

FINAL PROPOSED PLAN / DRAFT REMEDIAL ACTION PLAN For the South Shore Area Uplands Portion of Unexploded Ordnance Site 7, Former Mare Island Naval Shipyard

🔰 Vallejo, California

August 2024

NAVY ANNOUNCES PROPOSED PLAN / DRAFT REMEDIAL ACTION PLAN

The Department of the Navy encourages the public to provide comments on its proposed plan for the portion of Unexploded Ordnance Site 7, South Shore Area Uplands, at the former Mare Island Naval Shipyard. The Navy has worked with the California Department of Toxic Substances Control and the San Francisco Bay Regional Water Quality Control Board to evaluate the environmental cleanup options for the South Shore Area Uplands presented in this proposed plan.

Table of Contents

Introduction1	
The CERCLA Process	
Site Background2	
RCRA Solid Waste Management Units	
Investigations and Removal Actions	
Current and Future Use5	
Nature and Extent of Contamination5	
Site Risk Details	
Human Health Risk Assessment	
Screening Level Ecological Risk Assessment	
Potential Risk from MEC and Radiological Items7	
Feasibility Study7	
Summary of Remedial Alternatives7	
Evaluation of Remedial Alternatives9	
Summary and Rationale of the Preferred Alternative9	
State of California Laws	
Community Participation - The Next Steps	
Restoration Advisory Board	
Information Repositories	
Other Site Documents	
Project Representatives	
Glossary of Technical Terms*	
Comment Form	
* Words in bold type are defined in the Glossary on page 12	

Your comments Make a Difference!

Public Comment Period August 1 to August 30, 2024

You are invited to review and comment on this Proposed Plan during the 30-day public comment period.

Public Meeting

Thursday, August 15, 2024 at 7:00pm Mare Island Conference Center, 375 G. St., Vallejo, CA or

Attend by computer or mobile app at

https://tinyurl.com/MINS-SSAUplands Join by Telephone: Call Toll-Free: 1 (833) 240-9982 and enter Conference Number: 853 053 52#

INTRODUCTION

The Department of the Navy (Navy) is responsible for investigating and remediating contamination that resulted from historical Navy operations at Unexploded Ordnance Site 7 at the former Mare Island Naval Shipyard (MINS) (Figure 1). This PP/Draft RAP is for a portion of this area called the South Shore Area (SSA) Uplands. The investigations were completed in accordance with the requirements of the Comprehensive Environmental Response. Compensation, and Liabilitv Act (CERCLA). The Navy, in consultation with the California Department of Toxic Substances Control (DTSC) and the San Francisco Bay Regional Water Quality Control Board (Regional Water Board), will select the final remedy for the site in the Record of Decision (ROD) / Final Remedial Action Plan (RAP) after all information submitted during the public comment period has been reviewed and considered. The Navy may modify its proposed plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives. See instructions on page 11 on how to comment.

This **Proposed Plan (PP)**/ Draft RAP summarizes on page 9 the remedial alternatives and explains the basis for identifying the preferred alternative for the only hazard remaining on site, which are potential **munitions and explosives of concern (MEC)**. Alternative 2 includes:

- Engineering controls (EC) to alert future site users to the potential presence of MEC;
- Institutional controls (IC) to restrict specific land uses and activities.

Public comments on this PP/Draft RAP will be accepted from August 1 through August 30, 2024. Public comments can be submitted via mail, e-mail, or fax throughout the comment period. Please see page 11 for more information on how to submit comments.

A public meeting will be held at 7:00 PM on August 15, 2024, in person and virtually. Members of the public may submit written and verbal comments on this PP/Draft RAP at the public meeting. Please see page 14 for instructions on how to attend the meeting.

Distribution Statement A. Approved for public release: distribution unlimited



Figure 1. Site Location

THE CERCLA PROCESS

The Navy is addressing the SSA Uplands pursuant to CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The Navy is issuing this PP/Draft RAP as part of its public participation responsibilities under CERCLA and the NCP. This PP/Draft RAP has been prepared to highlight key information and conclusions from the Navy's investigations of chemical constituents and material potentially presenting an explosive hazard (MPPEH) at the SSA Uplands, as set forth in the Remedial Investigation (RI) issued in 2020 and evaluations of alternatives presented the Feasibility Study (FS) issued in 2023. The flowchart shown in Figure 2 illustrates the status of the SSA Uplands in the CERCLA process. This PP/ Draft RAP also satisfies requirements of California law, as described on page 9.

