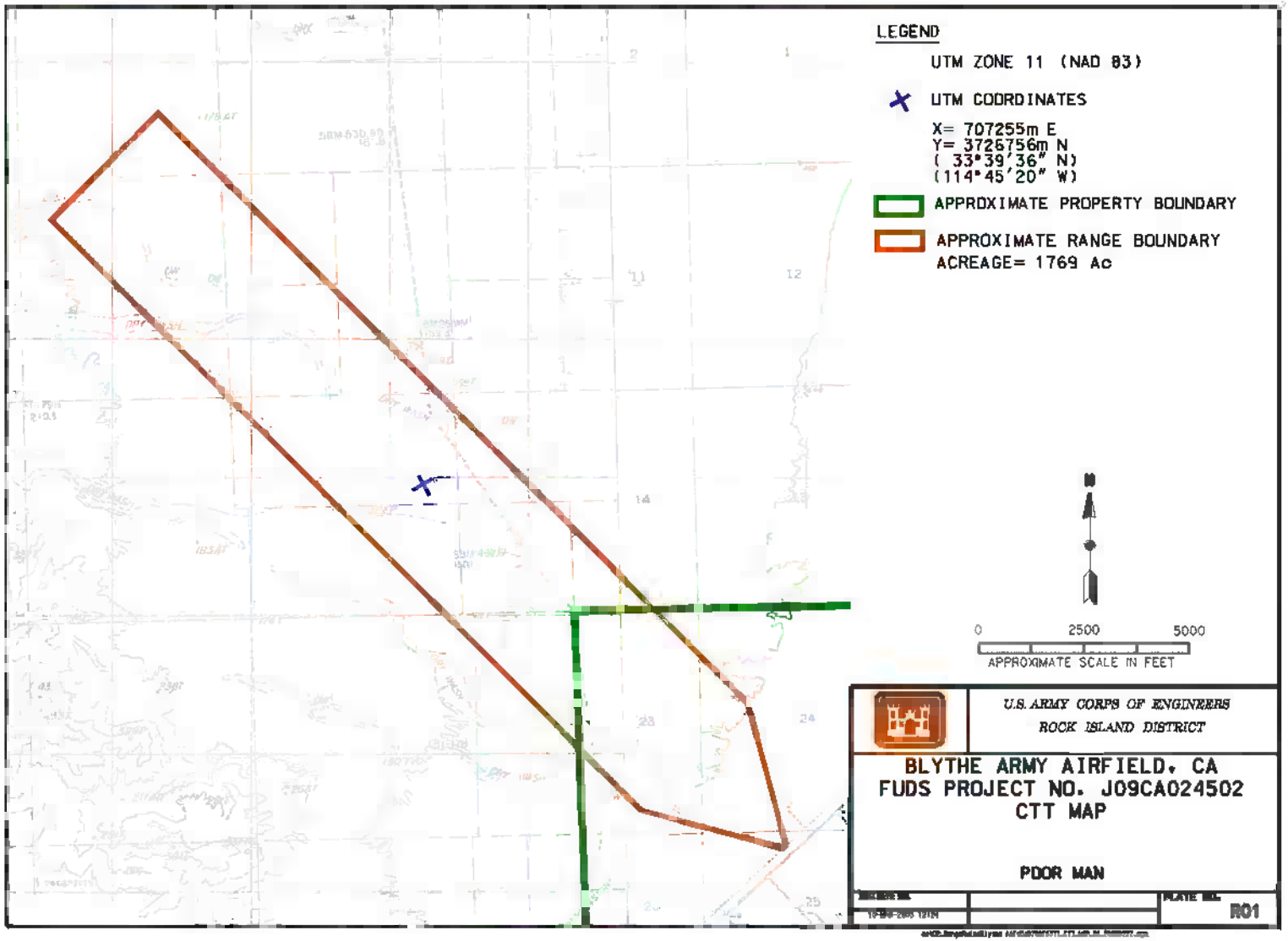


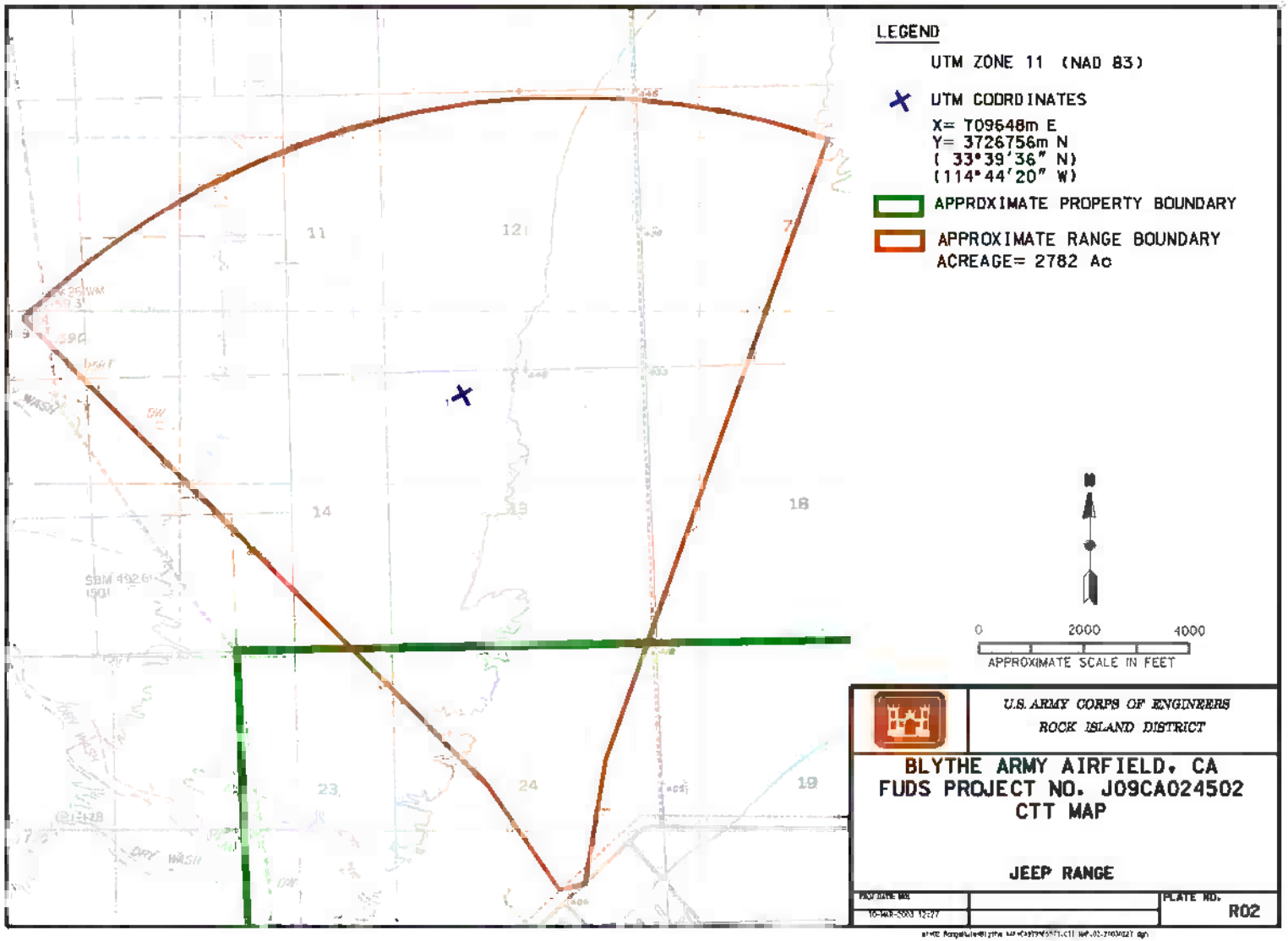
U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT

BLYTHE ARMY AIRFIELD
FUDS PROPERTY NO. J09CA024502
BLYTHE, CALIFORNIA
RIVERSIDE COUNTY

INSTALLATION MAP

PLATE NO. 1


LEGEND
UTM ZONE 11 (NAD 83)
UTM COORDINATES
X= 707255m E
Y= 3726756m N
(33°39'36" N)
(114°45'20" W)
APPROXIMATE PROPERTY BOUNDARY
APPROXIMATE RANGE BOUNDARY
ACREAGE= 1769 Ac
N
0
2500
5000
APPROXIMATE SCALE IN FEET
U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
BLYTHE ARMY AIRFIELD, CA
FUDS PROJECT NO. J09CA024502
CTT MAP
POOR MAN
PLATE NO.
R01


LEGEND
UTM ZONE 11 (NAD 83)
UTM COORDINATES
X= 709648m E
Y= 3726756m N
(33°39'36" N)
(114°44'20" W)
APPROXIMATE PROPERTY BOUNDARY
APPROXIMATE RANGE BOUNDARY
ACREAGE= 2782 Ac
0
2000
4000
APPROXIMATE SCALE IN FEET
U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
BLYTHE ARMY AIRFIELD, CA
FUDS PROJECT NO. J09CA024502
CTT MAP
JEEP RANGE
PLATE NO.
R02

ATTACHMENT 5

US Army Corps of Engineers
Rock Island District

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

Savanna, Illinois

Archives Search Report

FINDINGS

for the former

NELLIS SMALL ARMS RANGE

LAS VEGAS, NEVADA
Project Number J09NV051001

July 1996

Moving Target Ranges at the Las Vegas Gunnery School

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM

for
FORMERLY USED DEFENSE SITES

FINDINGS

ORDNANCE AND EXPLOSIVES ARCHIVES SEARCH REPORT for the former NELLIS SMALL ARMS RANGE LAS VEGAS, NEVADA PROJECT NUMBER J09NV051001

July 1996

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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
for the former
NELLIS SMALL ARMS RANGE
LAS VEGAS, NEVADA
PROJECT NUMBER J09NV051001

ACKNOWLEDGMENT
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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
for the former
NELLIS SMALL ARMS RANGE
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PROJECT NUMBER J09NV051001

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1. INTRODUCTION

a. Subject and Purpose

(1) This report presents the findings of an historical records search and site inspection for ordnance and explosives (OE) presence located at the former Nellis Small Arms Range. The investigation was performed under the authority of the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP FUDS).

(2) The investigation focused on 36,378.28 acres of land that was used initially by the Army Air Force as a ground gunnery range during WW-II and later by the Air Force as an emergency jettison area and explosive ordnance disposal (EOD) area.

(3) The purpose of this investigation was to characterize the site for potential OE contamination, to include conventional ammunition and chemical warfare material (CWM). The investigation was conducted by experienced ordnance experts through thorough evaluation of historical records, interviews, and on-site visual inspection results.

b. Scope

(1) This report presents the site history, site description, real estate ownership information, and confirmed ordnance presence (prior to and after site closure), based on available records, interviews, site inspections, and analyses. The analyses provide a complete evaluation of all information to assess current day potential ordnance contamination, where actual ordnance presence has not been confirmed.

(2) For the purpose of this report, OE contamination consists of live ammunition, live ammunition components, CWM, or explosives which have been lost, abandoned, discarded, buried, fired or thrown from demolition pits or burning pads. These items were either manufactured, purchased, stored, used, and/or disposed of by the War Department/Department of Defense. Such ammunition/components are no longer under accountable record control of any DOD organization or activity.

(3) **Expended** small arms ammunition (.50 cal or smaller) is **not** considered OE contamination. OE further includes

"explosive soil" which refers to any mixture in soil, sands, clays, etc., such that the mixture itself is explosive. Generally, 10 percent or more by weight of secondary explosives in a soil mixture is considered explosive soil.

2. PREVIOUS INVESTIGATIONS/PROJECTS

a. 1994 Preliminary Assessment

(1) A Preliminary Assessment of the Nellis Small Arms Range was conducted under the Defense Environmental Restoration Program, Formerly Used Defense Sites (DERP FUDS) by the Corps of Engineers, Los Angeles Division (see reference B-1). At that time, the Findings and Determination of Eligibility (FDE), dated 30 August 1994, concluded that 36,378.28 acres had been formerly owned or used by the Army Air Force/Department of Defense.

(2) The FDE concluded that there were eligible categories under the DERP/FUDS program. Since the site was found to have been used as a training, demolition, and jettison area, an Ordnance and Explosives (OE) project was recommended, DERP FUDS Project Number J09NV051001, which is the subject of this report (see document E-3).

TABLE 2-1
DERP-FUDS PRELIMINARY ASSESSMENT PROJECTS

Project Number	DERP Category	Present Phase	Comments	Location
J09NV051001	OE	SI	Ordnance and Explosives	See plate 3
	BD/DR	-	None Recommended	
	HTRW	-	None	

b. Other Investigations

No other investigations or studies relevant to DERP-FUDS were discovered during this Archives Records Search.

3. SITE DESCRIPTION

a. Existing Land Usage

(1) The former Nellis Small Arms Range is located in Clark County, 6 miles northeast of Las Vegas, Nevada and 2 miles north of Nellis Air Force Base.

(2) Part of the property is used by the U.S. Fish and Wildlife Service as part of the Desert Game Range; the remainder of the property is owned by the Bureau of Land Management and is used primarily for public access and recreational activity. An active U.S. Air Force small arms range abuts this area on the southeast corner but is not considered part of the FUDS (see plate 3).

(3) Table 3-1 shows current land usage.

TABLE 3-1
CURRENT LAND USAGE

AREA	FORMER USAGE	PRESENT OWNER	PRESENT USAGE	SIZE/ ACRES	COMMENTS
A	37mm Burial Area	BLM	Wildlife Mgmt.	2,782	See plates 3,4
B	Bomb Jettison Area	FWS	Wildlife Mgmt.	9,267	See plates 3,4
C	Bomb Jettison Area	BLM	Wildlife Mgmt.	8,016	See plates 3,4
D	Bomb Jettison Area	BLM	Recreation	1,094	See plates 3,4
E	Bomb Jettison Area	BLM	Recreation	15,219.28	See plates 3,4
			Total Acres:	36,378.28	

b. Climatic Data

(1) Material in paragraphs 3.b.(2) through (4) was extracted primarily from the Local Climatological Data, Annual Summary With Comparative Data for Las Vegas, Nevada, dated 1993 (see reference B-7).

(2) Clark County is located in the southwestern portion of the state. Weather factors for the Las Vegas recording station are used in this assessment. The factors that determine weather patterns include location of Nevada on the eastern, lee side of the Sierra Nevada Mountains, prevailing winds from the west that drop precipitation on the western side of the Sierras, and wild local variations due to differences in topography and elevation.

(3) The annual precipitation averages 4.21 inches (1964-1993 avg. mean). The wettest months are usually March and January. The months with the least amounts of precipitation are May and June (see reference B-8).

(4) The average temperature ranges from daily minimums in January and December of 32.7 to 33.6° F to daily mean high temperatures of 83.5-89.8° F in June, July, and August. The lowest temperature observed was 8°F in January and the highest temperature was 116° F in July (see reference B-8). Mean number of days with temperatures over 90° F is 132. Mean number of days 32° F and below is less than one-half (see reference B-7).

(5) The average snowfall each winter is from a trace to up to 16.7 inches. The relative humidity averages from 21 to 40 percent throughout the course of the day (see references B-7 and B-8).

(6) Flooding, especially flash flooding, is likely to occur in the area of the site after thunderstorms due to the topography and soil consistencies (see reference B-7).

c. Topography

(1) Clark County lies on the southern edge of the state and is part of the Great Basin. Average elevations in the area of the site are from 3,000 to 7,800 feet. The terrain varies quite sharply from steep, craggy mountains to broad alluvial fans on the valley floor.

(2) The site is traversed by gullies, canyons, and arroyos making transportation difficult. Roads are generally jeep tracks and impassable during certain portions of the year.

d. Geology and Soils

(1) Material in paragraphs 3.d.(2) and 3.d.(3) was extracted from the current Soil Survey of Clark County, Nevada (see reference B-40).

(2) Regional Geology/Soils

(a) The geology of Clark County is generally categorized by beginning with the sedimentary formations in the mountains that have gravitated to the basin floor. This in turn becomes alluvial fan piedmont characterized by coalescing fans dissected by numerous drainage channels. Sedimentary formations of dolomite and limestone from the early Cambrian to the early Devonian are present, with the occasional appearance of interbedded quartzite, and shale beds. The Tertiary rock in the mountains ringing the site area are mainly basalt, rhyolite and latite and classified as volcanic extrusions. The valley floors

that make up the main portion of the site are quarternary in nature, made up of a detritus from the bedrock areas carried by intermittent flash flooding to the margins of valleys and alluvial fans. Larger amounts of coarse debris are deposited along the edges of dry watercourses (see reference B-40).

