

SALTON SEA TEST BASE



FACT SHEET

SOUTHWEST DIVISION NAVAL FACILITIES ENGINEERING COMMAND

DEPARTMENT OF THE NAVY

Public invited to comment on alternatives for ordnance at Salton Sea Test Base

The Department of the Navy (DON) is requesting comments from the public on the alternatives considered for addressing real or possible risks posed by the potential presence of unexploded ordnance at Salton Sea Test Base (SSTB) Installation Restoration Program Site 24. This fact sheet details three alternatives for Site 24, which is the collective identification for areas across the entire base with the potential for unexploded ordnance (UXO).

The DON has sufficiently addressed and closed each of the 24 Installation Restoration Program sites at SSTB, including Site 24, with respect to hazardous materials. (The Installation Restoration Program was established in the mid-1980s to identify and clean up hazardous materials at DON sites.) However, unexploded ordnance, due to its unique nature, was addressed separately. Findings on the nature and extent of dangers of UXO associated with Site 24 (basewide) are presented in the final *Ordnance and Explosives Investigation Report for SSTB* prepared for the DON by the U.S. Army Corps of Engineers.

The environmental restoration and UXO programs were conducted to support closure and final transfer of SSTB property, as required under the Department of Defense (DoD) Authorization Amendments and the Base Closure and Realignment Act of 1988. These programs were performed in accordance with DoD's proposed Range Rule for Closed, Transferred, and Transferring Ranges Containing Military Munitions, 62 *Federal Register* 50796 (to be codified at 32 *Code of Federal Regulations* Part 78), consistent with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

The DON is the lead federal agency for the ordnance program at SSTB, with the state providing regulatory oversight. The DON is working in cooperation with the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) and the California Regional Water Quality Control Board Colorado River Basin (RWQCB), as well as the United States Environmental Protection Agency (U.S. EPA) in the implementation of these alternatives. Ordnance expertise was provided by the Army Corps of Engineers

Opportunities for Public Involvement

Public Meeting

Monday, December 20, 1999, 6:30 – 8:30 p.m.
 Salton City Community Services District
 2098 Frontage Road, Salton City, California
 (760) 394-4446

You are invited to attend the public meeting to discuss the information presented in this fact sheet regarding the preferred alternatives for Site 24, Potential Unexploded Ordnance, at SSTB. Navy representatives will provide information on the environmental investigations and alternatives considered. You will have the opportunity to ask questions and formally comment on the alternatives. Representatives from DTSC and U.S. EPA have been invited to this meeting.

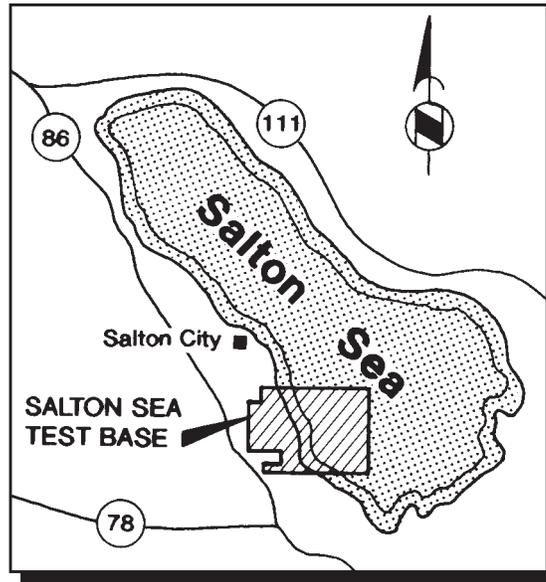
Public Comment Period

December 10, 1999 – January 24, 2000

We encourage you to comment on this fact sheet and the key related document, draft *Decision Document for Unexploded Ordnance at Salton Sea Test Base*, during the 45-day public comment period. You may submit written comments by mail postmarked no later than January 21, 2000 to Mr. Mike Radecki, SSTB BRAC Environmental Coordinator, 1220 Pacific Highway, Code 5CEN, San Diego, CA 92123-5190.

from the Army Engineering and Support Center in Huntsville, Alabama.

The intended land use for SSTB is wildlife and cultural resource management. The DON's goal for Site 24 is full and continued protection of human health and the environment in a manner supporting the intended land use. This goal is best met through the primary alternative: Alternative 2, risk management actions (RMAs). RMAs include recurring reviews, provisions to minimize access to the property and prevent disturbance of soils, public education, and notification requirements in the event of proposed land use changes. Alternative 3, 2-foot clearance, would be implemented where appropriate if land use changes in the future.