The ROD/Final RAP will identify the selected remedy and the **remedial action objective (RAO)** that must be met to protect human health and the environment. Following the ROD/Final RAP, the **remedial design (RD)** and **remedial action (RA)** are the next steps in the CERCLA process and involve planning and implementing the selected remedial alternative.

SITE BACKGROUND

Mare Island is located within the incorporated boundaries of the City of Vallejo in Solano County, California, northeast of San Francisco (Figure 1). Mare Island is bordered by Highway 37 to the north, Mare Island Strait at the mouth of the Napa River to the east, Carquinez Strait to the south, and San Pablo Bay to the west. The Navy began shipbuilding operations at former MINS in 1854.

During World War II, the former MINS reached peak capacity for shipbuilding, repair, overhaul, and maintenance. Because of decreasing Navy needs in the postwar environment, shipyard activity decreased, and the former MINS was closed on April 1, 1996.

The Unexploded Ordnance Site 7, the SSA, consists of approximately 38 acres of upland, wetland, and tidal mudflat areas located on the southern end of the former MINS (Figure 1). The Navy has decided to evaluate the SSA as two areas, the upland area and the shoreline area, with demarcation between the areas based on expansion of the shoreline area in 1942, generally along Murphy Lane. The SSA Uplands comprises about 21 acres. The site was typically used for storage of ordnance and transfer of munitions using trains to magazines. Weapons were not manufactured at the SSA. Historically, the upland area was also used for storage of general shipyard items after World War II. The area currently contains buildings, structures, utilities, railroad tracks, and paved roads/parking areas, and is fenced and gated with access limited to authorized personnel, with occasional access by trespassers. Except for Building A161, which is used for temporary storage, the SSA Uplands is generally not in use.



Figure 2. The CERCLA and California Health and Safety Code Process

RCRA SOLID WASTE MANAGEMENT UNITS

Solid Waste Management Units (SWMUs) 91, 93, 106, and 125 were established under the Resource Conservation and Recovery Act (RCRA) facility operating permit for Mare Island Naval Shipyard during its operation. SWMUs 93, 106 and 125, are multi-site SWMUs. The SWMUs are described as follows:

- SWMU 91 Container Storage Area at Building . A195,
- SWMU 93 (portions of) Storm Sewer System,
- SWMU 106 (portions of) Sanitary Sewer System, .
- SWMU 125 (portions of) South End of Mare Island.

DTSC certified the closure of Building A 195 storage area under RCRA, including SWMU 91, on June 3, 1996. The remaining SWMUs, were incorporated into the overall Installation Restoration Program to be closed under the CERCLA process.

SWMU 93 (Storm Sewer System) and SWMU 106 (Sanitary Sewer System) were investigated and evaluated during the RI. Based on the analytical results of the RI, no evidence for contaminant impacts from historical activities at either SWMU 93 or SWMU 106 was observed. As such, no further investigation or action is recommended for those portions of SWMUs 93 and 106 that lie within the SSA Uplands. The Navy recommends DTSC close the portions of SWMUs 93 and 106 located in the SSA and remove them from the basewide RCRA permit.

Because SWMU 125 (South End of Mare Island) was not designated at a specific location or set of locations at the SSA, all investigations documented for the SSA are

considered applicable to this SWMU. In particular, this includes the munitions removals and sampling conducted at the MEC and metallic debris locations. Based on the analytical results of the RI soil and groundwater samples, no evidence for chemical contaminant impacts from historical activities at any of the MEC or metallic debris locations was observed or detected. As such, no further investigation or action is recommended for SWMU 125 within the SSA. The Navy recommends DTSC close the portion of this SWMU in the SSA and remove it from the basewide RCRA permit.

Once the final remedy is implemented, DTSC will issue a RCRA Corrective Action Complete Determination closing the SSA Uplands portions of SWMUs 93, 106 and 125. In addition, the site will be removed from the facility RCRA permit boundaries.

INVESTIGATIONS AND REMOVAL ACTIONS

Environmental characterization of the former MINS has been conducted since 1983 and has included investigations to identify the potential presence of chemical constituents and MPPEH at the SSA Uplands and removal actions to remove contaminants at the site.