(b) The soil is of all sizes of rock debris ranging from clay-sized fragments to boulders. The soil is not suited for agricultural purposes and lack of water kills all but the hardiest desert shrubs.

(3) Site Specific Geology/Soils

The soil on this site is Weiser extremely gravelly fine sandy loam with 2 to 8 percent slopes (see reference B-40). the Weiser series consists of very deep, well drained soils on erosional fan remnants. The soil is largely derived from limestone. About 80 percent of this soil type is actually small pebbles. A dark desert varnish is found on the exposed surfaces of these rock fragments. Calcium carbonate content ranges 40 to 60 percent, confirming the limestone foundation of this soil. The fine earth fraction averages fine sandy loam or sandy loam and has a clay content of 5 to 18 percent. The profile is moderately or strongly alkaline. This is the only soil type on the site.

e. Hydrology

The 4.21 inch average rain fall for the Las Vegas area is a reliable estimate for this area due to proximity of the site to Las Vegas. (see reference B-11). Surface water on this site is runoff from the mountainous areas to the north and northeast of the site. Small springs and seeps are located in several places on the site but these are largely seasonal and provide no steady supply of water.

f. Natural Resources

(1) There are several endangered animals and plants listed as endangered species to be protected in this portion of Nevada by the Department of the Interior, U.S. Fish and Wildlife Service (see reference B-6).

(2) The following species are recognized as threatened, endangered, or sensitive by the State of Nevada or the Federal Government and are presented in tabular form in table 3-3:

TABLE 3-3
NATURAL RESOURCES*

Resource Classification	Type	Comment
Mammal	None	
Bird	None	
Amphibian/Reptile	Desert Tortoise	E (F,N)
	Amargosa Toad	T (F)
Fish	Pahrump Poolfish	E (F)
	Warm Springs Pupfish	E (F)
Plant	Amargosa Niterwort	E (F)
	Mojave Sweet Pea	S (F)
Insect	None	

E = Endangered S = Sensitive F = Federal
N = Nevada T = Threatened
*References B-6 and B-10

g. Historical/Cultural Resources

According to the State Historical Preservation Office (SHPO) for Nevada, maintenance of an inventory of historic and cultural sites is contracted to the University of Nevada at Las Vegas' Harry Reid Center for Environmental Studies. Ms. Blair of that office informed the HRS researcher for this site that the least expensive and most feasible way to inventory and categorize historical/cultural sites was to do so after it had been determined which areas are to be remediated. No information specific to the site was discovered, however, when remediation is considered for this site, the SHPO should be contacted for specific guidance (see appendix A, Reference sources).

4. HISTORICAL ORDNANCE PRESENCE

a. Chronological Site Summary

(1) The site was authorized to be acquired from the Department of the Interior as part of a 4,043,339.55 acre tract specified in Executive Order 8578, 29 October 1940, for use as a bombing and gunnery range (see reference B-31). The 46,953.75 acre area was transferred from the Department of the Interior in December 1941 to be used as a moving target machine gun range.

Approximately 25,620 acres were relinquished to the Bureau of Land Management (BLM) in August 1954. An additional 10,758.27 acres were relinquished to the Fish and Wildlife Service in July 1961. The site was used by Air Force, Marine Corps and Navy personnel from Nellis Air Force Base and Lake Mead Base for small arms weapons ranges. The site was also used as an emergency drop area for hung bombs, wing-tip tanks and pylons. The Air Force also utilized a portion of the area as an explosive ordnance disposal area. Numerous range clearances have been conducted and are documented in appendix F. OE continues to be discovered on the site. The Air Force Small Arms Range which is adjacent to this site is active and still in use. Its acreage is not considered in this report.

b. Ordnance Related Records Review

(1) Sources checked in the search for any OE contamination included:

[a] National Archives
[b] Regional Archives
[c] The Military History Institute
[d] U.S. Army Center for Military History
[e] Emergency Ordnance Disposal (EOD) Units
[f] Local Police Department
[g] Local Sheriff's Department
[h] County Courthouse

(2) For a complete list of sources checked, see appendix A, Reference Sources.

(3) Documentation discovered in the course of the Archives Search showed that the former Nellis Small Arms Range was first envisioned before World War II for training flexible machine gunners assigned to the Las Vegas Bombing and Gunnery School (see F-1). Numerous documents refer to construction of ranges and ammunition supply and logistics matters (see F-2 to F-4) necessary to properly run a training area. Power turrets were requested in December 1941 (see F-5). References F-6 and F-7 discuss a request for the delivery of 20mm and 37mm AA guns. The use of tracer shotgun ammunition is discussed in reference F-8. The moving target ranges and numbers of students expected to be trained are discussed in reference F-9. The aforementioned documents all date from World War II. The next two references discuss the construction of a 600 yard rifle range in 1955 to be jointly shared by Nellis Air Force Base and Lake Mead Base (see F-9).

(4) Explosive Ordnance Disposal team range clearance documents exist and were carefully studied to determine areas of confirmed and potential OE contamination, as well as density of that contamination. Clearances were conducted in 1972, 1977, 1978 and 1995.

Large amounts of OE were recovered (see references F-10, F-11, F-12, and F-13). These documents were responsible in part for the risk assessments for this site.

(5) A declaration of excess dated June 1971 details the types of munitions items that could be expected to be found on the range (see reference G-2 and map L-3). Included were practice bombs and HE rockets.

(6) Review of newspaper microfilm, clipping files, and vertical files at the Nevada Room of the Las Vegas Central Library revealed no evidence of the discovery of OE at the former Nellis Small Arms Range.

c. **Interviews with Site Related Personnel**

(1) CPT Swoboda, Nellis AFB EOD, had a wealth of information concerning OE at the former Nellis Small Arms Range. His unit does the range clearances on the active portions of the Nellis Range and would be the responders if ordnance was discovered in/on FWS/BLM lands, like Nellis Small Arms Range, that border the active Range. He was the officer in charge of the last range clearance of the area and his final report with OE recovered and map of their locations is at reference F-13. He stated that OE items discovered off range are recovered by Nellis ordnance personnel in the interest of public safety (see interview I-1).

(2) SSG Quinn, 259th EOD, Fort Irwin was the staff duty NCO. SSG Quinn had no information on discovery or removal of ordnance and munitions items in the former Nellis Small Arms Range area. He acknowledged that his unit does have responsibility for the area in which Nellis Small Arms Range is located, but, in practice, leave discoveries of Air Force munitions for the Air Force's disposition. He suggested I speak with Air Force EOD personnel and gave me a POC (see interview I-1). He had no other pertinent information (see interview I-2).

(3) Dr. Wilman is the Staff Historian for WTC and is very familiar with all aspects of the Nellis Range Complex. She was familiar with instances of OE being discovered in the area where Nellis Small Arms Range is located. She has intensively searched the archives for us in this respect after prior coordination with the HRS team's Mr. Meekma. She directed us to

EOD Captain Swoboda (interview I-1)(see interview I-3).

(4) Mr. Cook is currently an employee of the Bureau of Land Management in Las Vegas and is quite familiar with the property in question at the former Nellis Small Arms Range. He has visited the property several times in the course of his duties and has never seen any evidence of OE in the area. He is familiar with OE from his time in the military and spoke knowledgeably about military activities in the surrounding areas including other FUDS sites now under study (see interview I-4).

5. SITE ELIGIBILITY

a. Confirmed Formerly Used Defense Site

(1) Former land usage by the Army was previously confirmed for the entire 36,378.28 acre site as summarized in section 4 of this report.

(2) There are no recapture or restricted use documents on record for the former Nellis Small Arms Range.

b. Potential Formerly Used Defense Site

No previously unknown potential Formerly Used Defense Sites were identified by the site inspectors during the course of the visual inspection and review of historical documents.

6. VISUAL SITE INSPECTION

a. General Procedures and Safety

(1) During the period 15-21 February 1996, members of the Site Inspection (SI) team traveled to Nevada to assess several FUDS including the portion of the former Nellis Small Arms Range returned to the public domain. The team did not visit the fenced, active range which is not a part of this report. The primary task of the SI team was to assess OE presence and potential due to the usage of the site as a machine gun range and emergency jettison area for the Las Vegas Bombing and Gunnery Schoolduring World War II. Contamination from present day usage of ordnance in areas adjacent or in the sky above the FUDS is not within the purview of the DERP-FUDS program and must be addressed separately.

(2) A site safety plan was developed and used by the SI team to assure an injury-free site inspection of the Former Nellis Small Arms Range. A briefing was conducted prior to the SI which stressed that OE would only be handled by military EOD personnel. Site safety and strict adherence to nonintrusive

investigation methods were maintained by the inspection team at all times during the on-site inspection.

(3) Prior to the site visit, a thorough review was made of available reports, historical documents, texts, and technical ordnance manuals (see materials referenced in Appendix A gathered during the ASR historical records search). This review was made to ensure team awareness of potential ordnance types and hazards.

(4) The actual inspection of the former Nellis Small Arms Range began on 16 February 1996, when the SI team visited the area of the site.

b. Area A: Buried 37mm HE Area

(1) The site was surveyed with the aid of a 4-wheel-drive vehicle and existing maps and drawings provided by Nellis EOD (see map L-3).

(2) The SI team first surveyed the portion of the site indicated as a potential ammunition burial site for 37mm HE by the INPR. This survey was conducted on foot with all appropriate cautions taken to avoid injury and heat fatigue. No of evidence of OE was noted. The area was walked by the assessment team three abreast, taking care to carefully inspect gullies similar to the ones mentioned in the EOD reports of 37mm found in the area (see plate 3, photograph J-1 and map L-3). Other OE items have also been discovered in this area (see reference F-13) but are most likely illicit dumps by disaffected individuals.

c. Area B: Bomb Jettison Area

This area is mountainous and not vehicle accessible; it was not inspected on foot. EOD personnel who have surveyed the area by helicopter verify the presence of OE such as rockets, practice bombs, and expended wing-tip tanks.

d. Area C: Bomb Jettison Area

This area is mountainous and not vehicle accessible; it was not inspected on foot. EOD personnel who have surveyed the area by helicopter verify the presence of OE such as rockets, practice bombs and expended wing-tip tanks.

e. Area D: Bomb Jettison Area

This area is mountainous and not vehicle accessible; it was not inspected on foot. EOD personnel who have surveyed the area by helicopter could not verify the presence of OE such as rockets, practice bombs and expended wing-tip tanks but think it likely due to it's designation as an emergency drop area and proximity to the air base.

f. Area E: Bomb Jettison Area

This large area was walked east to west by the assessment team members three abreast. Three of the former moving target berms are located on the southern edge of the site. No evidence of OE was noted. This area had large numbers of expended .50 caliber machine gun bullets from its use as an moving target machine gun range (see photographs J-2 and J-3). This area has had one **inert** M117 practice bomb removed by Nellis Air Force Base EOD (See reference F-13).

7. EVALUATION OF ORDNANCE HAZARDS

a. General Procedures

(1) The site was evaluated to determine confirmed, potential, or uncontaminated ordnance presence. Confirmed ordnance contamination is based on verifiable historical evidence or direct witness of ordnance items. Verifiable historical records evidence consists of ordnance items located on site and documented by the local bomb squad, Air Force and Army Explosive Ordnance Disposal teams, newspaper articles, correspondence, current findings, etc. Direct witness of ordnance items consists of the inspection team directly locating ordnance items by visual inspection. Additional field data is not needed to identify a confirmed subsite.

(2) Potential ordnance contamination is based on a lack of confirmed ordnance. Potential ordnance contamination is inferred from records or indirect witness. Inference from historical records would include common practice in production, storage, usage, or disposal, at that time, which could have allowed present day ordnance contamination. Potential ordnance contamination could also be based on indirect witness or from present day site features. Additional field data is needed to confirm potential ordnance subsites.

(3) Uncontaminated ordnance subsites are based on a lack of confirmed or potential ordnance evidence. Historical records evidence and present day site inspections do not indicate confirmed or potential ordnance contamination. There is no reasonable evidence, either direct or inferred, to suggest present day ordnance contamination. Additional field data is not needed to assess uncontaminated ordnance subsites.

b. Area A: Buried 37mm HE Area

(1) Based on the site visual inspection, review of historical documents, and reports of found OE since site closure,

this area is considered **contaminated** in accordance with the standards of paragraph 7.a.(1).

(2) OE has been recovered from this site by Nellis Air Force Base EOD personnel but the precise location was not detailed on a clearance map. 37mm HE projectiles show up after heavy rains and will probably continue to surface due to weather or real estate development. A portion of this area, section 17, also may have served as an EOD demolition area (see map L-3). The area must be treated as contaminated due to pit kick-outs, buried misfires, and the common practice of illicit burial of items.

c. Area B: Bomb Jettison Area

(1) Based on review of historical documents, and interviews with Nellis Air Force Base EOD personnel this area is considered **contaminated** in accordance with the standards of paragraph 7.a.(1).

(2) OE has been noted on the ground by EOD personnel doing aerial surveys of the area. The rugged, nearly inaccessible terrain complicates disposal and removal by Nellis AFB EOD.

d. Area C: Bomb Jettison Area

(1) Based on review of historical documents and interviews with Nellis Air Force Base EOD personnel this area is considered **contaminated** in accordance with the standards of paragraph 7.a.(1).

(2) OE has such as practice bombs have been noted on the ground by EOD personnel doing aerial surveys of the area. The rugged, nearly inaccessible terrain complicates disposal and removal by Nellis AFB EOD.

e. Area D: Bomb Jettison Area

(1) This area was broken out from Area C based on its accessibility. As a result of the site visual inspection, review of historical documents, and common practices of the time, this area is considered **potentially contaminated** in accordance with the standards of paragraph 7.a.(2).

(2) No OE was noted on the site. Individuals familiar with the site have found no evidence of OE contamination (see interviews I-1 and I-4). This area is adjacent to known contaminated and active use areas. This area could have been utilized if required to drop hung bombs and rockets, wing-tip tanks and weapons pylons. It would have been common practice to utilize the area as an emergency drop site; the possibility for contamination by OE exists and must be taken into consideration.

f. Area E: Bomb Jettison Area

(1) Based on the site visual inspection, review of historical documents, and reports of found OE since site closure, this area is considered **potentially contaminated** in accordance with the standards of paragraph 7.a.(2).

(2) Although three of the moving targets berms are located in this area, expended small arms are not the primary focus of study in this area since it is not considered OE. No OE was noted on the site during the assessment. One inert M117 practice bomb has been removed by EOD and is considered scrap metal and not OE. However, since the area is adjacent to known contaminated areas and an active training range the potential for buried and impacted OE items exists in this area. This area was also available for emergency jettisoning of bombs and racks and may be contaminated with OE.

8. SITE ORDNANCE TECHNICAL DATA

a. End Item Technical Data

(1) There is historical evidence to indicate that ordnance was used at the Nellis Small Arms Range over a 20-year period.

(2) Table 8-1 is a listing of OE items most likely to have been expended for gunnery training based on the scopes of the training missions and the timeframe 1941-1965as well as observed OE on-site:

TABLE 8-1
AMMUNITION USED AND EXPLOSIVES/CHEMICAL FILLERS

Type	Model	Filler/Weight
Cartridge, .30 caliber, MG	M2, Ball M1, Tracer M2, AP	Lead antimony Tracer composition Tungsten chrome steel
Cartridge, .30 caliber, Carbine	M1 Ball M16 Tracer	Lead antimony Tracer composition
Cartridge, .45 caliber, Pistol	M1911, Ball	5.6 grains Powder 4648 Copper Plated Steel Bullet
Cartridge, .50 caliber, Machine Gun	M2, Ball M2, AP	Soft steel/lead Tungsten chrome steel

TABLE 8-1

AMMUNITION USED AND EXPLOSIVES/CHEMICAL FILLERS

Type	Model	Filler/Weight
Projectile, 20mm HEI	MK IV	.0171 lb. Tetryl .0072 lb. Incend. mix.
Projectile, 37mm, HE-T	M54	.10 lb. Tetryl .025 lb. Tracer Comp.
Fuze	M56 PD	Tetryl booster
Grenade, Incendiary	AN-M14	1.75 lbs. thermite
Warhead, Rocket 2.75"	M229 HE	15.5 lbs. Comp. B
Block, Demolition	M3	2.25 lb. Comp. C-3
Block, Demolition	M4	.50 lb. Comp. C-3
Cord, Detonating		7 lb./100 feet PETN
Bomb, Practice 3 lb. w/signal	AN-MK 23 MK 4	Cast iron 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride
Bomb, Practice 4.5 lb. w/signal	AN-MK 43 MK 4	Cast lead 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride
Bomb, Practice 2.68 lb. w/signal	AN-MK 5 MK 4	Zinc Alloy 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride
Bomb Practice 5 lb. w/signal	MK 105 MK 4	Sheet steel 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder
Bomb, Practice 25 lb. w/signal	MK 76 MK 4	Sheet steel 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride

TABLE 8-1 AMMUNITION USED AND EXPLOSIVES/CHEMICAL FILLERS		
Type	**Model**	**Filler/Weight**
Bomb, Practice 100 lb. w/signal	M38A2	Sheet steel 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride water/sand mix
Rocket, 5", HE	MK 1 Mod 0	8.6 lbs. TNT

b. Chemical Data of Ordnance Fillers

Table 8-2 has been developed to establish a list of typical explosive/chemical compounds used in the ordnance and chemical items cited in Table 8-1.