In addition to Alternatives 2 and 3, this fact sheet discusses a “no further action” alternative (Alternative 1).

This fact sheet presents an overview of SSTB and the investigations that support the preferred alternatives and describes each alternative considered. It also explains why Alternatives 2 and 3 were selected by the DON.

The DON encourages your input on the alternatives for addressing ordnance described in this fact sheet and the draft *Decision Document for Unexploded Ordnance at SSTB*. The draft decision document and other documents developed in support of the Site 24 investigations are available to the public at the locations listed on the back page.

Glossary

| | |
|----------------|---|
| AEC | Atomic Energy Commission |
| Anomaly | any metal object below the ground surface, such as metallic ordnance debris, detected by magnetometers or other equipment |
| ARAR | applicable or relevant and appropriate requirement |
| bgs | below ground surface |
| BLM | Bureau of Land Management |
| BOR | Bureau of Reclamation |
| BRAC | Base Realignment and Closure |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| DOI | Department of the Interior |
| DoD | Department of Defense |
| DON | Department of the Navy |
| DTSC | (California Environmental Protection Agency) Department of Toxic Substances Control |
| mm | millimeter |
| OE <i>Cert</i> | Ordnance and Explosives Cost-Effectiveness Risk Tool |
| Ordnance | Military weapons and related equipment, ammunition, and ordnance scrap; includes unexploded ordnance |
| RMA | risk management action |
| SSTB | Salton Sea Test Base |
| U.S. EPA | United States Environmental Protection Agency |
| UXO | unexploded ordnance; explosive ordnance that has been prepared for action and has been fired, dropped or launched and remains unexploded, thereby presenting a hazard |

Site Background and Characteristics

SSTB is located in the northwestern portion of Imperial County, California, about 6 miles south of Salton City. SSTB was used by military forces for live-fire training exercises in 1990. These exercises are considered to be the source of ordnance concerns at SSTB.

From World War II until about 1990, SSTB was used for various military training and weapons testing. In 1942, the DON established Naval Air Facility Salton Sea for seaplane and bombing range operations. In 1943, experimental testing for the DON's rocket development work and the testing of propellant mixtures for jet engines were also conducted. In 1944, high-altitude Army-Navy land and sea test drop bombing experiments were performed to evaluate the flight characteristics of inert (nonexplosive) atomic bomb weapon test units and base facilities were expanded to meet the needs of these programs.

Just after World War II, SSTB was transferred from the DON to the Army and the Manhattan Engineer District, which oversaw development of nuclear weapons. Technical tests involving nonexplosive test drops were performed by the Z Division (Sandia Laboratory) of the Los Alamos Scientific Laboratory.

In 1947, jurisdiction of SSTB was transferred to the newly formed Atomic Energy Commission (AEC). The existing facilities were converted for new uses. In 1949, repairs, improvements, and new construction to the facility's largest capacity were completed. In 1950, the AEC administrative, maintenance, and security functions at SSTB were transferred to Sandia. By mid-1951, 60 people (full-time resident employees and their families) worked and lived at the base with other workers commuting from nearby communities.

The Environmental Test Program conducted by Sandia evaluated the possible adverse effects of long-term storage of atomic weapons in natural environments. At SSTB, tests were performed in the desert environment. Some test units were left out in the open, and others were stored with different types of protection (e.g., covered with tarps). For this purpose, a surveillance building was built in 1954 for conducting tests, recording data, and maintaining test units. Test units were disassembled for testing and inspection. The weapons did not contain fissionable materials (i.e., enriched uranium or plutonium), although they did contain components constructed of depleted uranium (uranium depleted of its fissionable component during the manufacture of enriched uranium). The Environmental Test Program was completed in 1959. SSTB also served as a test center