The term "unexploded ordnance" (UXO) historically included military munitions. Discarded military munitions pose less risk than UXO, which are munitions that have been primed, fused, armed or otherwise prepared for action but remain unexploded, i.e., that is they were fired or dropped (as in a bomb), but failed to explode or detonate. Military munitions classified as MEC include UXO (or munitions that have been fired) and discarded military munitions (DMM) (or munitions that have not been fired). In specific instances throughout this



document the term UXO is used in describing historical investigations and findings. *There is no UXO, as defined today, present at former MINS.*

A summary list of key investigations and reports, including those that addressed the entire base, follows:

- Basewide Initial Assessment Study, performed and reported in 1983;
- Basewide Environmental Baseline Survey, performed August – December 1993, reported in 1994;
- Early Emergency Munitions Response Actions, SSA Shoreline, performed August to September 1990;
- Basewide Preliminary Assessment, Ordnance Sites, performed October 1993 to October 1994, reported in 1995;
- Basewide Preliminary Assessment and Site Inspection – Non-Radiological Sites performed 1993 to 1994, reported in 1995;
- Basewide Unexploded Ordnance Site Investigation performed late 1994 to April 1996, reported in 1997;
- Unexploded Ordnance Intrusive Investigations, SSA, performed August 1997 to May 1999, reported in 2003;
- Digital Geophysical Mapping (DGM) Survey, including SSA performed January to June 2006, reported in 2008;
- Data Gap Geophysical Surveys, conducted 2012 2013;
- Engineering Evaluation and Cost Analysis/Interim Removal Action Plan (EECA/IRAP) prepared in 2011;
- MEC Non Time-Critical Removal Action (NTCRA), SSA, performed May 2012 to July 2013, reported in 2014;
- Uplands Investigation Technical Memorandum, performed November to December 2017, reported in 2019;
- **Remedial Investigation**, SSA performed July to October 2015, reported in 2020; and
- Feasibility Study SSA Uplands, finalized in 2023.

These documents and other reports completed during the investigations at the SSA Uplands are available for review in the locations listed on page 10.

In 1993, the Navy initiated a preliminary assessment of sites at former MINS that potentially contained MEC as an expansion of assessment of solid waste management units that began in 1987 and following the 1990 emergency removal and disposal of 5,000 pounds of recovered hazardous ordnance material at a shoreline area near Dike 14.

Further investigation of ordnance sites and facilities in the SSA was recommended in the 1995 preliminary assessment report. A site investigation for materials potentially presenting an explosive hazard (MPPEH) was conducted to locate and document geophysical anomalies that may have indicated the presence of buried munitions.

The survey in 1995 and 1996 of a 59-acre area inclusive of the SSA Uplands resulted in detection of more than 1,090 magnetic anomalies. The 1997 site investigation report recommended removal of surface ordnance materials and intrusive investigation of detected anomalies.

Intrusive investigations of anomalies were initiated in August 1997 and continued until May 1999, with the primary goal of locating and identifying each detectable geophysical anomaly at the site and eliminating the immediate threat of explosion posed by the presence of MEC. All detected MEC and MEC-related materials, including pyrotechnics, propellants, small arms ammunition (SAA), fuzes, primers, minor to medium caliber gun ammunition, and other high explosive loaded items, were cleared from the 59-acre area inclusive of the SSA Uplands. The 2003 intrusive investigation for MPPEH report documented the recovery of 158,450 live ordnance items [of which 156,753 items were SAA] and the removal of more than 688,419 pounds of scrap including 767,373 inert ordnance items. Two discarded deck markers emitting low-level radioactivity were discovered in the Dike 14 debris area. As a result, radiological screening was performed at all anomaly locations in the SSA Uplands. No radiological impacts, low level radiological objects, or low level radioactive soils were observed.

In 2006, a comprehensive DGM survey was conducted for all accessible areas of the SSA to detect subsurface anomalies and preserve digital location and distribution information for future remedial action, refine risk models, and develop a technical approach for future response actions consistent with future land use. The 2008 geophysical report from the survey identified over 14,500 anomalies in the SSA open areas and under buildings. Over 9,000 were classified for future investigation as areas most likely to contain MEC.

A 2011 EECA proposed an interim remedial action to reduce the threat to human health, welfare, and the environment posed by the risk of explosion and fire from MPPEH at the SSA. The recommended action consisted of excavation and removal of all areas most likely to contain MEC anomalies and a minimum of 20 percent of areas less likely to contain MEC anomalies. Because MEC items tended to occur in clusters, incremental stepouts from the original excavation to proximal areas less likely to contain MEC clusters could be implemented when necessary.

In 2012 and 2013, an NTCRA was conducted to investigate and remove subsurface metallic items identified during the 2006 DGM survey and to characterize an additional 3.5 acres in inaccessible areas and crawlspaces under Building A163 not surveyed in 2006.