Table 8-2 CHEMICAL DATA OF EXPLOSIVE/ORDNANCE FILLERS		
EXPLOSIVE MATERIEL	**SYNONYM(S)**	**CHEMICAL FORMULA**
Smokeless Powder Various percentages of:	FNH Powder	
Nitrocellulose	Nitrocotton	$C_3H_5(ONO_2)_3$
Dinitrotoluene	DNT	$C_6H_2CH_3(NO_2)_2$
Dibutylphthalate	Gelling Agent	$C_6H_4(CO_2C_4H_9)_2$
Diphenylamine	DPA; Stabilizer	$(C_6H_5)_2NH$
Black Powder 74% Potassium Nitrate 11% Sulfur 16% Charcoal	Niter, Salt Peter	KNO_3 S C
TNT	2,4,6 Trinitrotolulene	$C_6H_2CH_3(NO_2)_3$
RDX		$C_3H_6N_6O_6$

Table 8-2
CHEMICAL DATA OF EXPLOSIVE/ORDNANCE FILLERS

EXPLOSIVE MATERIEL	SYNONYM(S)	CHEMICAL FORMULA
Pentolite 50% TNT 50% PETN		
PETN	Pentaerythritetetranitrate	$C(CH_2ONO_2)_4$
Lead		Pb
Iron		Fe
Antimony		Sb
Primer Compositions*		
Mercury Fulminate		$Hg(ON)_2$
White Phosphorus	WP Smoke	P
Lead Azide		$Pb(N_3)_2$
Sulfur Trioxide	FS Smoke	S_2O_3
Tetryl		$C_7H_5N_5O_8$
Thermite		Al + FE

9. OTHER ENVIRONMENTAL HAZARDS

a. Hazardous, Toxic, and Radiological Waste

During the site visit and in the course of reviewing hundreds of documents during the historical records search, evidence of a HTRW consideration came to light due to expended .50 caliber machine gun bullets containing lead in area E of the site (see plates 2 & 3). Any remediation efforts should be coordinated with the Nellis Air Force Base Environmental office and the State of Nevada.

b. Building Demolition/Debris Removal

During the site visit, no potential BD/DR projects were noted for consideration as a result of DOD/AAF use during the period 1941-1963.

ATTACHMENT 6

Pete,

Below is an email sent to Tannika yesterday. Because the end of the survey season is this weekend and it's a short week this week, I just wanted to follow up with you in case Tannika is not available. You can reach me at 619-820-0768 if you have any questions.

Thanks!
Shelly Dayman

From: Dayman, Shelly
Sent: Tuesday, May 26, 2009 4:22 PM
To: 'tannika_engelhard@fws.gov'
Cc: Riley, Erin
Subject: Solar Millennium - Desert Tortoise Surveys, Blythe Site

Tannika,

We have been surveying three sites for Solar Millennium this season, one in Ridgecrest and two near Blythe. We have completed one of the sites near Blythe (referred to as the Palen site) and will be completed the Ridgecrest site this week. Recently a land mine was discovered on the Blythe site and so we had to temporarily suspend surveys and are now able to resume surveys. We would like to determine if it would be possible to continue tortoise surveys past the May 31st deadline. Surveys should be completed no later than June 6th.

The predicted temperatures on-site for the next 10 days don't exceed the actual temperatures that have been experienced on-site for the past several weeks and are about 3 to 5 degrees cooler than recent temperatures (the daily high is expected to be between 101 to 104 degrees and temperatures on-site have recently been 107 to 109 degrees). We don't anticipate a difference in ability to observe sign if the surveys are continued until early June.

Please call me at 619-820-0768 if you have an questions.

Shelly Dayman
Biologist
D +1 619.684.6931 C +1 619.820.0768
New email: shelly.dayman@aecom.com

EDAW AECOM
1420 Kettner Boulevard, Suite 500
San Diego CA 92101 USA
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www.edaw.com www.aecom.com

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DECLARATION OF SERVICE
Blythe Solar Power Plant Project

Docket No. 09-AFC-6

I, David Weber, declare that on June 11, 2010, I served and filed copies of the attached **TESTIMONY OF MATTHEW F. HAGEMANN ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY FOR THE BLYTHE SOLAR POWER PROJECT** dated June 11, 2010. The original document, filed with the Docket Office, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: http://www.energy.ca.gov/sitingcases/solar_millennium_blythe/index.html.

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Office via email and U.S. mail as addressed below:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, California on June 11, 2010.

/s/
David Weber

CALIFORNIA ENERGY COMMISSION Attn: Docket No. 09AFC6 1516 Ninth Street, MS4 Sacramento, CA 95814-5512 docket@energy.state.ca.us	Alice Harron Senior Director-Project Dvlpmnt 1625 Shattuck Ave., #270 Berkeley, CA 94709-1161 harron@solarmillennium.com	Elizabeth Ingram, Associate Dvlpr Solar Millennium, LLC 1625 Shattuck Avenue Berkeley, CA 94709 ingram@solarmillennium.com
Carl Lindner AECOM Project Manager 1220 Avenida Acaso Camarillo, CA 93012 Carl.lindner@aecom.com	Scott Galati, Esq. Galati/Blek, LLP 455 Capitol Mall, #350 Sacramento, CA 95814 sgalati@gb-llp.com	Peter Weiner/Matthew Sanders Paul Hastings Janofsky & Walker LLP 55 2nd Street, #2400-3441 San Francisco, CA 94105 peterweiner@paulhastings.com matthewsanders@paulhastings.com

California ISO e-recipient@caiso.com VIA EMAIL ONLY	Holly L. Roberts, Project Mngr Bureau of Land Management Palm Springs-So. Coast Field Off. 1201 Bird Center Drive Palm Springs, CA 92262 CAPSSolarBlythe@blm.gov	California Unions for Reliable Energy E. Klebaner / T.Gulesserain / MDJoseph Adams Broadwell Joseph & Cardozo 601 Gateway Blvd., #1000 South San Francisco, CA 94080 tgulesserian@adamsbroadwell.com eklebaner@adamsbroadwell.com
Karen Douglas Chairman/Presiding Member California Energy Commission 1516 Ninth Street Sacramento, CA 95814 kldougla@energy.state.ca.us	Robert Weisenmiller Commissioner-Assoc. Member California Energy Commission 1516 Ninth Street Sacramento, CA 95814 rweisenm@energy.state.ca.us	Raoul Renaud Hearing Officer California Energy Commission 1516 Ninth Street Sacramento, CA 95814 rrenaud@energy.state.ca.us
Alan Solomon Siting Project Manager California Energy Commission 1516 Ninth Street Sacramento, CA 95814 asolomon@energy.state.ca.us	Lisa DeCarlo, Staff Counsel California Energy Commission 1516 Ninth Street Sacramento, CA 95814 ldecarlo@energy.state.ca.us	Jennifer Jennings Public Adviser's Office California Energy Commission 1516 Ninth Street Sacramento, CA 95814 publicadviser@energy.state.ca.us
Ram Ambatipudi Chevron Energy Solutions 150 E. Colorado Blvd., Ste. 360 Pasadena, CA 91105 rambatipudi@chevron.com		

ATTACHMENT 1

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

2503 Eastbluff Dr.
Suite 206
Newport Beach, California92660
Tel: (949) 887-9013
Fax: (949) 717-0069
Email: mhagemann@swape.com

Matthew F. Hagemann, P.G.

Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Regulatory Compliance
CEQA Review
Expert Witness

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certification:

California Professional Geologist, License Number 8571.

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Senior Environmental Analyst, Komex H2O Science, Inc (2000 -- 2003);
- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);

ATTACHMENT 2

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

BLYTHE ARMY AIRFIELD
BLYTHE, CALIFORNIA
SITE NO. J09CA024500

FINDINGS OF FACT

1. Between 1942 and 1944, the Army acquired 4,248.12 acres in fee from various private parties, 6.54 acres of public domain land via transfer, a 282.61 acre leasehold from the County of Riverside, a 1.98 acre easement and 0.63 acre permit. Additionally, the Army encroached on another 20.18 acres for which a real estate agreement was never signed. Total acquisition, including the encroachment, was 4,560.06 acres.

2. The Army Air Corps established the Blythe Army Airfield which was used for heavy bomber pilot and crew training during 1943 and 1944. Numerous military improvements were constructed at this airfield including hangars, office buildings, barracks, warehouses, runways and taxiways, water and sewer systems, hospital, and fuel and ordnance storage. A poorman gunnery range, skeet range, and jeep type target range, all with ammunition storage, were constructed and used by Army personnel. Bombs, pyrotechnics and incendiary devices may have also been stored in magazines at the airfield.

3. The entire airfield was declared surplus to the needs of the Army in 1946 and was reported to the General Services Administration (GSA) for disposal. On 10 September 1948 the U.S. Government conveyed title and interest in the entire 4,560.06 acre site, including the leasehold and encroachment, to the County of Riverside via quitclaim deed. The County of Riverside has leased the airport to the City of Blythe which operates it as municipal airport facility. Only a few military improvements remain including five buildings and portions of the runways and parking apron.

SITE No. J09CA024500
Original: 18 February 1987
Supplemental: 26 August 1999

DETERMINATION

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

30 Sep 99
DATE

for PETER T. MADSEN
Colonel (P), U.S. Army
Commanding

SITE SURVEY SUMMARY SHEET
FOR
DERP-FUDS SITE NO. J09CA024500
BLYTHE ARMY AIRFIELD
Original: 18 February 1987
Supplemental 26 August 1999

SITE NAME: BLYTHE ARMY AIRFIELD, Blythe Army Airbase.

LOCATION: Riverside County, California. This site is approximately 6 miles due west of the City of Blythe on West Hobsonway, adjacent to Interstate 10.

SITE HISTORY: The Army entered into a lease on 1 June 1942 with the County of Riverside to acquire use of 290.45 acres (later determined to be 282.61 acres) consisting of the Blythe Airport. Between 1942 and 1944 a total of 2354.89 acres of public domain land were transferred to the War Dept. and all desert claims cleared through declaration of taking. A total 1,896.04 acres were acquired in fee from various private parties. A total of 6.54 acres of public domain land were acquired for right-of-ways as well as a 1.98 acre easement and 0.63 acre permit. The Army encroached on 20.18 acres for which a permit was never acquired. Total acquisition, including the encroachment, was 4,560.06 acres. The Army established Blythe Army Airfield (BAA) which was a 2nd Air Force heavy bombardment crew training base during WWII. The 85th Bombardment Group and the 390th Bombardment Group were active at BAA in 1942 and 1943. Up to 75 B-17 bombers were flown and maintained at this site. During this period the military constructed over 650 buildings and other types of improvements including hangars, office buildings, barracks, warehouses, runways and taxiways, water and sewer systems, hospital, fuel and ordnance storage.

The DERP-FUDS Inventory Project Report (INPR) completed for this site in 1989 recommended an environmental restoration project to address 13 aviation fuel underground storage tanks and building safety concerns, all DOD improvements. This project has begun and may be near completion.

Historical records and drawings indicate that bombs and explosive materials, and possibly incendiary and pyrotechnic materials, were stored on-site in up to five magazines or bunkers. A poorman gunnery range, skeet range, and jeep type target range, all with ammunition storage, were constructed and used by Army personnel. The 1989 INPR made no mention of the presence or use of ordnance or explosive materials at BAA, and

no OE investigation was recommended. Documentation indicates the site was decontaminated.

This site is currently owned by Riverside County and leased to the City of Blythe. The main runways and a few remaining buildings constructed by DOD are beneficially used by the city as an airport. Ail other improvements constructed by DOD have been demolished.

SITE VISIT: The site was visited on 2 June 1999 by Mr. Kyle Cook of Science Applications International Corporation, San Diego, CA.

CATEGORY OF HAZARD: CON/HTRW, **OE.**

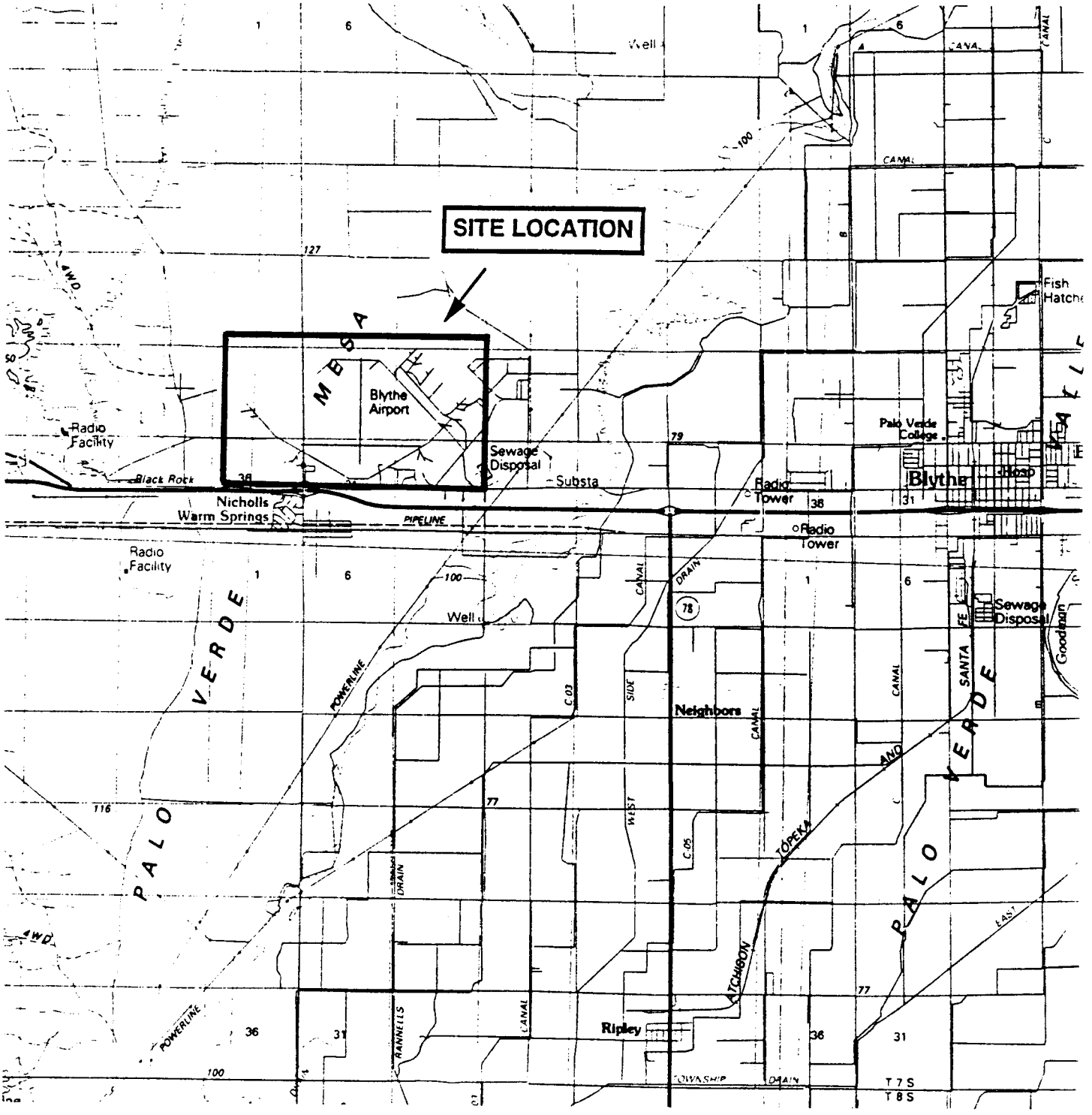
PROJECT DESCRIPTION: There are two potential projects.

a. CON/HTRW: Eleven (11) 25,000 gallon and two (2) 12,000 gallon USTS were installed by the Army during WWII, were not beneficially used, and are eligible for removal. A project has already been approved and completed.

b. OE: Recommend Huntsville Engineering and Support Center make a determination regarding further investigation at this site.