Test Base Trivia

Salton Sea Test Base

- consists of approximately 20,000 acres of undeveloped desert and water within the Salton Sea;
- includes 280 acres leased to the DON by the state of California; 4,400 acres leased to the DON by the Imperial Irrigation District; 5,900 acres fee owned land; 5,500 acres withdrawn under Public Domain; 3,300 acres held under a Memorandum of Agreement with the Bureau of Reclamation (BOR);
- is located on the southwest shores of the Salton Sea;
- is bounded by agricultural fields to the south, the Salton Sea to the east, and vacant desert to the west and north;
- has groundwater that is saline and not acceptable for drinking or agricultural uses;
- has been an inactive facility since approximately 1979 (with the exception of unauthorized live-fire training exercises in 1990);
- is approximately 6 miles south of the nearest town, Salton City (population 1,468), from the northern base boundary;
- received funding to begin environmental investigation in support of formal base closure under the Base Realignment and Closure Act in 1993;
- recruited interested public members and established a Restoration Advisory Board in 1994.

for the Mercury space capsule parachute landing system. A total of 57 tests were conducted in 1959 and 1960 for the space program.

In 1961, all Sandia tests were discontinued at SSTB. Because of the development of the Salton Sea as a recreation area and wildlife refuge, along with the military's growing need for land target testing, use of SSTB was no longer practical for test drops. The DON removed all recoverable test units dropped at both land and water targets. All personnel and usable equipment were transferred to the test range in Tonopah, Nevada. SSTB was then placed on caretaker status, for which Sandia personnel provided minimum maintenance and security. This responsibility was transferred to the AEC.

In 1964, SSTB was turned back over to the DON and used as a Joint Parachute Test Facility by the DON and Air Force for both land and water drops. In 1973, SSTB became one of four National Parachute Test Range areas, and it was used as a water impact area for parachute testing for various inert (nonexplosive) payloads. Under the National Parachute Test Range program, Naval Air Facility, El Centro maintained and operated

the facilities. Hurricane damage in 1976 and 1977 rendered the living quarters and the water treatment plant at the base useless.

In 1979, Naval Weapons Center, China Lake took over responsibilities of the National Parachute Test Range but never utilized SSTB facilities. In 1987, DON security at SSTB was discontinued, and the facility was excessed. In 1990, SSTB was used by military forces for live-fire training exercises.

Archives Search

The archives search, completed in 1996, consisted of a review of historical records and a site inspection. The search identified 27 areas at SSTB with the potential for ordnance. Site Inspection results (documented in the *Archives Search Report*) indicate that ordnance contamination is the result of the live-fire training exercises conducted in 1990. The findings presented in the final *Ordnance and Explosives Investigation Report* indicate that the live-fire exercises were limited to a few events.

Identified ordnance and related scrap primarily consisted of 1990-vintage small arms cartridges/cases/links; mortar fragments; missile components and fragments; flare tubes; igniters; fuses; and illumination rounds. Out of the 27 potential areas, only 4 areas were confirmed to have ordnance present. No official records of the 1990 training exercises were located during the archives search.

Ordnance and Explosives Investigation

Results from the *Archives Search Report* and the follow-on site inspection formed the basis for planning the ordnance investigation. The ordnance and explosives investigation consisted of a visual surface survey and investigation of the entire base followed by a subsurface investigation in specific sample areas.

Visual Surface Survey and Investigation. The visual surface survey for ordnance was conducted over the 7,240 land acres of SSTB from July 1996 to March 1997. Visual surface survey teams walked across the base and removed all ordnance items (scrap and unexploded ordnance) encountered. Areas with evidence of ordnance detonation were also recorded. During this investigation, 115 items were recovered from the ground surface. Unexploded ordnance was detonated in place. All ordnance scrap was inspected to

ensure that it was free of explosive hazards and recycled by local contractors.

In addition, an area of partially submerged mudflats along the Salton Sea shoreline was visually inspected for unexploded ordnance and scrap. None was found.

Subsurface Investigation. Based on ordnance items found during the visual survey and investigation and additional areas chosen through random sampling, a subsurface ordnance investigation was conducted. A total area of 137.7 acres was investigated.

The subsurface investigation focused on the top 3-foot layer of soil underground, because the presence of ordnance below this depth was not likely given historical uses of the base. Hand-held magnetometers were used to identify subsurface ordnance items. Sixteen subsurface ordnance items were recovered at depths from 0.5 to 2 feet. No subsurface ordnance was found in the mudflats along the shoreline.

Salton Sea Test Base Unexploded Ordnance Program Documents

Information on SSTB UXO program and other investigations in support of the DON's Installation Restoration Program at SSTB is available through reports, fact sheets, and other documents and are available at the locations listed on the back of this fact sheet.