AVAILABLE STUDIES AND REPORTS: Information about the historical use and storage of ordnance and explosive materials at BAA was recently published in the Archives Search Report Findings for the Former Laquna Maneuver Area, September 1998.

DISTRICT POC: Jeffery B. Armentrout, Los Angeles District, (213) 452-3720.



QUADRANGLE LOCATION

N

Scale

0 4 miles

Reference: USGS Topographic Blythe, Calif.-Arizona 1:100,000, 1986. R21E and T6S.

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SITE LOCATION MAP
Supplemental 26 August 1999
BLYTHE ARMY AIR FIELD
J09CA024500
Blythe, CA

PROJECT NO.		
01-0255-04-1541		
DRAWN BY	CHECKED BY	DATE
EB	KC	08-99

PROJECT SUMMARY SHEET
FOR
DERP-FUDS CON/HTRW PROJECT NO. J09CA024501
BLYTHE ARMY AIRFIELD
SITE NO. J09CA024500
Original: 18 February 1987
Supplemental 26 August 1999

PROJECT DESCRIPTION: The project consists of the removal of thirteen underground storage tanks (USTs) and demolition of one building. The tanks were installed during WWII. There were eleven (11) tanks containing aviation fuel with 25,000 gallon capacities. The remaining two tanks had a capacity of 12,000 gallons and contained fuel oil.

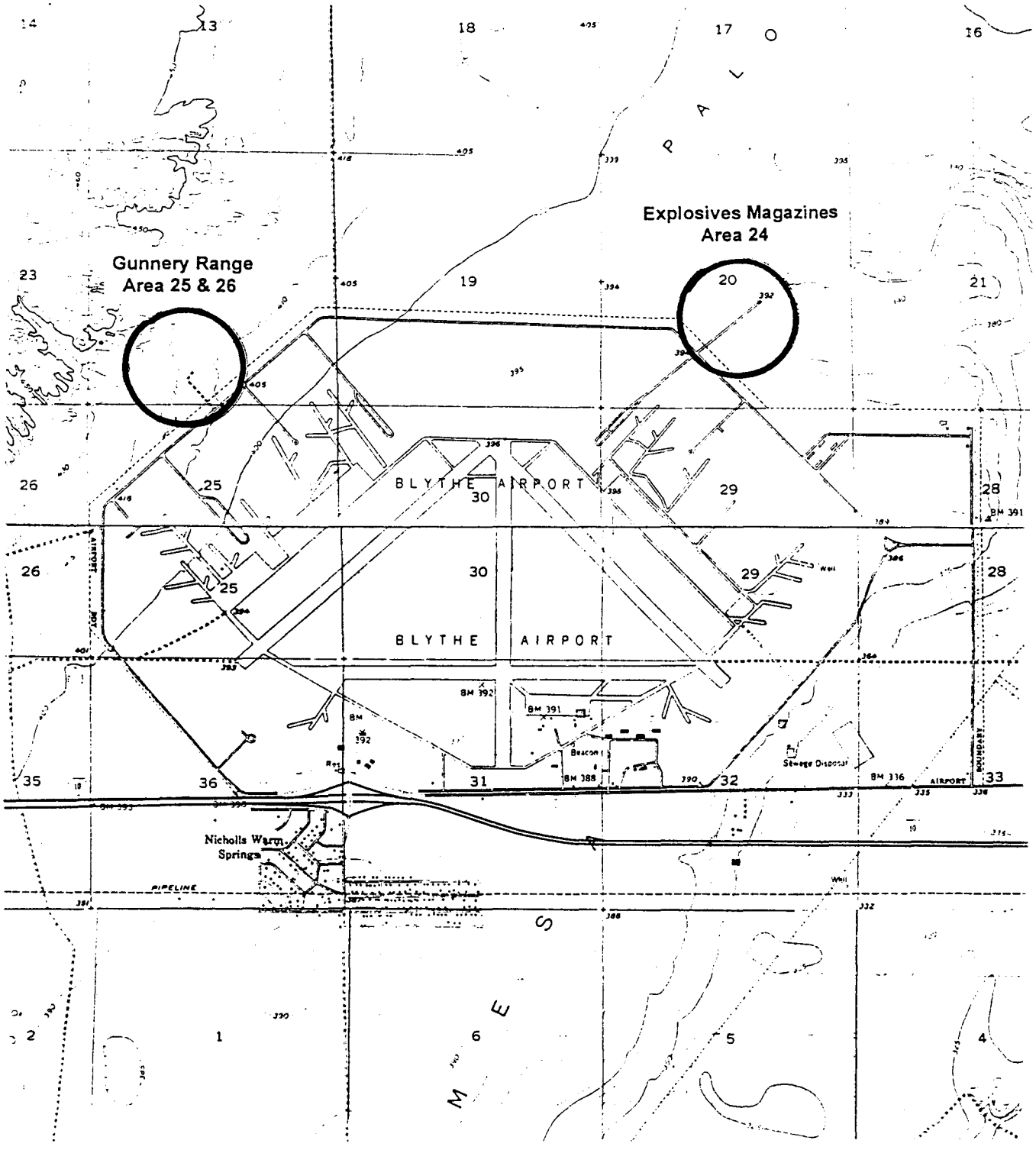
PROJECT ELIGIBILITY: The DOD controlled this property from approximately 1942 until 1946. No beneficial use of these thirteen tanks is known to have occurred by the County of Riverside or any other entity.

POLICY CONSIDERATIONS: The quitclaim deed transferring title to the County of Riverside contains a provision releasing the U.S. Government from all liability for restoration or damage. However, this does not preclude the County from seeking reimbursement for the necessary rehabilitation or repair of pubic airports covered under Section 17 of the Federal Airport Act.

PROPOSED PROJECT: The project has been completed with the removal of all thirteen tanks.

DD 1391: Attached.

DISTRICT POC: Mr. Jeffery B. Armentrout, (213) 452-3720.



Reference: USGS Quadrangle McCoy Wash, Calif., Scale 1:24,000; Photorevised 1970 and USGS Quadrangle Ripley, Calif., Scale 1:24,000; Photorevised 1975. R21E and T6S.

N

Scale

0 1 mile

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CON/HTRW PROJECT MAP
Supplemental 23 June 1999
BLYTHE ARMY AIRFIELD
J09CA024501
Blythe, CA

PROJECT NO.		
01-0255-04-1541		
DRAWN BY	CHECKED BY	DATE
EB	KC	08-99

PROJECT SUMMARY SHEET
FOR
DERP-FUDS OE PROJECT NO. J09CA024502
BLYTHE ARMY AIRFIELD
SITE NO. J09CA024500
Supplemental 26 August 1999

PROJECT DESCRIPTION: During a recent investigation by the Rock Island District of the U.S. Army Corps of Engineers for preparation of an Archives Search Report (ASR) for the nearby Laguna Maneuver Area, it was discovered that a gunnery range was located on Blythe Army Airfield and large quantities of black powder spotting charges (for practice bombs) and high explosive bombs were stored in magazines. The ASR recommended further investigation of this site for OE potential. During a site visit on 2 June 1999 by Mr. Kyle Cook, remnants of the gunnery range were found, and spent 50-caliber slugs were observed scattered around the gunnery range. No evidence of ammunition storage at the gunnery range, or of explosives magazines structures, bombs, or explosive materials was observed during the site visit. Property disposal documentation indicates the site was decontaminated but no details of this process are provided.

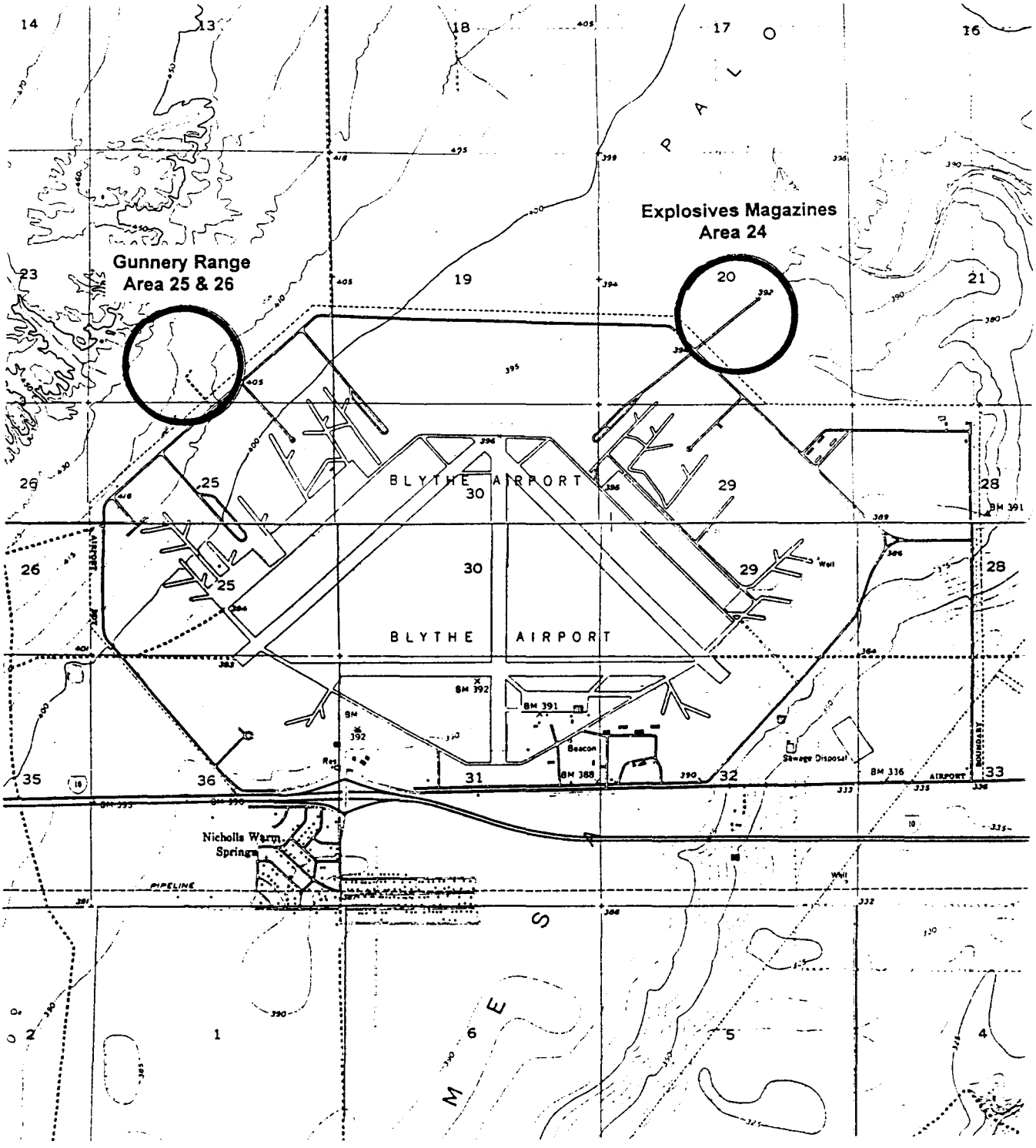
PROJECT ELIGIBILITY: The DOD controlled this property from approximately 1942 until 1944. Any OE found may be the result of past DOD activity.

POLICY CONSIDERATIONS: No policy considerations affect the proposal of this project.

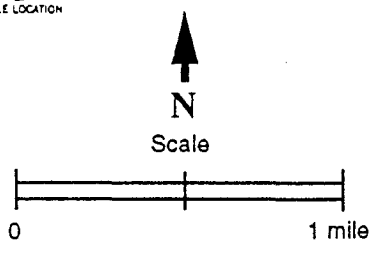
PROPOSED PROJECT: Recommend Huntsville Engineering and Support Center make a determination if further action is appropriate.

RAC FORM: Attached.

DISTRICT POC: Request CEHNC inform Mr. Jeffery B. Armentrout at (213) 452-3720 when a determination is made regarding project status.



Reference: USGS Quadrangle McCoy Wash, Calif., Scale 1:24,000; Photorevised 1970 and USGS Quadrangle Ripley, Calif., Scale 1:24,000; Photorevised 1975. R21E and T6S.



Science Applications International Corporation
An Employee-Owned Company

OE PROJECT MAP
Supplemental 23 June 1999
BLYTHE ARMY AIRFIELD
J09CA024502
Blythe, CA

PROJECT NO.		
01-0255-04-1541		
DRAWN BY	CHECKED BY	DATE
EB	KC	06-99

18 June 1999

RISK ASSESSMENT PROCEDURES FOR ORDNANCE AND EXPLOSIVES (OE) SITES

Site Name Blythe Army Airfield
Site Location Blythe, CA
DERP Project # J09CA024502
Date Completed 23 June 99

Rater's Name Kyle Cook - SAIC
Phone Number (619) 546-6117
Organization L-A-Dist.
Score 3 Recommended-4

OE RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The Risk Assessment Code (RAC) score will be used by the U.S. Army Engineering and Support Center, Huntsville (USAESCH), Ordnance and Explosives Team (USAESCH-OE) to prioritize the remedial action(s) at Formerly Used Defense Sites (FUDS). The risk assessment should be based on the best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) Detachments actions, field observations, interviews, and measurements. This information is used to assess the risk involved based on the potential OE hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability. Personnel involved in visits to potential OE sites should view the USAESCH-OE videotape entitled "A Life Threatening Encounter: OEW".

Part 1. 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: (Circle all that apply)	VALUE
A. Conventional ordnance and ammunition:	
Medium/large caliber (20mm and larger)	10
Bombs, explosive	(10)
Grenades, hand or rifle, explosive	10
Landmine, explosive	10
Rockets, guided missile, explosive	10
Detonators, blasting caps, fuzes, boosters, bursters	6
Bombs, practice (w/spotting charges)	(6)

Grenades, practice (w/spotting charges)	4
Landmine, practice (w/spotting charges)	4
Small arms, complete round (.22 cal -.50 cal)	(1)
Small arms, expended	(0)
Practice ordnance (wo/spotting charges)	0

Conventional ordnance and ammunition (largest single value) 10

What evidence do you have regarding conventional unexploded ordnance? Site drawings and correspondence indicate storage of bombs and explosive materials. Expanded 50-caliber bullets found on the site

B. Pyrotechnics (for munitions not described above):

	VALUE
Munition (containers) containing White Phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	(10)
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	(6)
Flares, signals, simulators, screening smokes (other than WP)	4

Pyrotechnics (select the single largest value) 10

What evidence do you have regarding pyrotechnics? Site drawings only. No other records of use of these materials.

C. Bulk High Explosives (HE) (not an integral part of conventional ordnance; uncontainerized):

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

Military dynamite	6
Less sensitive explosives (Ammonium Nitrate, Explosive D, etc.)	3

High explosives (select the largest single value) 8

What evidence do you have regarding bulk explosives? Correspondence indicates storage and use of black powder spotting charges.

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

Solid or liquid propellants	6

Propellants 0

What evidence do you have regarding bulk propellants? _____

E. Chemical Warfare Materiel (CWM) and Radiological Weapons: VALUE

Toxic chemical agents (choking, nerve, blood, blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control Agents (vomiting, tear)	5

Chemical and Radiological (select the largest single value 0

What evidence do you have regarding chemical or radiological? _____

TOTAL HAZARD SEVERITY VALUE (Sum of value A through E (maximum of 61) 28

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

**If hazard severity value is 0, you do not need to complete Part II of this form. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

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

AREA, EXTENT, ACCESSIBILITY OF OE HAZARD (Circle all 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 (select the single largest value) 2

What evidence do you have regarding location of OE? Based on site observations there were no unexploded hazards on the surface, only spent bullets.

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 (select the single largest value) 3

What are the nearest inhabited structures/buildings? Airport administration and operation and fire department

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 15	(3)
6 to 10	2
1 to 5	1
0	0

Number of buildings (select the single largest value) 3

Narrative: Airport and some residential farther away from airport

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

Educational, child care, residential, hospitals hotels, commercial, shopping centers	(5)
Industrial, warehouse, etc.	(4)

Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of buildings (select the single largest value	5

Describe the types of buildings: Fire department, airport operations, residential housing

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
Isolated site	(1)
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 (select the single largest value)	1

Describe the site accessibility: The site is somewhat remote and not easily accessible

F. Site Dynamics. This deals with site conditions 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
None anticipated (0)

Site dynamics (select value) 0

Describe the site dynamics;

TOTAL HAZARD PROBABILITY VALUE (sum of largest values for A through F (maximum of 30) 14

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

TABLE 2
HAZARD PROBABILITY

DESCRIPTION	LEVEL	HAZARD PROBABILITY VALUE
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	(D)	(8 to 14)
IMPROBABLE	E	less than 8

*Apply Hazard Probability Level to Table 3.

Part III. Risk Assessment. The risk assessment value for this site is determined using the following Table. 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	5
MARGINABLE III	2	3	4	4	5
NEGLIGIBLE IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

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

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

(RAC 3) Complete INPR-Recommend further action by USAESCH.

RAC 4 Complete INPR-Recommend further action by USAESCH.

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

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.

See attached justification.

RAC JUSTIFICATION
FOR
PROJECT NO. J09CA024502
BLYTHE ARMY AIRFIELD
DERP-FUDS SITE NO. J09CA024500
BLYTHE, CALIFORNIA
Supplemental: 26 August 1999

This site is currently the Blythe City Airport. A few airport administration and operations buildings are present on the site and some residential dwellings are located across the Interstate from the site. However, the outer portions of the airfield where ordnance and explosive (OE) materials were used and stored are mostly undeveloped desert land that is somewhat remote. Some of this area was cleared and used for agricultural purposes (crops), but this has been discontinued.

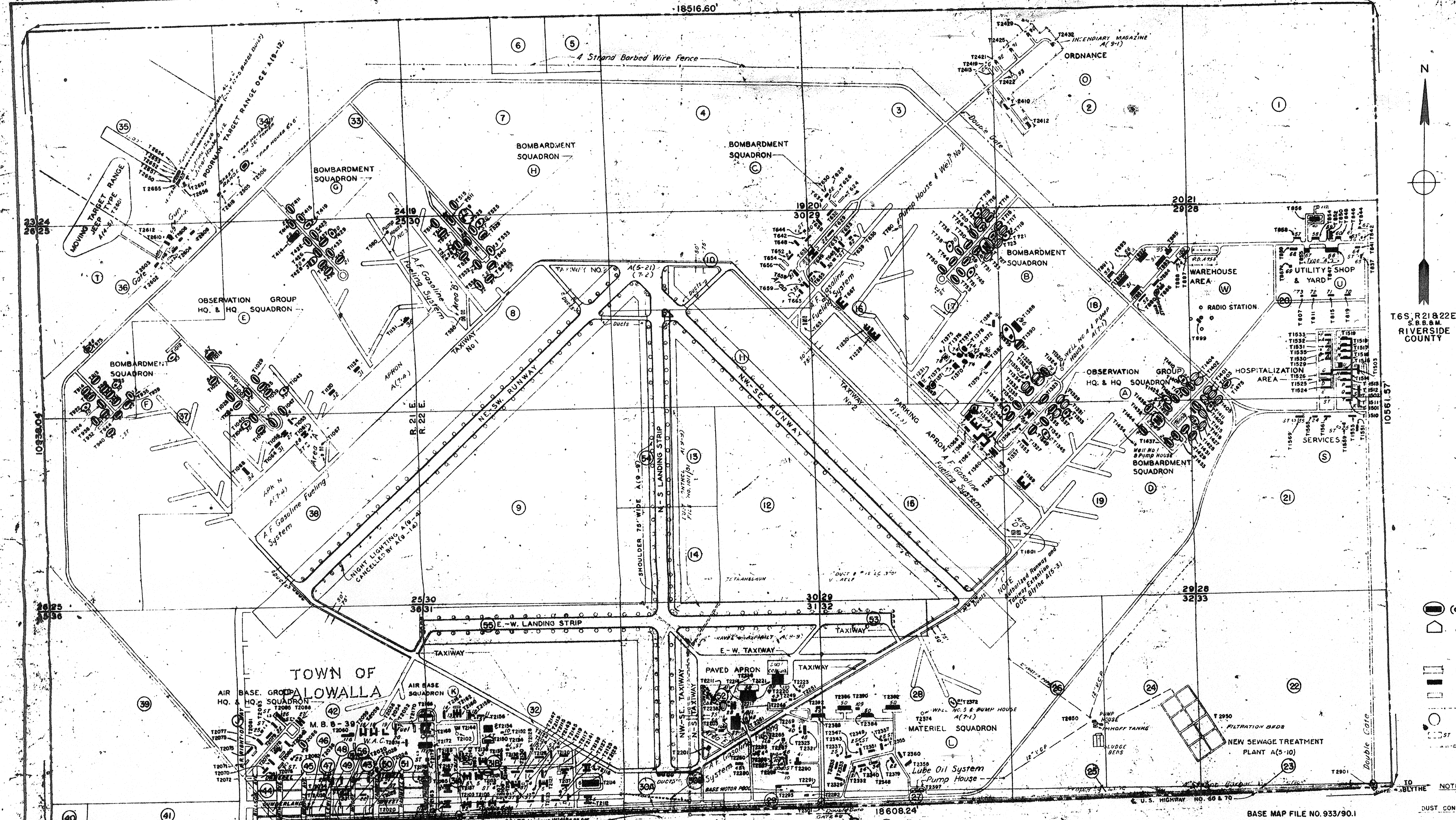
Historical documents indicate the presence and use of a gunnery range and explosives magazines on-site, and the possible presence of incendiary and pyrotechnic magazines. Remnants of the gunnery range and spent 50-caliber bullets in this area still exist. No remnants of the explosives or other magazines were found on-site. OE was not discovered during the recent site inspection, but may still be a concern. Property disposal documentation indicates the site was decontaminated but no details of this process are provided.

An OE risk assessment score of three (3) was calculated for this site. This score is calculated based primarily on the historical accounts of ordnance storage and use. The findings for the site do not appear to support this calculated score. A score of 4 is recommended indicating the potential threat of subsurface ordnance or munitions to personnel be evaluated.

ATTACHMENT 3

WAR DEPARTMENT

CORPS OF ENGINEERS. U.S. ARMY



ACQUIRED IN FEE EXCEPT AS NOTED

TRACT NO.	TRANSFERRED TO U.S. BY (OWNER OR ENTRYMAN)	ACRES INC. [illegible]
1	ERNEST A. MONTGOMERY	[illegible]
2	FRANK MC. WREATH	160.00
3	WILLIAM W. FITCH, DECEASED	160.00
4	EDDY W. REIDER, DECEASED	160.00
5	MARGARET THORNTON	10.00
6	T. SPENCER BROWN	10.00
7	LOUISE M. THORNTON	147.21
8	EDWIN I. AMES, DECEASED	167.37
9	CARL BROWNING	167.39
10	HENRIETTA BOICE	80.00
11	HENRIETTA B. COOK ET. AL.	55.77
12	CLARA B. SAXMAN	80.00
13	GEORGE M. SAXMAN	16.79
14	RAY H. & ORA B. SAXMAN	18.00
15	MARGARET E. HATTON, DECEASED	160.00
16	GUS O. DODSON	80.00
17	DORA A. DIETRICH	80.00
18	ANTHONY H. WITTMAN	160.00
19	JOHN A. PAINTER, DECEASED	160.00
20	GEORGE V. MORRISON	160.00
21	EDGAR VERTREES	160.00
22	ERNST WILHELM HUBNER	160.00
23	ALICE & FLORENCE M. KIMBALL	1.92
24	FRANK W. & GRACE E. BENDIX	80.00
25	MABEL G. NICHOLLS	4.67
26	GENEVIEVE FARRINGTON	80.00
27	FAY M. MANATT	7.34
28	CLARENCE E. VERTREES	143.00
29	STATE OF CALIFORNIA (STATE)	5.03
30A	STATE OF CALIFORNIA "	3.03
30B	COUNTY OF RIVERSIDE (LEASE)	3.05
31A	STATE OF CALIFORNIA (STATE)	12.12
31B	PUBLIC DOMAIN	3.60
32	GENE RANSOM	134.65
33	LONELL V. SHEPHERD	80.15
34	EDWIN V. ZUMBIEL, DECEASED	80.15
35	ROBERT H. HARDING	159.90
36	ELLA B. STEPHENS, DECEASED	119.90
37	JULIAN F. CUMBERLAND, DECEASED	320.04
38	ALBERT E. & MABEL G. NICHOLLS	200.00
39	ALBERT E. & MABEL G. NICHOLLS	160.00
40	STATE OF CALIFORNIA	2.82
41	KATHLEEN WARD JAMIESON	38.81
42	LYMAN FARWELL	167.62
43	EDWARD V. ZUMBIEL	.23
44	BYRON A. BEARCE	3.73
45	PACIFIC SECURITIES COMPANY	.37
46	ANDREW MOORE, DECEASED	.24
47	RALPH CALVERT MOORE	.11
48	R.H. MOORE	1.02
49	MARGARET E. HATTON, DECEASED	.19
50	FREDERICK M. & EDGAR L. LEWIS	.55
51	PACIFIC SECURITIES COMPANY	.60
52	COUNTY OF RIVERSIDE (LEASE)	160.00
53	COUNTY OF RIVERSIDE "	17.00
54	COUNTY OF RIVERSIDE "	68.44
55	COUNTY OF RIVERSIDE "	32.85
56	B.O. DRIVER	[illegible]
57	FAY M. MANATT (USE PERMIT)	[illegible]

EXHIBIT 'A'

(05) BUILDINGS FOR OFF-SITE USE.

CHAPEL

LEGEND

RUNWAYS, TAXIWAY
BUILDING AUTHORIZED OR CONSTRUCTED
35 CCC BUILDINGS RELOCATED AND MODERNIZED
FENCE
AREA SYMBOLS
ST SEPTIC TANK - FILLED WITH EARTH AND BY PASSED A(5-10)
DRAIN

NOTE TRUCK TURNOUT AND FUELING SYSTEMS FOR AREAS A-B-C-D-E AUTHORIZED BY OCE ORDER A(5-3)

DUST CONTROL
By straw mulching and seeding - A(5-11)

[illegible]ORMAN TARGET RANGE PAD E A CONSTR. NO. A18860-A(9-12)

NIGHT LIGHTING SYSTEM A(9-4) CANCELLED A(9-14)

RANGE LIGHT - GREEN & YELLOW
CONTACT LIGHT - WHITE & YELLOW
CONTACT LIGHT CLEAR
FOR DETAILS AND MATERIAL LIST, SEE FILE [illegible] 1029-95 to 99

REF: POST ENGR. DWG. "ARMY AIR BASE" MARCH 20, 1944
REF: DWG. 226-F.P. R.E. DIV. L.A. SUB-OFFICE

BASE MAP FILE NO. 933/90.1

BUILDING SCHEDULE

OCE ORDER NO	BLDG NO	DESIGNATION		AREA	TYPE	PLAN NO	UNITS
Blythe A(2-1)	NONE	Barracks	20x100	All	TBE-34	557/33	88
	1	Officers Quarters	20x100	K	TOQ-24	557/90	17
	2	Mess Cadets	84x130	K	350 Men	499/1.1	1
	3	Recreation Bldg	20x100	K	TOM-1	562/43.B	1
	4	Lavatory	18x24	All	L-2	700-285	8
A(4-6)	5	Officers Quarters	112x112	K	TOO-48	955/18	14
A(4-6)	6	Service Club	70x173	K	SER-E-M	700-3665	1
A(2-1)	7	Tel & Tel Bldg	25x90	K	TT-4	800-907.1	1
	8	Chapel W/ORGAN	37x98	K	CH-1	800-550	1
	9	Recreation Building	88x124	K	TRB-1	562/69	1
	10	Lavatory	18x24	KL	L-2	574/76	2
	11	Photo Laboratory	20x100	K	TPL-1	562/79	1
Add PDA-567	12	Post Office & Addition		K	TPO-1	984/90	1
A(2-1)	13	Post Headquarters	100x100	K	T3A-6	562/57	1
	14	Finance Bld W/vault	20x100	K	TA-6	562/56	1
A(5-8)	15	Mess Civil	40x174	K	C-CWH	900-1520	1
A(2-1)	16	Post Exchange	140x160	K	TPXL	562/71	1
	17	Theater	76x181	K	TH-1038S	800-500	1
A(5-1)	18	Barracks	W A.	K	BB-T Mod	969/12	1
	19	Rec, Adm & Supply		K	RBA-AT	700-5816	1
A(5-3)	20	Mess		K	MHT	700-6400	1
A(2-1)	21	Administration Bld	20x100	All-AEJ	TA-6	557/86	8
	22	Day Room	20x84	All	TRB-4	557/89	11
	23	Mess	25x106	K	M-172	800-605	1
	24	Supply	20x76	All	TSA-2	557/30	12
	25	Lavatory	18x36	LKJS	L-3	700-255	8
	26	Mess	25x130	J	M-228	800-805	1
	27	Administration Bldg	60x100	AJE	T-2A-6	557/86	3
	28	Operation Bldg	60x100	ALE	T-2A-6	557/86	3
	29	Mess	25x130	All LKJ	M-248	800/805	8

OCE ORDER NO	BLDG NO	DESIGNATION		AREA	TYPE	PLAN NO	UNITS
	30	Lavatory	25x36	[illegible]	L-4	700-285	16
	31	Operation Bldg	20x100	ABC	TA-6	557/97	6
	32	Crew Chief Bldg.	20x76	EJH	TSA-2	557/30	6
	33	Photo Laboratory	20x60	BCD FGH	TSA-1	557/94	6
2-1	34	Mess	40x108	L	M-300	800-1166	1
	35	Mess		S	M-112	800-805	1
	36	Squadron Armament		G	T-0	562/50	1
	37	Base Eng Shop Bldg	122x161.9	L	BES-2	924/37	1
AND A(5-22)	38	Base Eng Maint Insp Bldg	120x200	L	A-C	695-425	1
	39	Crash Truck Bldg	47x32	L	TF-1	557/87	1
	40	Oil Storage Bld	16x16	L	OSH-1	800-644	2
	41	Control Tower	15x15	L	STD Wood	1000-675	1
	42	Lavatory	18x21	L	L-1	700-285	1
A(2-1)	43	Paint, Dope, Oil Bld	25x54	L	SH-11	700-323	1
	44	Parachute Building	24x62	L	STD	700-379	1
	45	Link Trainer Bld	20x124	L	SH-9 Mod	800-664	1
	46	Guard House	20x100	L	TGH-3B	562/42	1
	47	Fire Station (Mod)	47x92	L	TF-2	557/91	1
	48	AC Adm Supply Bldg	20x100	L	TA-6	557/97	1
	49	AC Warehouse (CON FL)	80x200	L	A-C	528/55	1
	50	Warehouse	48x192	L	A-C	557/28	3
	51	QM Warehouse	48x192	W	A-C	557/28	4
	52	Post Qtr Master Office	20x143	W	TA-10	562/65	1
	53	Commissary	25x110	W	SH-9	800-550	1
	54	Equipage & Repair	20x100	W	TCERS	562/64	1
	55	QM Warehouse	20x100	W	OBAT	700-5201	1
A(4-3)	56	Chemical Whse W/Office	20x48	W	OBKD Mod	700-5201	1
	57	Ordnance Warehouse	20x100	U	SH-AT	700-6003	1
A(2-1)	58	Motor Repair Shop	32x96	U	TSP-2	562/67	1
	59	Grease Rack	9x84	U	Wood	700-340	1