Key documents include:

- *Archives Search Report: Findings for SSTB* (January 1996)
- *Archives Search Report: Conclusions and Recommendations for SSTB* (January 1996)
- *Surface Clearance and Investigation Work Plan* (March 1996)
- *Ordnance and Explosives Investigation Report* (July 1999)
- *Decision Document for Unexploded Ordnance, SSTB* (draft) (December 1999)

The risk analysis was conducted using a 100 percent visual surface site inspection in conjunction with the Army Corps of Engineers' Ordnance and Explosives Cost-Effectiveness Risk Tool (*OECert*) computer model. Detailed results of the risk analysis are included in the *Ordnance and Explosives Investigation Report*. For purposes of the risk analysis, three Risk Evaluation Areas were designated (see map on page 5).

- Beach Flats/Near Water Area (the mudflats and adjacent Salton Sea, consisting of approximately 300 acres)
- 81mm Mortar Area (approximately 1,100 acres consisting of the suspected mortar range fan in Zones 2 and 4)
- Remaining Area (consisting of approximately 5,800 acres)

To analyze risk posed by unexploded ordnance and scrap, the risk analysis projected a range of ordnance densities, or the amount of ordnance per acre. Overall, the densities were less than 0.175 item per acre, which is very low. This density value means that for every 28,000 people that visit SSTB, one person could be exposed to UXO. UXO exposure occurs when an individual is in the proximity of live UXO, with or without the knowledge of its presence or physical contact with it. Compare this rate to health hazard (i.e., injury or death) rates resulting from a variety of human activities, such as not wearing a seatbelt in an automobile accident (1 per 28,338), incurring a work-related accident (1 per 23,472), and being struck by lightning (1 per 3,611,111).

Scope and Role of the Risk Management Goals

Risk management goals were established to allow identification and screening of alternatives that protect human health and the environment and that are consistent with anticipated land use. The goals are based on site-specific risks and federal, state or local applicable or relevant and appropriate requirements (ARARs; see box on page 11). Risk management goals were also developed based on DoD's proposed Range Rule, DoD policy and guidance for management of ordnance, and the *OECert* analysis results in the final *Ordnance and Explosives Investigation Report for SSTB*. A key factor in establishing target cleanup goals is the intended land use of the base after transfer from the DON to the Department of Interior (DOI). This use consists of resource management, including conservation of natural resources (wildlife) and preservation of cultural resources (archaeological sites). The target cleanup depth suited for wildlife and cultural resource management is 1 foot.

The risk management goals for Site 24 include inform-

ing the public and limiting "exposure" to potential UXO. (UXO *exposure* occurs when an individual is in the proximity of live UXO, with or without the knowledge of its presence or physical contact with it.) Risk management goals for Site 24 include:

- keeping the community and persons most likely to be exposed to UXO informed of the dangers resulting from encounters with UXO and providing access to UXO information;
- precluding the "uninformed" transfer of property that would result in an increased exposure to UXO;
- ensuring that the DON is notified of any intent to implement land uses other than the intended use of resource management; and
- protecting against any "adverse effects" to cultural resources and sensitive biological receptors.

In the event that the proposed remedial action alternatives do not provide adequate protection from UXO exposure, the DON would refine these goals and propose appropriate action necessary to mitigate excessive risk posed by UXO exposure.

Summary of UXO Risk Management Alternatives

Three UXO risk management alternatives were evaluated to determine how they support the anticipated land use for natural and cultural resource management, identify the requirements in the event of a change in land use, and meet the risk management goals. These alternatives offer the best balance for managing the risks presented by UXO at SSTB.

Alternative 1: No Further Action

Capital Cost: \$0

Annual Operations and Maintenance Cost: \$0

Time to Implement: None

This alternative involves no actions to address the potential threat from UXO at SSTB. By law, the no further action alternative must be included as a baseline against which to compare other alternatives.

Under this alternative, the proposed land-use scenarios for natural and cultural resource management would be implemented, and SSTB would remain unaffected. Public access would be minimal and limited to non-ground-intrusive activities, such as hiking and bird watching. Therefore, protection of human safety and health and the environment would be met.

The risk assessment determined that further removal actions would not eliminate the overall risk from UXO at

SSTB, because the current estimated UXO density is well below one item per acre. Based on the currently existing UXO risks, Alternative 1 would be effective over the long and short terms, provided future land use is minimal and limited to surface activities. However, if over the long-term, surface erosion (wind and water) exposes additional subsurface UXO, the effectiveness of this alternative could be compromised. Thus, Alternative 1, no further action, does not meet all risk management goals.