OCE ORDER NO	BLDG NO	DESIGNATION		AREA	TYPE	PLAN NO	UNITS
	60	Washrack (5 Car)	25x60	U	MOB	700-348	1
	61	Dispatcher House	12x14	U	DH-11	800-305	1
	62	Oil Storage	14x16	U	OSH-1	574/66	1
	63	Gasoline St	2 Pumps	U	12000 GAL TANK	800-601	1
	64	Carpenter Shop	20x84	U	TO Mod	568/68	1
	65	Administration Bld	20x68	U	TO Mod	562/66	1
	66	QM Warehouse	48x192	U	TSH-18	557/28	1
A(2-1)	67	Equipment Shed	48x48	U	TO Mod	562/73	1
	68	Sheet Metal Shop	20x92	U	TO Mod	562/62	1
	69	Lavatory	18x21	U	L-1	574/76	1
	70	Plumbing Shop	20x76	U	TO Mod	562/60	1
	71	Electric Shop	20x76	U	TO Mod	562/61	1
	72	Blacksmith Shop	20x64	U	TO Mod	562/63	1
	73	Paint Shop	20x36	U	TO Mod	562/64	1
A(5-2)	74	Celestial Nav Train	37x37	B	CEL-A-A	1000-180	4
	75	Boiler House	14x32	B	CEL-A-A	1000-183	1
PD-A-108	76	Bomb Sight Storage	24x50	B	Bomb S-A	1000-175	1
PD-A-59	77	Bomb Trainer Bldg	61x80	B	BT-B-1	800-623	1
A(4-1)	78	Infirmary Bldg	25x90	A	INF-A-H	1100-620	1
A(5-6)	79	Camouflage Inst Bldg	50x108	A	SPEC	981/14	1
A(5-9)	80	Motor Repair Shop	64x144	U	MSAT	700-6008	1
A(5-12)	81	Exposure Rack	6x24	L	SPEC	984/33	1
A(5-13)	82	Lavatories	20x40	ABCD	LDT	700-6604	8
A(3-2)	83	Gas Instruction Bldg	20x40	E	GAS I	903/53	1
A(3-2)	84	Inert Storehouse	20x100	E	OBAT Mod	934/55	1
	85	Ammunition Storage	12x12	T		947/101	1
A(4-5)	86	Range Service Bldg	26x72	T		926/69	1
	87	Moving Target		T	JEEP		
PD-A-340	88	Fire Station	32x68	T	FS-A-T	700-6616	1
A(6-2)	89	ADD WING TO MESS	25x130	A C B D	M-248	800-805	4

OCE ORDER NO	BLDG NO	DESIGNATION		AREA	TYPE	PLAN NO	UNITS
	90	SA Ammunition	14x16	O	OSH-1	574/66	1
A(2-1)	91	Pyrotechnic Mag	14x16	O	OSH-1	574/66	1
	92	2 Bay Seg Storage	10x14	O	MS2	499/88	1
PD-A-319	93	Iglow		O	MAG-H-O	652-1012	1
A(7-5)	94	NAVI. TRAINER BLDG.	20x64	B	SHBT	700-3003	1
A(6-1)	95	BAKERY	75x75	W	BAK-G-M	700-4346	1
A(8-1)	96	SERVICE CLUB	70x173	B	SER-D-M	700-3677	1
A(8-1)	97	CHAPEL		B E	CHAT	700-5846	2
A(7-7)	98	LINK TRAINER BLDG	25x36	D	A-A	1000-160	1
A(6-3)	99	TURRET TRAN. BLDG.	32x96	T	MRS-A-T	700-6012M	1
PD-A-754	100	WAREHOUSE & FENCE	20x124	W	SH-A-T	[illegible]	1
A(6-4)	101	SQD. OPERAT. BLDG. Ш SHAPE		B	100x140		4
A(9-5)	102	SQD. HANGARS CANCELLED BY A(9-13)		B	HANG-0A	1000-1250	2
A(9-2)	103	OFFICE BLDG. Ш	100x140	A	OBNT	700-5208	1
A(9-6)	104	CELESTIAL OFFICE BLDG.		B	OB-AT	700-5201	1
A(9-3)	105	RADIO RANGE BLDG.		L	RAD-A-S	1200-1000	1
PD-A-830	106	RECLAMATION SHOP & YARD		L	RECL-AA	1000-5045	1
PD-A-776	107	LAVATORY W/DOUBLE FENCE		L	LAT	700-5601-A	1
PD-A-859	108	LATRINE	10x16	L	LTBT MOD	1009/65	1
	109	LATRINE	10x20	L	LTBT MOD	1009/65	1
A(9-8)	110	HANGAR [illegible]	130x160	L	PREFAB		1
A(9-11)	111	SM ARMS AMMUNIT. STORAGE		O	OBOT	700-5201	2
A(10-1)	112	OIL STORAGE HOUSE CANCELLED BY A(10-3)		B D L U	OIL-A-O	652-1038	4
A(9-2)	113	BEACON TOWER		L			1
BY	114	SWIMMING POOL 60'x110'		K			1
POST	115	C.O. RESIDENCE 32'x47'		K			1
ENGINEER	116	DORMITORY 34'x186'		K			1

HOSPITAL AREA

OCE ORDER NO	BLDG NO	DESIGNATION	SIZE	TYPE	PLAN NO	UNITS
A(2-1)	A	Barracks	20x100	TBE-34	557/33	4
	B	Latrine	18x30	L-3		1
	C	Mess E.M	25x144	M-8 Mod	574/48	1
A(2-1)	D	Storehouse	20x125	SH-5	571/58	1
	E	Storehouse	20x156	TSH-7	562/59	1
A(4-3)	F	Day Room	20x72	RB-B-T	700-5800	1
	G					
	H					
SPD(NE)A-15	J	Ward Standard	25x150	W-1	700-462	2
A(4-3)	K	Nurses Rec Building	20x72	RB-B-T Mod	918/1	1
	M	Ward Combination	25x158	W-2	1100/665	1
	N	Ward Std (CH)	25x158	W-1	1100/660	2
	O	Ward Combination	25x158	W-4	1100/665	1
A(2-1)	P	Infirmary	25x84	I-2	800-1429	1
	Q	Flight Surgeon	25x78	FS-1	1100-615	1
	R	Administration Bld	26x148	A-1	700-4300	1
	S	Nurses Quarters & Mess	29x150	HQM-20	700-1250	1
A(5-4)	T	Dentist Clinic	25x70	DC-3	800-1451	1
A(2-1)	U	Heating Plant	25x61		579/51	1
	V					
	W					
	X					
PD-A-340	Z	Fire Station	32x88	FS-A-T	700/6616	1

10/7/46	ADDED BUILDING NUMBERS	W.W.M.	L.C.S.	
DATE	REVISION REVISED [illegible]	REV.	CHK.	APP.

SURPLUS FACILITIES

BOUNDARY SKETCH
BLYTHE ARMY AIRFIELD
BLYTHE, CALIFORNIA

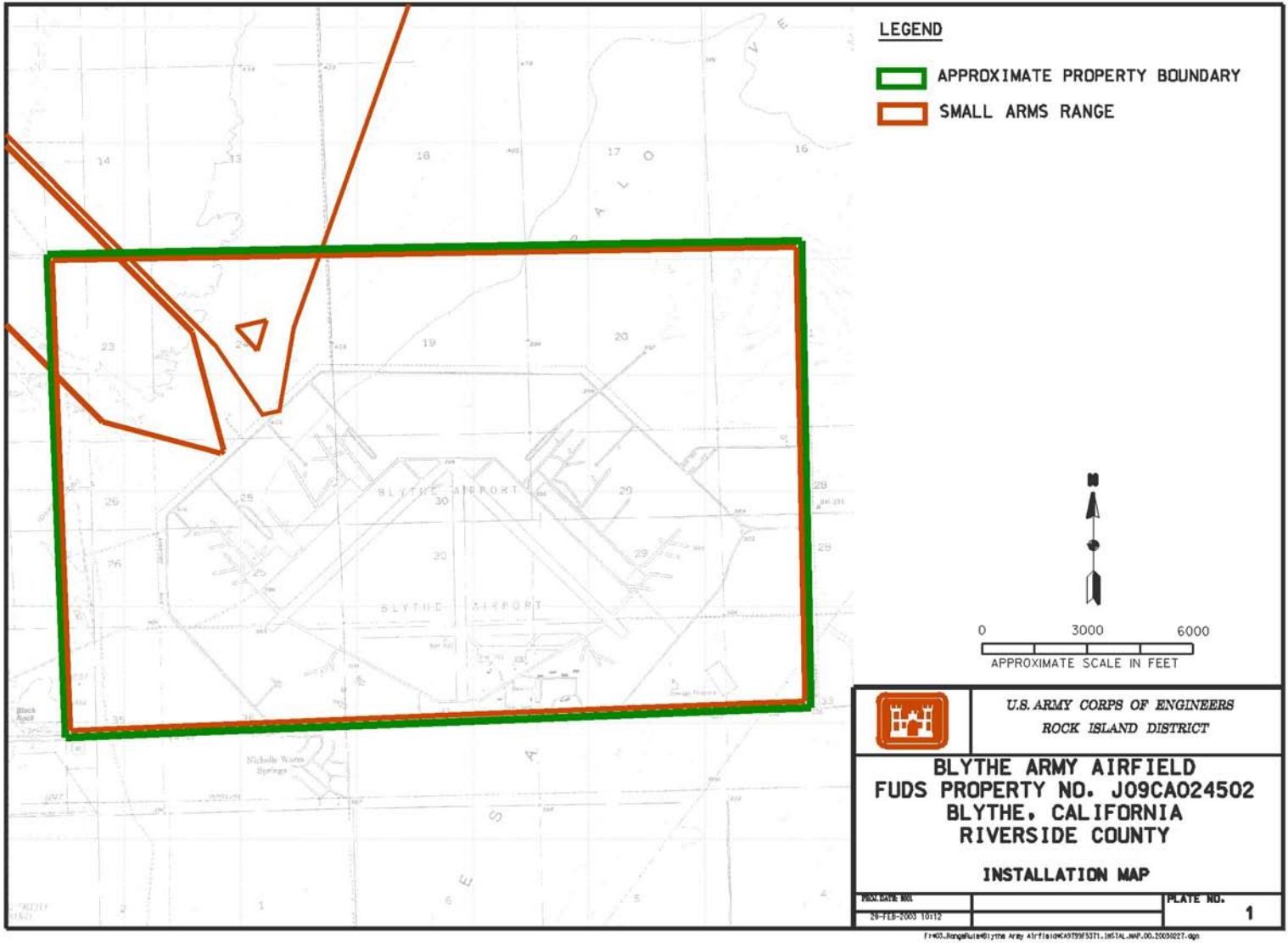
SCALE 1 IN. = 600 FEET

U. S. ENGINEER OFFICE. LOS ANGELES, CALIF.. SEPT. 1943

PREPARED UNDER THE DIRECTION OF
COLONEL R. C. HUNTER
DISTRICT ENGINEER

FILE NO.	DRAWN	TRACED	CHECKED	TO ACCOMPANY
RW D099/3142-70-F	J. M. M.	G. T. E.	L. C. S.	DATED:

ATTACHMENT 4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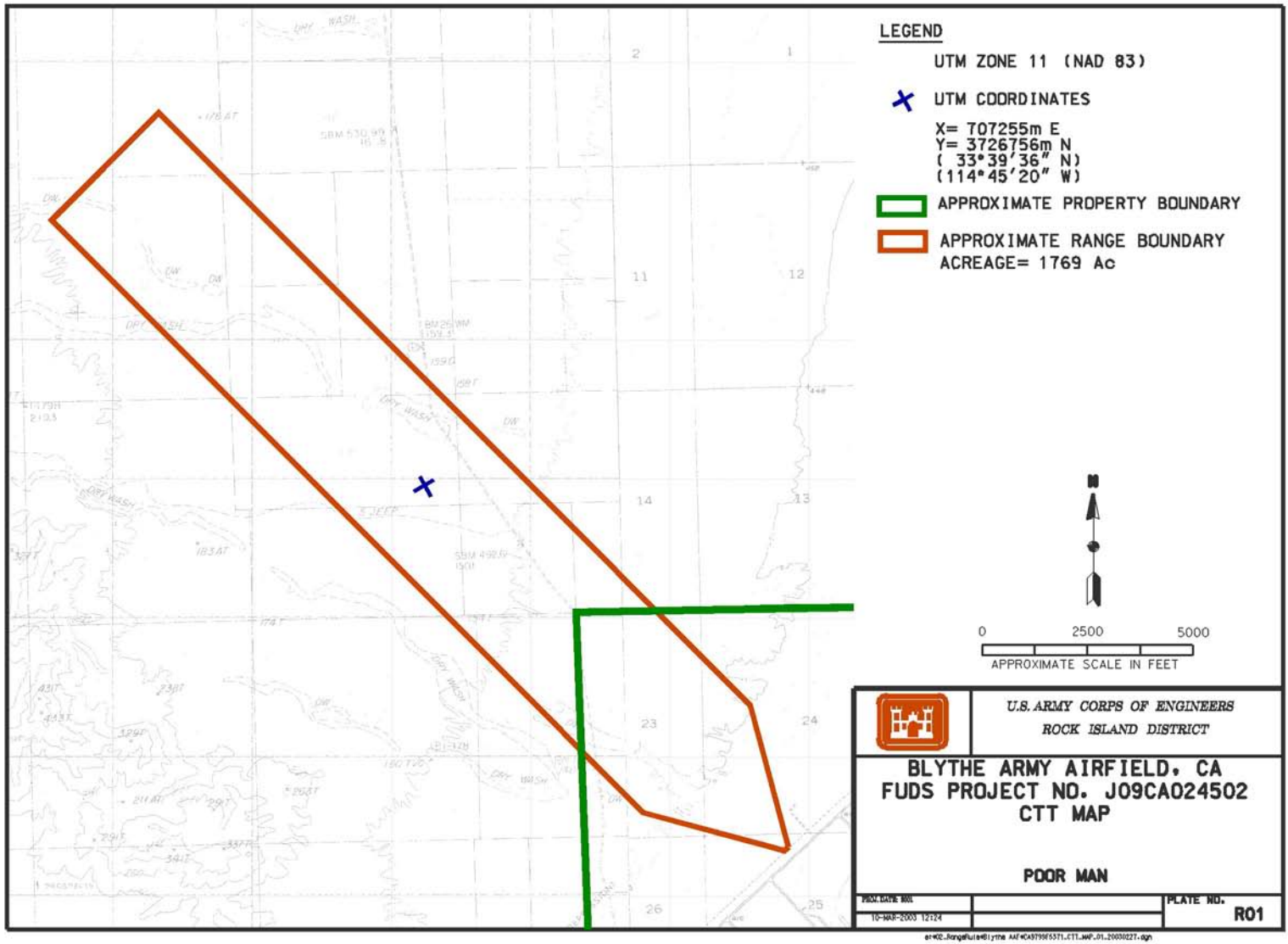
APPROXIMATE PROPERTY BOUNDARY
SMALL ARMS RANGE
N
0
3000
6000
APPROXIMATE SCALE IN FEET
BLYTHE AIRPORT
BLYTHE AIRPORT
U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
BLYTHE ARMY AIRFIELD
FUDS PROPERTY NO. J09CA024502
BLYTHE, CALIFORNIA
RIVERSIDE COUNTY
INSTALLATION MAP
PLOT DATE 0001
28-FEB-2003 10:12
PLATE NO.
1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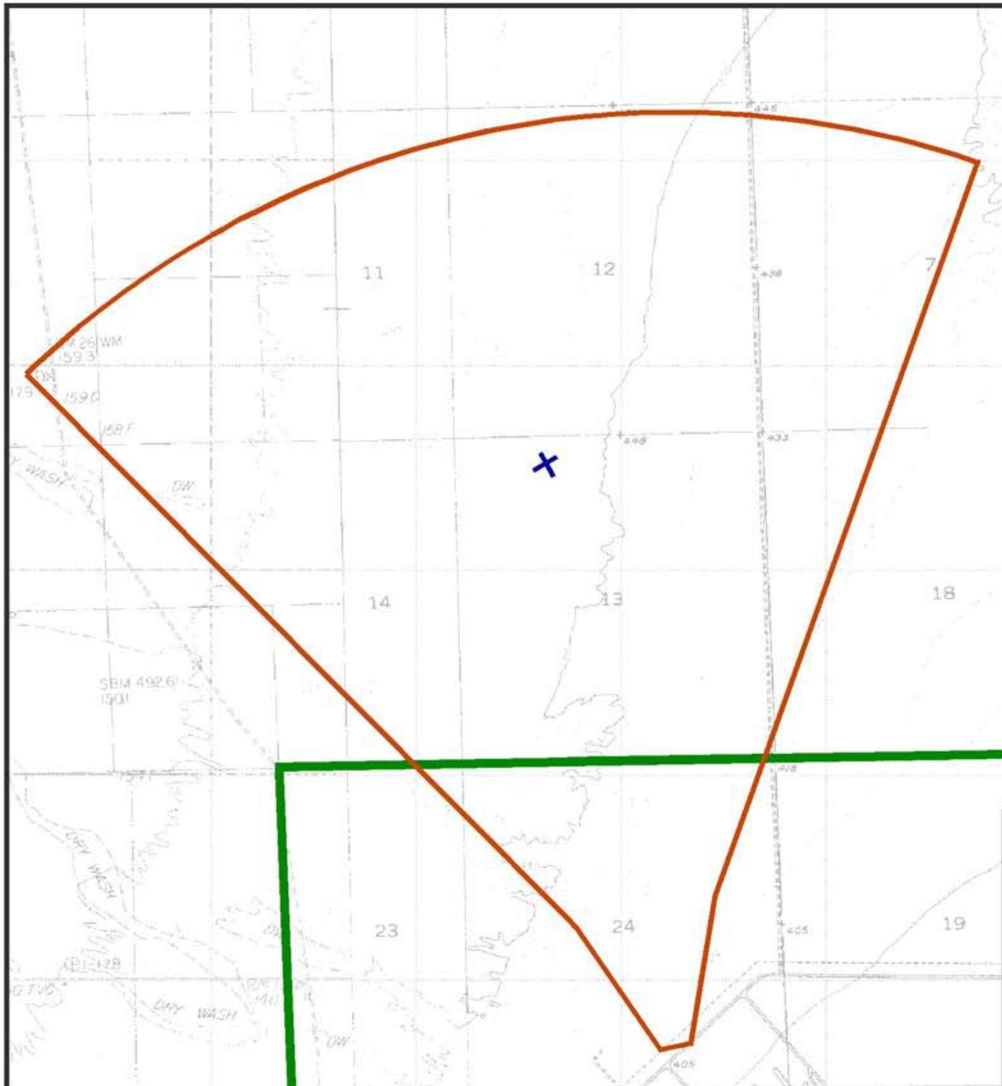
UTM ZONE 11 (NAD 83)
UTM COORDINATES
X= 707255m E
Y= 3726756m N
(33°39'36" N)
(114°45'20" W)
APPROXIMATE PROPERTY BOUNDARY
APPROXIMATE RANGE BOUNDARY
ACREAGE= 1769 Ac
N
0
2500
5000
APPROXIMATE SCALE IN FEET
U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT
BLYTHE ARMY AIRFIELD, CA
FUDS PROJECT NO. J09CA024502
CTT MAP
POOR MAN
PLATE NO.
R01
10-MAR-2003 12:24