Alternative 2: Risk Management Actions (RMAs) - Primary Alternative -

Capital Cost: \$0

Annual Operations and Maintenance Cost: \$495,600

Time to Implement: Over a 30-year period

Under this alternative, RMAs would be used to limit the ways humans could be exposed to UXO. Such actions would limit public access to the base and inform the public about potential hazards of UXO there. The RMAs under this alternative are described below.

- Host a community workshop to further inform the public of the potential UXO dangers. Provide the community with notification procedures that would be followed in the event that UXO is discovered. These notification procedures would also be provided to BLM, BOR, U.S. Fish and Wildlife Service, the Imperial County Sheriff's Department, fire stations located at Salton City, Salton Sea Beach, and Desert Shores, Salton Community Services District, Sea View Elementary School, West Shores High School, Salton City Public Library, Spencer Library Media Center at Imperial Valley College, and local Native American tribes.
- Post a UXO notification in the permanent Imperial County land records to ensure that any future landholder would be aware of the potential presence of UXO.
- Make ordnance program documents available to DOI and BLM.
- Post UXO warning signs at SSTB and provide an additional supply of signs to DOI. DOI would be responsible for replacing and maintaining the signs.
- Inform DOI of the potential presence of UXO and the intended land use identified in the *Integrated Resource Management Plan for Acquired and Withdrawn Lands of the SSTB*. Future changes in land use would require the DON to determine if this alternative would continue to protect humans and the environment. If not, the DON would determine necessary actions that would be protective under the new land use.
- Develop a "UXO recognition and awareness" program for DOI to train personnel entering areas possibly containing UXO.

- Take necessary response actions if and when a previously unidentified risk (other than those associated with changes in land use) is identified and notify DTSC and U.S. EPA.
- After 3 years, conduct a review to ensure that the response is still effectively addressing the identified risks posed at SSTB. Review again, as needed, in the 7th year and at 5-year intervals thereafter. This cycle of recurring reviews may be adjusted as necessary.

In addition, DOI and BLM will post UXO notifications on the BLM Master Title Plats as set forth in the terms of transfer between the DON and DOI. DOI will be responsible for informing the public and any parties involved in soil-intrusive activities at SSTB of potential UXO hazards. DOI will also provide procedures to follow in the event that UXO is discovered.

It was assumed that six recurring reviews would be conducted over a period of 30 years. The estimated cost for each review is \$80,100. Estimated costs for posting and maintaining signs over 30 years is \$15,000 for both the 81mm Mortar Area and Remaining Area, or approximately \$4,275 for the 81mm Mortar Area and \$10,725 for the Remaining Area (including the Beach Flats/Near Water Area).

Alternative 3: 2-Foot Clearance - Secondary Alternative -

Capital Cost: \$33,701,296

Annual Operations and Maintenance Cost: \$0

Time to Implement: 28 months

Alternative 3 would require the following actions:

- Remove all **anomalies** (see Glossary) to a depth of 2 feet. If an anomaly is not located within 2 feet, and geophysical instrumentation still indicates that an anomaly exists, it will be excavated using a backhoe as discussed in the *Surface Clearance and Investigation Work Plan*.
 - Detonate UXO in place. Ordnance can usually be moved and consolidated with UXO disposal shots. OE scrap would be inspected to ensure it is free of any explosive hazards and disposed of according to DoD requirements.

The total cost of implementing a 2-foot clearance for the approximately 6,900 acres (approximately 1,100 acres - 81mm Mortar Area and approximately 5,800 acres - Remaining Area) that had previously been surface surveyed in 1996-1997 is approximately \$33,701,296 based on a gross estimate of \$4,900 per acre. Significant additional costs would be incurred if the 2-foot clearance was implemented in the physically inaccessible Beach Flats/Near Water Area (approximately 300 acres).

Detailed Evaluation of the Alternatives

Each alternative has undergone detailed evaluation and analysis, using nine evaluation criteria developed by the U.S. EPA. The criteria are categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. The threshold criteria must be satisfied for an alternative to be eligible. The primary balancing criteria are used to weigh major tradeoffs among alternatives. Modifying criteria are taken into account after public comment is received (on the draft *Decision Document for Unexploded Ordnance at Salton Sea Test Base*) and reviewed with state regulatory agencies to determine if the preferred alternative remains as the most appropriate action. The nine criteria are defined below as they specifically pertain to risk management alternatives and are accompanied by the key points from the evaluation presented in the draft *Decision Document for Unexploded Ordnance at Salton Sea Test Base*. Tables that summarize the evaluation are shown on page 10.

1. Protection of Human Health and the Environment – *assesses whether a risk management alternative provides adequate public health protection and describes how explosive safety risks posed by the site will be eliminated, reduced, or controlled through treatment, engineering controls, or institutional and regulatory controls.*

Alternative 1, no further action, provides no change in protectiveness of human health and the environment. The primary alternative, Alternative 2, RMAs, provides moderate protection under the proposed limited public access and nonintrusive land-use scenario as needed for natural and cultural resource management. Alternative 2 meets the requirements of the risk management goals, and the health hazard rates indicate an acceptable level of risk (see Summary of Site Risks on pages 5 & 6). Based on the low impact use and the 100 percent surface survey of the primary alternative, no additional response actions are necessary for meeting the risk management goals for the intended use. Alternative 3, 2-foot clearance, provides more protection than Alternative 2, and would provide the greatest net reduction in UXO at SSTB.

2. Compliance with ARARs – *addresses whether a risk management alternative will meet applicable or relevant and appropriate federal and state environmental statutes or requirement.*

The most crucial ARARs associated with the alternatives include the Endangered Species Act, Archeological Protection Act, and National Historic Preservation Act.

Alternative 1 would comply with these laws because no action would be the least disturbing of the alternatives to sensitive wildlife habitats and significant cultural sites. Alternative 2, RMAs, the primary alternative, would also comply. However, there could be minor impact to the landscape and to wildlife activities and/or cultural resources due to the placement of signs that alert entrants. Such signs might also alert souvenir hunters. Alternative 3 would comply the least with these ARARs because of the potential destruction of cultural and biological resources during extensive excavations and in-place detonations of UXO.

3. Long-Term Effectiveness and Permanence – *addresses the ability of a risk management alternative to maintain reliable protection of human health and the environment over time based on the projected reduction in risk from explosives after the completion of the response.*

Soil at SSTB is sandy, and the possibility of long-term soil erosion that could expose UXO is a concern. Alternative 1 would leave residual UXO susceptible to future soil erosion. Alternative 2, RMAs, the primary alternative, would provide for some long-term effectiveness and permanence, but this would depend largely on the warning signs being an effective deterrent to entrants and the maintenance of the signs over time. Recurring reviews, public education, deed restrictions, and other agreements would also play a large part in long-term effectiveness. It is possible that the warning signs could have the opposite effect by attracting entrants (e.g., souvenir hunters) to the posted areas. In this case, the signs would not be effective over the long term. Alternative 3, would provide the highest long-term permanence and effectiveness because of the net reduction in ordnance. However, the minimizing of human exposure to ordnance would be essentially the same as Alternative 2, RMAs, the primary alternative.

4. Reduction of Toxicity, Mobility or Volume of Contaminants – *addresses the degree to which risk management alternatives employ recycling or treatment that reduce toxicity, mobility, and volume.*

There would be no reduction of toxicity, mobility, or volume of contaminants under Alternative 1, no further action alternative. However, Alternative 2, RMAs, the primary alternative, would provide an administrative reduction through the implementation of risk management activities, and Alternative 3, 2-Foot clearance, would reduce contaminants to the effective depth of clearance operations.

5. Short-Term Effectiveness – addresses how well human health and the environment will be protected from impacts due to construction and implementation phases and risk management alternatives.

With Alternative 1 there would be no short-term risk to workers and the community because no action would be taken. For Alternative 2, RMAs, the primary alternative, implementation would take approximately 3 months to complete and no subsurface activities would take place. Short-term effectiveness would be good given that the time required to implement this alternative would be short and there would be little or no disruption to DOI management of the site and little or no potential adverse effect on humans or the environment during installation of the signs. The 3-month time period includes meetings with appropriate DOI agencies to confirm the locations and installation of the signs. Alternative 3 would take the longest time to implement, would expose workers to the most potential dangers from UXO, and would have the most short-term impact on the environment.

6. Implementability – addresses the technical and administrative feasibility of implementing a risk management alternative. It includes evaluation of the availability of technologies, services, and materials required during implementation.