LEGEND

UTM ZONE 11 (NAD 83)

UTM COORDINATES
X= 709648m E
Y= 3726756m N
(33°39'36" N)
(114°44'20" W)

APPROXIMATE PROPERTY BOUNDARY

APPROXIMATE RANGE BOUNDARY
ACREAGE= 2782 Ac

U.S. ARMY CORPS OF ENGINEERS
ROCK ISLAND DISTRICT

BLYTHE ARMY AIRFIELD, CA
FUDS PROJECT NO. J09CA024502
CTT MAP

JEEP RANGE

PROJ. DATE 10-MAR-2003 12:27

PLATE NO. R02

ATTACHMENT 5

US Army Corps of Engineers
Rock Island District

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

Savanna, Illinois

Archives Search Report

FINDINGS

for the former

NELLIS SMALL ARMS RANGE

LAS VEGAS, NEVADA
Project Number J09NV051001

July 1996

Moving Target Ranges at the Las Vegas Gunnery School

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM

for
FORMERLY USED DEFENSE SITES

FINDINGS

ORDNANCE AND EXPLOSIVES ARCHIVES SEARCH REPORT for the former NELLIS SMALL ARMS RANGE LAS VEGAS, NEVADA PROJECT NUMBER J09NV051001

July 1996

Prepared For
U.S. Army Engineering and Support Center, Huntsville
ATTN: CEHNC-OE
P.O. BOX 1600
Huntsville, Alabama 35807-4301

Prepared By
U.S. Army Corps of Engineers
Rock Island District
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P.O. Box 2004
Rock Island, Illinois 61204-2004

and

U.S. Army Defense Ammunition
Center and School
ATTN: SIOAC-ESL
Savanna, Illinois 61074-9639

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
for the former
NELLIS SMALL ARMS RANGE
LAS VEGAS, NEVADA
PROJECT NUMBER J09NV051001

ACKNOWLEDGMENT
The following persons provided support as indicated.

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	Michael Patterson	Q.A. Spec., Ammunition (QASAS)	SIOAC-ESL	(815)273-8763
Engineering Support	Daniel J. Holmes	Professional Engineer	CENCR-ED-DO	(309)794-5480
Technical Records Search	Tom Meekma	QASAS	SIOAC-ESL	(815)273-8739
Geographic District Support	Gregory H. Boghossian	Project Manager	CESPL-ED-MI	(213)894-3574
Industrial Hygiene	Bob Platt	Industrial Hygienist	MCXP-RIA	(309)782-0806
CADD	Tom Geerling	Technician	CENCR-ED-DO	(309)794-6003

*Team Leader

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
for the former
NELLIS SMALL ARMS RANGE
LAS VEGAS, NEVADA
PROJECT NUMBER J09NV051001

FINDINGS

TABLE OF CONTENTS

APPENDICES

TABLES

REPORT PLATES

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
For the former
NELLIS SMALL ARMS RANGE
LAS VEGAS, NEVADA
PROJECT NUMBER J09NV051001

1. INTRODUCTION

a. Subject and Purpose

(1) This report presents the findings of an historical records search and site inspection for ordnance and explosives (OE) presence located at the former Nellis Small Arms Range. The investigation was performed under the authority of the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP FUDS).

(2) The investigation focused on 36,378.28 acres of land that was used initially by the Army Air Force as a ground gunnery range during WW-II and later by the Air Force as an emergency jettison area and explosive ordnance disposal (EOD) area.

(3) The purpose of this investigation was to characterize the site for potential OE contamination, to include conventional ammunition and chemical warfare material (CWM). The investigation was conducted by experienced ordnance experts through thorough evaluation of historical records, interviews, and on-site visual inspection results.

b. Scope

(1) This report presents the site history, site description, real estate ownership information, and confirmed ordnance presence (prior to and after site closure), based on available records, interviews, site inspections, and analyses. The analyses provide a complete evaluation of all information to assess current day potential ordnance contamination, where actual ordnance presence has not been confirmed.

(2) For the purpose of this report, OE contamination consists of live ammunition, live ammunition components, CWM, or explosives which have been lost, abandoned, discarded, buried, fired or thrown from demolition pits or burning pads. These items were either manufactured, purchased, stored, used, and/or disposed of by the War Department/Department of Defense. Such ammunition/components are no longer under accountable record control of any DOD organization or activity.

(3) **Expended** small arms ammunition (.50 cal or smaller) **is not** considered OE contamination. OE further includes

"explosive soil" which refers to any mixture in soil, sands, clays, etc., such that the mixture itself is explosive. Generally, 10 percent or more by weight of secondary explosives in a soil mixture is considered explosive soil.

2. PREVIOUS INVESTIGATIONS/PROJECTS

a. 1994 Preliminary Assessment

(1) A Preliminary Assessment of the Nellis Small Arms Range was conducted under the Defense Environmental Restoration Program, Formerly Used Defense Sites (DERP FUDS) by the Corps of Engineers, Los Angeles Division (see reference B-1). At that time, the Findings and Determination of Eligibility (FDE), dated 30 August 1994, concluded that 36,378.28 acres had been formerly owned or used by the Army Air Force/Department of Defense.

(2) The FDE concluded that there were eligible categories under the DERP/FUDS program. Since the site was found to have been used as a training, demolition, and jettison area, an Ordnance and Explosives (OE) project was recommended, DERP FUDS Project Number J09NV051001, which is the subject of this report (see document E-3).

TABLE 2-1
DERP-FUDS PRELIMINARY ASSESSMENT PROJECTS

Project Number	DERP Category	Present Phase	Comments	Location
J09NV051001	OE	SI	Ordnance and Explosives	See plate 3
	BD/DR	-	None Recommended	
	HTRW	-	None	

b. Other Investigations

No other investigations or studies relevant to DERP-FUDS were discovered during this Archives Records Search.

3. SITE DESCRIPTION

a. Existing Land Usage

(1) The former Nellis Small Arms Range is located in Clark County, 6 miles northeast of Las Vegas, Nevada and 2 miles north of Nellis Air Force Base.

(2) Part of the property is used by the U.S. Fish and Wildlife Service as part of the Desert Game Range; the remainder of the property is owned by the Bureau of Land Management and is used primarily for public access and recreational activity. An active U.S. Air Force small arms range abuts this area on the southeast corner but is not considered part of the FUDS (see plate 3).

(3) Table 3-1 shows current land usage.

TABLE 3-1
CURRENT LAND USAGE

AREA	FORMER USAGE	PRESENT OWNER	PRESENT USAGE	SIZE/ ACRES	COMMENTS
A	37mm Burial Area	BLM	Wildlife Mgmt.	2,782	See plates 3,4
B	Bomb Jettison Area	FWS	Wildlife Mgmt.	9,267	See plates 3,4
C	Bomb Jettison Area	BLM	Wildlife Mgmt.	8,016	See plates 3,4
D	Bomb Jettison Area	BLM	Recreation	1,094	See plates 3,4
E	Bomb Jettison Area	BLM	Recreation	15,219.28	See plates 3,4
			Total Acres:	36,378.28	

b. Climatic Data

(1) Material in paragraphs 3.b.(2) through (4) was extracted primarily from the Local Climatological Data, Annual Summary With Comparative Data for Las Vegas, Nevada, dated 1993 (see reference B-7).

(2) Clark County is located in the southwestern portion of the state. Weather factors for the Las Vegas recording station are used in this assessment. The factors that determine weather patterns include location of Nevada on the eastern, lee side of the Sierra Nevada Mountains, prevailing winds from the west that drop precipitation on the western side of the Sierras, and wild local variations due to differences in topography and elevation.

(3) The annual precipitation averages 4.21 inches (1964-1993 avg. mean). The wettest months are usually March and January. The months with the least amounts of precipitation are May and June (see reference B-8).

(4) The average temperature ranges from daily minimums in January and December of 32.7 to 33.6° F to daily mean high temperatures of 83.5-89.8° F in June, July, and August. The lowest temperature observed was 8°F in January and the highest temperature was 116° F in July (see reference B-8). Mean number of days with temperatures over 90° F is 132. Mean number of days 32° F and below is less than one-half (see reference B-7).

(5) The average snowfall each winter is from a trace to up to 16.7 inches. The relative humidity averages from 21 to 40 percent throughout the course of the day (see references B-7 and B-8).

(6) Flooding, especially flash flooding, is likely to occur in the area of the site after thunderstorms due to the topography and soil consistencies (see reference B-7).

c. Topography

(1) Clark County lies on the southern edge of the state and is part of the Great Basin. Average elevations in the area of the site are from 3,000 to 7,800 feet. The terrain varies quite sharply from steep, craggy mountains to broad alluvial fans on the valley floor.

(2) The site is traversed by gullies, canyons, and arroyos making transportation difficult. Roads are generally jeep tracks and impassable during certain portions of the year.

d. Geology and Soils

(1) Material in paragraphs 3.d.(2) and 3.d.(3) was extracted from the current Soil Survey of Clark County, Nevada (see reference B-40).

(2) Regional Geology/Soils

(a) The geology of Clark County is generally categorized by beginning with the sedimentary formations in the mountains that have gravitated to the basin floor. This in turn becomes alluvial fan piedmont characterized by coalescing fans dissected by numerous drainage channels. Sedimentary formations of dolomite and limestone from the early Cambrian to the early Devonian are present, with the occasional appearance of interbedded quartzite, and shale beds. The Tertiary rock in the mountains ringing the site area are mainly basalt, rhyolite and latite and classified as volcanic extrusions. The valley floors

that make up the main portion of the site are quarternary in nature, made up of a detritus from the bedrock areas carried by intermittent flash flooding to the margins of valleys and alluvial fans. Larger amounts of coarse debris are deposited along the edges of dry watercourses (see reference B-40).

(b) The soil is of all sizes of rock debris ranging from clay-sized fragments to boulders. The soil is not suited for agricultural purposes and lack of water kills all but the hardiest desert shrubs.

(3) Site Specific Geology/Soils

The soil on this site is Weiser extremely gravelly fine sandy loam with 2 to 8 percent slopes (see reference B-40). the Weiser series consists of very deep, well drained soils on erosional fan remnants. The soil is largely derived from limestone. About 80 percent of this soil type is actually small pebbles. A dark desert varnish is found on the exposed surfaces of these rock fragments. Calcium carbonate content ranges 40 to 60 percent, confirming the limestone foundation of this soil. The fine earth fraction averages fine sandy loam or sandy loam and has a clay content of 5 to 18 percent. The profile is moderately or strongly alkaline. This is the only soil type on the site.

e. Hydrology

The 4.21 inch average rain fall for the Las Vegas area is a reliable estimate for this area due to proximity of the site to Las Vegas. (see reference B-11). Surface water on this site is runoff from the mountainous areas to the north and northeast of the site. Small springs and seeps are located in several places on the site but these are largely seasonal and provide no steady supply of water.

f. Natural Resources

(1) There are several endangered animals and plants listed as endangered species to be protected in this portion of Nevada by the Department of the Interior, U.S. Fish and Wildlife Service (see reference B-6).

(2) The following species are recognized as threatened, endangered, or sensitive by the State of Nevada or the Federal Government and are presented in tabular form in table 3-3:

TABLE 3-3
NATURAL RESOURCES*

Resource Classification	Type	Comment
Mammal	None	
Bird	None	
Amphibian/Reptile	Desert Tortoise	E (F,N)
	Amargosa Toad	T (F)
Fish	Pahrump Poolfish	E (F)
	Warm Springs Pupfish	E (F)
Plant	Amargosa Niterwort	E (F)
	Mojave Sweet Pea	S (F)
Insect	None	

E = Endangered S = Sensitive F = Federal
N = Nevada T = Threatened
*References B-6 and B-10

g. Historical/Cultural Resources

According to the State Historical Preservation Office (SHPO) for Nevada, maintenance of an inventory of historic and cultural sites is contracted to the University of Nevada at Las Vegas' Harry Reid Center for Environmental Studies. Ms. Blair of that office informed the HRS researcher for this site that the least expensive and most feasible way to inventory and categorize historical/cultural sites was to do so after it had been determined which areas are to be remediated. No information specific to the site was discovered, however, when remediation is considered for this site, the SHPO should be contacted for specific guidance (see appendix A, Reference sources).

4. HISTORICAL ORDNANCE PRESENCE

a. Chronological Site Summary

(1) The site was authorized to be acquired from the Department of the Interior as part of a 4,043,339.55 acre tract specified in Executive Order 8578, 29 October 1940, for use as a bombing and gunnery range (see reference B-31). The 46,953.75 acre area was transferred from the Department of the Interior in December 1941 to be used as a moving target machine gun range.

Approximately 25,620 acres were relinquished to the Bureau of Land Management (BLM) in August 1954. An additional 10,758.27 acres were relinquished to the Fish and Wildlife Service in July 1961. The site was used by Air Force, Marine Corps and Navy personnel from Nellis Air Force Base and Lake Mead Base for small arms weapons ranges. The site was also used as an emergency drop area for hung bombs, wing-tip tanks and pylons. The Air Force also utilized a portion of the area as an explosive ordnance disposal area. Numerous range clearances have been conducted and are documented in appendix F. OE continues to be discovered on the site. The Air Force Small Arms Range which is adjacent to this site is active and still in use. Its acreage is not considered in this report.

b. Ordnance Related Records Review

(1) Sources checked in the search for any OE contamination included:

[a] National Archives
[b] Regional Archives
[c] The Military History Institute
[d] U.S. Army Center for Military History
[e] Emergency Ordnance Disposal (EOD) Units
[f] Local Police Department
[g] Local Sheriff's Department
[h] County Courthouse

(2) For a complete list of sources checked, see appendix A, Reference Sources.

(3) Documentation discovered in the course of the Archives Search showed that the former Nellis Small Arms Range was first envisioned before World War II for training flexible machine gunners assigned to the Las Vegas Bombing and Gunnery School (see F-1). Numerous documents refer to construction of ranges and ammunition supply and logistics matters (see F-2 to F-4) necessary to properly run a training area. Power turrets were requested in December 1941 (see F-5). References F-6 and F-7 discuss a request for the delivery of 20mm and 37mm AA guns. The use of tracer shotgun ammunition is discussed in reference F-8. The moving target ranges and numbers of students expected to be trained are discussed in reference F-9. The aforementioned documents all date from World War II. The next two references discuss the construction of a 600 yard rifle range in 1955 to be jointly shared by Nellis Air Force Base and Lake Mead Base (see F-9).

(4) Explosive Ordnance Disposal team range clearance documents exist and were carefully studied to determine areas of confirmed and potential OE contamination, as well as density of that contamination. Clearances were conducted in 1972, 1977, 1978 and 1995.

Large amounts of OE were recovered (see references F-10, F-11, F-12, and F-13). These documents were responsible in part for the risk assessments for this site.