Under Alternative 1, no action would be implemented. Alternative 2, RMAs (the primary alternative), is technically and administratively feasible in both the 81mm Mortar Area and Remaining Area. The supplies needed to construct the warning signs are readily available, along with the ordnance explosives-qualified technicians necessary to assist the DON-contracted firm(s) with installation of the warning signs. For Alternative 3, implementing a 2-foot clearance in either the 81mm Mortar Area or the Remaining Area is technically feasible but difficult to implement. A 2-foot clearance would impact presently undisturbed cultural and biological sites and require significant mitigation efforts. Implementation difficulties would also occur if the Beach Flats-Near Water Area along the shoreline (considered in the Remaining Area) were included in the 2-foot clearance. This area is either underwater or in a mud/water state and cannot be accessed by normal means, if at all. The administrative feasibility of implementing Alternative 3 in either the 81mm Mortar Area or the Remaining Area is the same as that of conducting the previous surface clearance. The availability of services and materials would not adversely impact the implementability of this alternative.

7. Cost – addresses the total cost of the risk management response action including capital and operation and maintenance costs.

There is no cost associated with Alternative 1. The costs for implementing Alternative 2, RMAs, the primary alternative, and associated operation and maintenance costs are driven by the number of recurring reviews conducted. Costs for Alternative 2 (see page 7) are significantly less than Alternative 3 (see page 7).

8. State Acceptance – addresses the apparent preferences or concerns of a risk management alternative to state of California regulatory personnel with jurisdiction over affected resources.

State preferences or concerns for each risk management alternative will be sought through the comment period for the draft *Decision Document for Unexploded Ordnance at SSTB*.

9. Community Acceptance – addresses the apparent preferences or concerns of a risk management alternative to the affected community and will be addressed following the public comment period.

Community acceptance of the risk management alternatives will be addressed following the public comment period for the draft *Decision Document for Unexploded Ordnance at SSTB*.

Implementing Alternative 3, 2-Foot Clearance, Secondary Alternative as a Result of Significant Land Use Change

If there are significant changes to the intended land use for natural and cultural resources management at SSTB, Alternative 3, 2-foot clearance, will be considered at designated areas within SSTB. This alternative provides for the thorough protection of human health in the event that, in the future, there are new land uses designated at SSTB. Any new designations would need to be approved by the DON. This alternative would be effective at reducing the exposure to subsurface ordnance if subsurface activities were to take place due to a change in land use.

Comparative Analyses of Alternatives

The following analysis compares the three alternatives for each of the five criteria used in making a UXO remedial decision. In regards to effectiveness, all three alternatives ranked equally (see Table 1 below). This is primarily due to the counterbalancing effects resulting from the lack of long-term effectiveness of Alternative 1 and the adverse impacts to sensitive biological receptors and cultural resources from implementing Alternative 3.

Table 1
Alternative Effectiveness Rankings
Salton Sea Test Base
Site 24, Unexploded Ordnance

| Alternatives | | | |
|--|------------------------|-----------------------------|-----------------------|
| U.S. EPA Criteria | 1 No Further Action | 2 Risk Management Action | 3 2-Foot Clearance |
| Protection of Human Health/ Environment | 3 | 2 | 1 |
| Compliance with ARARs | 1 | 2 | 3 |
| Long-Term Effectiveness | 3 | 2 | 1 |
| Short-Term Effectiveness | 1 | 2 | 3 |
| Score | 8 | 8 | 8 |
| Rank | 1 | 1 | 1 |

Table 2
Overall Alternative Rankings
Salton Sea Test Base
Site 24, Unexploded Ordnance

| Alternatives | | | |
|-------------------|------------------------|-----------------------------|-----------------------|
| U.S. EPA Criteria | 1 No Further Action | 2 Risk Management Action | 3 2-Foot Clearance |
| Effectiveness | 1 | 1 | 1 |
| Implementability | 1 | 2 | 3 |
| Cost | 1 | 2 | 3 |
| Total | 3 | 5 | 7 |
| Rank | 1 | 2 | 3 |

Note: Ranking from best to worst; best = 1

About ARARs

Identification of ARARs is a site-specific determination and involves determining first if a given federal, state, or local requirement is applicable. A requirement is deemed applicable if the specific terms of the law or regulation directly address the chemicals of concern (chemical-specific), remedial action (action-specific), or place involved at the site (location-specific).

If a requirement is not applicable, it is determined whether the requirement is relevant and appropriate. If the jurisdictional prerequisites of the law or regulation are not met, a legal requirement may, nonetheless, be relevant and appropriate if the site's circumstances are sufficiently similar to circumstances in which the law otherwise applies and if it is well-suited to site conditions.

NATURAL AND CULTURAL RESOURCES AT SSTB

The effects of base closure and transfer of control and administration from the DON to the federal Bureau of Land Management (BLM) are expected to be beneficial for endangered species and species of special concern. A large portion of the non-marine property, which includes the sensitive desert dune areas, will be preserved for conservation of flat-tailed horned lizard habitat. The U.S. Fish and Wildlife Service will use the marine acreage to expand the Salton Sea National Wildlife Refuge. In addition, many areas at SSTB contain archaeological sites. These sensitive resources are protected by state and federal laws.

Natural Resources (sensitive receptors): Biological surveys were conducted at SSTB to identify sensitive receptors. The following species have been observed at SSTB by a certified wildlife biologist.

Endangered (federal/state) species

- Brown pelican (*Pelecanus occidentalis*)
- Desert pupfish (*Cyprinodon macularius*)

Species of special concern (state)

- Flat-tailed horned lizard (*Phrynosoma mcallii*)
- Colorado Desert fringe-toed lizard (*Uma notata*)
- Le Conte's thrasher (*Toxostoma lecontei*)

Cultural Resources (land use concerns): As required by the National Historic Preservation Act, an archaeological inventory and evaluation was conducted at SSTB. Interested local Native American tribes monitored the Navy's fieldwork. More than 170 archaeological sites were identified. The following types of sites were recorded by professional archaeologists:

- fish traps,
- rock enclosures and rock rings,
- ceramic sherd scatters, and
- stone debris scatters.

One large area and several individual sites were nominated for listing on the National Register of Historic Places.

Rationale for Selecting the Primary Alternative, Alternative 2, Risk Management Actions

Although Alternative 1 ranked highest in the comparison of alternatives, the DON has selected Alternative 2, RMAs, as the primary alternative for addressing risk to human health and the environment from ordnance at SSTB. The DON's goal for Site 24 is full and continued protection of human health and the environment in a way that supports the intended land use. Because the land will be used for natural/cultural resource management, this goal would be best achieved through Alternative 2.

The primary alternative is protective of human health and the environment, is cost-effective, and does not destroy natural resources. This alternative involves posting warning signs and educating the public about ordnance hazards. Alternative 2 would not involve disturbing biological and cultural resources, and the recurring reviews would ensure that this method continues to effectively address the risks to humans and the environment. The primary alternative also proposes several risk management activities that will be used to attain the final risk management goals. In addition, the DON has selected Alternative 3, 2-foot clearance, to be implemented where future changes in land use require the removal of UXO.

MAILING LIST COUPON

- I would like more information about environmental restoration activities at Salton Sea Test Base
- Please delete my name from the Salton Sea Test Base project mailing list

Name _____

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Affiliation (optional) _____ Telephone _____

A list of all documents used to select and justify the preferred alternatives for SSTB comprise the administrative record file and are available for public review at:

Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway, Building 129
San Diego, CA 92132
Contact: Diane Silva
Records Management Specialist
(619) 532-3676

In addition, information repositories have been established at locations near SSTB and contain the *final Ordnance and Explosives Investigation Report* and the draft *Decision Document for Unexploded Ordnance at SSTB* and other documents developed throughout the IR Program. These locations are as follows:

Imperial Valley College
Spencer Library Media Center
P.O. Box 158
380 East Aten Road/Hwy. 111
Imperial CA 92251
Hours: Mon - Thur: 8 a.m. - 9 p.m.,
Fri: 8 a.m. - 5 p.m., Sat: 9 a.m. - 1 p.m.
(760) 355-6378

Salton City Public Library
Salton Community Services District
2098 Frontage Rd. (Hwy 86)
P.O. Box 5268
Salton City, CA 92275
Hours: Mon, Wed, Fri: 8 a.m. - 12 p.m. and 1 p.m. - 2 p.m.
(760) 394-4446

Project Points of Contact

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U.S. EPA

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Cal-EPA DTSC

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Restoration Advisory Board

Shirley Lee Palmer