(5) A declaration of excess dated June 1971 details the types of munitions items that could be expected to be found on the range (see reference G-2 and map L-3). Included were practice bombs and HE rockets.

(6) Review of newspaper microfilm, clipping files, and vertical files at the Nevada Room of the Las Vegas Central Library revealed no evidence of the discovery of OE at the former Nellis Small Arms Range.

c. Interviews with Site Related Personnel

(1) CPT Swoboda, Nellis AFB EOD, had a wealth of information concerning OE at the former Nellis Small Arms Range. His unit does the range clearances on the active portions of the Nellis Range and would be the responders if ordnance was discovered in/on FWS/BLM lands, like Nellis Small Arms Range, that border the active Range. He was the officer in charge of the last range clearance of the area and his final report with OE recovered and map of their locations is at reference F-13. He stated that OE items discovered off range are recovered by Nellis ordnance personnel in the interest of public safety (see interview I-1).

(2) SSG Quinn, 259th EOD, Fort Irwin was the staff duty NCO. SSG Quinn had no information on discovery or removal of ordnance and munitions items in the former Nellis Small Arms Range area. He acknowledged that his unit does have responsibility for the area in which Nellis Small Arms Range is located, but, in practice, leave discoveries of Air Force munitions for the Air Force's disposition. He suggested I speak with Air Force EOD personnel and gave me a POC (see interview I-1). He had no other pertinent information (see interview I-2).

(3) Dr. Wilman is the Staff Historian for WTC and is very familiar with all aspects of the Nellis Range Complex. She was familiar with instances of OE being discovered in the area where Nellis Small Arms Range is located. She has intensively searched the archives for us in this respect after prior coordination with the HRS team's Mr. Meekma. She directed us to

EOD Captain Swoboda (interview I-1)(see interview I-3).

(4) Mr. Cook is currently an employee of the Bureau of Land Management in Las Vegas and is quite familiar with the property in question at the former Nellis Small Arms Range. He has visited the property several times in the course of his duties and has never seen any evidence of OE in the area. He is familiar with OE from his time in the military and spoke knowledgeably about military activities in the surrounding areas including other FUDS sites now under study (see interview I-4).

5. SITE ELIGIBILITY

a. Confirmed Formerly Used Defense Site

(1) Former land usage by the Army was previously confirmed for the entire 36,378.28 acre site as summarized in section 4 of this report.

(2) There are no recapture or restricted use documents on record for the former Nellis Small Arms Range.

b. Potential Formerly Used Defense Site

No previously unknown potential Formerly Used Defense Sites were identified by the site inspectors during the course of the visual inspection and review of historical documents.

6. VISUAL SITE INSPECTION

a. General Procedures and Safety

(1) During the period 15-21 February 1996, members of the Site Inspection (SI) team traveled to Nevada to assess several FUDS including the portion of the former Nellis Small Arms Range returned to the public domain. The team did not visit the fenced, active range which is not a part of this report. The primary task of the SI team was to assess OE presence and potential due to the usage of the site as a machine gun range and emergency jettison area for the Las Vegas Bombing and Gunnery Schoolduring World War II. Contamination from present day usage of ordnance in areas adjacent or in the sky above the FUDS is not within the purview of the DERP-FUDS program and must be addressed separately.

(2) A site safety plan was developed and used by the SI team to assure an injury-free site inspection of the Former Nellis Small Arms Range. A briefing was conducted prior to the SI which stressed that OE would only be handled by military EOD personnel. Site safety and strict adherence to nonintrusive

investigation methods were maintained by the inspection team at all times during the on-site inspection.

(3) Prior to the site visit, a thorough review was made of available reports, historical documents, texts, and technical ordnance manuals (see materials referenced in Appendix A gathered during the ASR historical records search). This review was made to ensure team awareness of potential ordnance types and hazards.

(4) The actual inspection of the former Nellis Small Arms Range began on 16 February 1996, when the SI team visited the area of the site.

b. Area A: Buried 37mm HE Area

(1) The site was surveyed with the aid of a 4-wheel-drive vehicle and existing maps and drawings provided by Nellis EOD (see map L-3).

(2) The SI team first surveyed the portion of the site indicated as a potential ammunition burial site for 37mm HE by the INPR. This survey was conducted on foot with all appropriate cautions taken to avoid injury and heat fatigue. No of evidence of OE was noted. The area was walked by the assessment team three abreast, taking care to carefully inspect gullies similar to the ones mentioned in the EOD reports of 37mm found in the area (see plate 3, photograph J-1 and map L-3). Other OE items have also been discovered in this area (see reference F-13) but are most likely illicit dumps by disaffected individuals.

c. Area B: Bomb Jettison Area

This area is mountainous and not vehicle accessible; it was not inspected on foot. EOD personnel who have surveyed the area by helicopter verify the presence of OE such as rockets, practice bombs, and expended wing-tip tanks.

d. Area C: Bomb Jettison Area

This area is mountainous and not vehicle accessible; it was not inspected on foot. EOD personnel who have surveyed the area by helicopter verify the presence of OE such as rockets, practice bombs and expended wing-tip tanks.

e. Area D: Bomb Jettison Area

This area is mountainous and not vehicle accessible; it was not inspected on foot. EOD personnel who have surveyed the area by helicopter could not verify the presence of OE such as rockets, practice bombs and expended wing-tip tanks but think it likely due to it's designation as an emergency drop area and proximity to the air base.

f. Area E: Bomb Jettison Area

This large area was walked east to west by the assessment team members three abreast. Three of the former moving target berms are located on the southern edge of the site. No evidence of OE was noted. This area had large numbers of expended .50 caliber machine gun bullets from its use as an moving target machine gun range (see photographs J-2 and J-3). This area has had one **inert** M117 practice bomb removed by Nellis Air Force Base EOD (See reference F-13).

7. EVALUATION OF ORDNANCE HAZARDS

a. General Procedures

(1) The site was evaluated to determine confirmed, potential, or uncontaminated ordnance presence. Confirmed ordnance contamination is based on verifiable historical evidence or direct witness of ordnance items. Verifiable historical records evidence consists of ordnance items located on site and documented by the local bomb squad, Air Force and Army Explosive Ordnance Disposal teams, newspaper articles, correspondence, current findings, etc. Direct witness of ordnance items consists of the inspection team directly locating ordnance items by visual inspection. Additional field data is not needed to identify a confirmed subsite.

(2) Potential ordnance contamination is based on a lack of confirmed ordnance. Potential ordnance contamination is inferred from records or indirect witness. Inference from historical records would include common practice in production, storage, usage, or disposal, at that time, which could have allowed present day ordnance contamination. Potential ordnance contamination could also be based on indirect witness or from present day site features. Additional field data is needed to confirm potential ordnance subsites.

(3) Uncontaminated ordnance subsites are based on a lack of confirmed or potential ordnance evidence. Historical records evidence and present day site inspections do not indicate confirmed or potential ordnance contamination. There is no reasonable evidence, either direct or inferred, to suggest present day ordnance contamination. Additional field data is not needed to assess uncontaminated ordnance subsites.

b. Area A: Buried 37mm HE Area

(1) Based on the site visual inspection, review of historical documents, and reports of found OE since site closure,

this area is considered **contaminated** in accordance with the standards of paragraph 7.a.(1).

(2) OE has been recovered from this site by Nellis Air Force Base EOD personnel• but the precise location was not detailed on a clearance map. 37mm HE projectiles show up after heavy rains and will probably continue to surface due to weather or real estate development. A portion of this area, section 17, also may have served as an EOD demolition area (see map L-3). The area must be treated as contaminated due to pit kick-outs, buried misfires, and the common practice of illicit burial of items.

c. Area B: Bomb Jettison Area

(1) Based on review of historical documents, and interviews with Nellis Air Force Base EOD personnel this area is considered **contaminated** in accordance with the standards of paragraph 7.a.(1).

(2) OE has been noted on the ground by EOD personnel doing aerial surveys of the area. The rugged, nearly inaccessible terrain complicates disposal and removal by Nellis AFB EOD.

d. Area C: Bomb Jettison Area

(1) Based on review of historical documents and interviews with Nellis Air Force Base EOD personnel this area is considered **contaminated** in accordance with the standards of paragraph 7.a.(1).

(2) OE has such as practice bombs have been noted on the ground by EOD personnel doing aerial surveys of the area. The rugged, nearly inaccessible terrain complicates disposal and removal by Nellis AFB EOD.

e. Area D: Bomb Jettison Area

(1) This area was broken out from Area C based on its accessibility. As a result of the site visual inspection, review of historical documents, and common practices of the time, this area is considered **potentially contaminated** in accordance with the standards of paragraph 7.a.(2).

(2) No OE was noted on the site. Individuals familiar with the site have found no evidence of OE contamination (see interviews I-1 and I-4). This area is adjacent to known contaminated and active use areas. This area could have been utilized if required to drop hung bombs and rockets, wing-tip tanks and weapons pylons. It would have been common practice to utilize the area as an emergency drop site; the possibility for contamination by OE exists and must be taken into consideration.

f. Area E: Bomb Jettison Area

(1) Based on the site visual inspection, review of historical documents, and reports of found OE since site closure, this area is considered **potentially contaminated** in accordance with the standards of paragraph 7.a.(2).

(2) Although three of the moving targets berms are located in this area, expended small arms are not the primary focus of study in this area since it is not considered OE. No OE was noted on the site during the assessment. One **inert** M117 practice bomb has been removed by EOD and is considered scrap metal and not OE. However, since the area is adjacent to known contaminated areas and an active training range the potential for buried and impacted OE items exists in this area. This area was also available for emergency jettisoning of bombs and racks and may be contaminated with OE.

8. SITE ORDNANCE TECHNICAL DATA

a. End Item Technical Data

(1) There is historical evidence to indicate that ordnance was used at the Nellis Small Arms Range over a 20-year period.

(2) Table 8-1 is a listing of OE items most likely to have been expended for gunnery training based on the scopes of the training missions and the timeframe 1941-1965as well as observed OE on-site:

TABLE 8-1
AMMUNITION USED AND EXPLOSIVES/CHEMICAL FILLERS

Type	Model	Filler/Weight
Cartridge, .30 caliber, MG	M2, Ball M1, Tracer M2, AP	Lead antimony Tracer composition Tungsten chrome steel
Cartridge, .30 caliber, Carbine	M1 Ball M16 Tracer	Lead antimony Tracer composition
Cartridge, .45 caliber, Pistol	M1911, Ball	5.6 grains Powder 4648 Copper Plated Steel Bullet
Cartridge, .50 caliber, Machine Gun	M2, Ball M2, AP	Soft steel/lead Tungsten chrome steel

TABLE 8-1

AMMUNITION USED AND EXPLOSIVES/CHEMICAL FILLERS

Type	Model	Filler/Weight
Projectile, 20mm HEI	MK IV	.0171 lb. Tetryl .0072 lb. Incend. mix.
Projectile, 37mm, HE-T	M54	.10 lb. Tetryl .025 lb. Tracer Comp.
Fuze	M56 PD	Tetryl booster
Grenade, Incendiary	AN-M14	1.75 lbs. thermite
Warhead, Rocket 2.75"	M229 HE	15.5 lbs. Comp. B
Block, Demolition	M3	2.25 lb. Comp. C-3
Block, Demolition	M4	.50 lb. Comp. C-3
Cord, Detonating		7 lb./100 feet PETN
Bomb, Practice 3 lb. w/signal	AN-MK 23 MK 4	Cast iron 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride
Bomb, Practice 4.5 lb. w/signal	AN-MK 43 MK 4	Cast lead 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride
Bomb, Practice 2.68 lb. w/signal	AN-MK 5 MK 4	Zinc Alloy 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride
Bomb Practice 5 lb. w/signal	MK 105 MK 4	Sheet steel 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder
Bomb, Practice 25 lb. w/signal	MK 76 MK 4	Sheet steel 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride

TABLE 8-1 AMMUNITION USED AND EXPLOSIVES/CHEMICAL FILLERS		
Type	**Model**	**Filler/Weight**
Bomb, Practice 100 lb. w/signal	M38A2	Sheet steel 10 gm zinc oxide 3 gm black powder 3 gm smokeless powder Titanium tetrachloride water/sand mix
Rocket, 5", HE	MK 1 Mod 0	8.6 lbs. TNT

b. Chemical Data of Ordnance Fillers

Table 8-2 has been developed to establish a list of typical explosive/chemical compounds used in the ordnance and chemical items cited in Table 8-1.

Table 8-2 CHEMICAL DATA OF EXPLOSIVE/ORDNANCE FILLERS		
EXPLOSIVE MATERIEL	**SYNONYM(S)**	**CHEMICAL FORMULA**
Smokeless Powder Various percentages of:	FNH Powder	
Nitrocellulose	Nitrocotton	$C_3H_5(ONO_2)_3$
Dinitrotoluene	DNT	$C_6H_2CH_3(NO_2)_2$
Dibutylphthalate	Gelling Agent	$C_6H_4(CO_2C_4H_9)_2$
Diphenylamine	DPA; Stabilizer	$(C_6H_5)_2NH$
Black Powder 74% Potassium Nitrate 11% Sulfur 16% Charcoal	Niter, Salt Peter	KNO_3 S C
TNT	2,4,6 Trinitrotolulene	$C_6H_2CH_3(NO_2)_3$
RDX		$C_3H_6N_6O_6$

Table 8-2
CHEMICAL DATA OF EXPLOSIVE/ORDNANCE FILLERS

EXPLOSIVE MATERIEL	SYNONYM(S)	CHEMICAL FORMULA
Pentolite 50% TNT 50% PETN		
PETN	Pentaerythritetetranitrate	$C(CH_2ONO_2)_4$
Lead		Pb
Iron		Fe
Antimony		Sb
Primer Compositions*		
Mercury Fulminate		$Hg(ON)_2$
White Phosphorus	WP Smoke	P
Lead Azide		$Pb(N_3)_2$
Sulfur Trioxide	FS Smoke	S_2O_3
Tetryl		$C_7H_5N_5O_8$
Thermite		Al + FE

9. OTHER ENVIRONMENTAL HAZARDS

a. Hazardous, Toxic, and Radiological Waste

During the site visit and in the course of reviewing hundreds of documents during the historical records search, evidence of a HTRW consideration came to light due to expended .50 caliber machine gun bullets containing lead in area E of the site (see plates 2 & 3). Any remediation efforts should be coordinated with the Nellis Air Force Base Environmental office and the State of Nevada.

b. Building Demolition/Debris Removal

During the site visit, no potential BD/DR projects were noted for consideration as a result of DOD/AAF use during the period 1941-1963.

ATTACHMENT 6

Pete,

Below is an email sent to Tannika yesterday. Because the end of the survey season is this weekend and it's a short week this week, I just wanted to follow up with you in case Tannika is not available. You can reach me at 619-820-0768 if you have any questions.

Thanks!
Shelly Dayman

From: Dayman, Shelly
Sent: Tuesday, May 26, 2009 4:22 PM
To: 'tannika_engelhard@fws.gov'
Cc: Riley, Erin
Subject: Solar Millennium - Desert Tortoise Surveys, Blythe Site

Tannika,

We have been surveying three sites for Solar Millennium this season, one in Ridgecrest and two near Blythe. We have completed one of the sites near Blythe (referred to as the Palen site) and will be completed the Ridgecrest site this week. Recently a land mine was discovered on the Blythe site and so we had to temporarily suspend surveys and are now able to resume surveys. We would like to determine if it would be possible to continue tortoise surveys past the May 31st deadline. Surveys should be completed no later than June 6th.

The predicted temperatures on-site for the next 10 days don't exceed the actual temperatures that have been experienced on-site for the past several weeks and are about 3 to 5 degrees cooler than recent temperatures (the daily high is expected to be between 101 to 104 degrees and temperatures on-site have recently been 107 to 109 degrees). We don't anticipate a difference in ability to observe sign if the surveys are continued until early June.

Please call me at 619-820-0768 if you have an questions.

Shelly Dayman
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DECLARATION OF SERVICE
Blythe Solar Power Plant Project

Docket No. 09-AFC-6

I, David Weber, declare that on June 11, 2010, I served and filed copies of the attached **TESTIMONY OF MATTHEW F. HAGEMANN ON BEHALF OF CALIFORNIA UNIONS FOR RELIABLE ENERGY FOR THE BLYTHE SOLAR POWER PROJECT** dated June 11, 2010. The original document, filed with the Docket Office, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: http://www.energy.ca.gov/sitingcases/solar_millennium_blythe/index.html.

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Office via email and U.S. mail as addressed below:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, California on June 11, 2010.

/s/
David Weber

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