During the NTCRA, a total of 17,238 anomaly locations were excavated at the SSA, and approximately 36,000 munitions and munitions-related debris items were found and removed from the SSA, including primers, fuses, SAA, 0.50-caliber casings, projectiles bases, and primer flash tubes. As part of the NTCRA, building crawlspaces

at the SSA were investigated as low priority areas by magnetometer (mag) and dig techniques. Mag and dig could not be completed at Buildings A161 and A165 due to the crawlspaces being inaccessible, and the majority of the crawlspace beneath Building A162, with the exception of the loading dock, could not be investigated as access was prevented by masonry walls, and these areas were visually inspected. Only one MPPEH, an expended SAA round found beneath Building A259, was identified during the visual inspection of the ground surface in the inaccessible areas of the building crawlspaces. Ultimately, mag and dig investigations were conducted at 100 percent of the accessible crawlspace areas for three of the five SSA buildings and a total of 2,934 underbuilding targets were investigated. As a result, a total of 109 MPPEH items were discovered. In addition, a single MEC item (classified as discarded military munitions) was found beneath Building A259. Based on the removal of 100 percent of the geophysical anomalies in high priority areas, and more than 20 percent of the anomalies in low priority areas, the remedial action objective (RAO) for the NTCRA to reduce the threat to human health, welfare, and the environment posed by the risk of explosion and fire from buried MPPEH at the SSA was achieved.

In addition to munitions, three underground storage tanks (UST) and two dry wells, 35 drums, and abrasive blast material were encountered during the NTCRA. The USTs and dry wells were removed, sampling was conducted, and the excavations were backfilled. Following additional investigations and corrective actions, the Regional Water Board approved closure of the UST site in 2021. Buried drums encountered in three locations were excavated, and subsurface soil was sampled for various organic and petroleum-related analytes including inorganic constituents. The drum excavation areas were backfilled with overburden soil and soil from approved backfill sources. Abrasive blast material was removed from locations when necessary to retrieve an anomaly item, otherwise it was left in place.

A RI of approximately 38 acres of upland areas at MINS identified as Unexploded Ordnance Site 7, South Shore Area, was conducted from 2015 to 2018 to characterize the nature and extent of potential chemical and munitions-related impacts to soil and groundwater at the SSA, assess potential risk to human health and the environment, and provide data and information to support the development of a FS. Based on the results of field investigations and analysis of sample data, and human health and ecological risk assessments, the 2020 final RI report recommended that an FS be conducted to evaluate remedial alternatives for MEC that potentially remain in the SSA Uplands.

These investigations, along with early removal actions conducted in the 1990s, have produced significant quantities of data characterizing the occurrence of chemical constituents, and munitions items and related debris at the SSA Uplands, and form the basis for the development of appropriate remedial alternatives.

The 2023 final FS for the SSA Uplands developed and evaluated remedial alternatives to eliminate or reduce the

exposure to MEC hazards and ensure safe current and future land use at SSA Uplands. A summary of those remedial alternatives and the rationale for selection of the preferred alternative are presented in this PP.

CURRENT AND FUTURE USE

The SSA Uplands is not open to the public and is fenced and gated to limit access. Only authorized personnel such as maintenance workers and law enforcement personnel with a specific need to be in the area are allowed authorized entry. There has been occasional unauthorized access by trespassers.

The SSA Uplands will be transferred to the City of Vallejo. Future planned reuse for the site includes redevelopment as a regional park intended to provide walking trails, habitat conservation, and other passive recreational uses.

The general water quality of groundwater at the SSA Uplands was evaluated for potential use as a source of drinking water. In 2016, the Navy requested the Regional Water Board concur that shallow groundwater at the site meets the criteria for exception to the sources of drinking water policy because it is not considered suitable for a municipal or domestic water supply. In a letter dated July 12, 2016, the Regional Water Board concurred that the shallow groundwater to a depth of 20 feet **below ground surface (bgs)** met the **total dissolved solids** criterion for concentrations greater than 3,000 milligrams per liter for exception to the sources of drinking water policy.

NATURE AND EXTENT OF CONTAMINATION

The determination of the nature and extent of contaminants in soil and groundwater was derived from the combined results of previous site investigations and assessments of potential contaminant impacts from chemical constituents and munitions items. Limited chemical contamination was observed or identified based on these evaluations and during the RI and FS.

Soil

Metals including arsenic, barium, cobalt, manganese, selenium, and thallium were detected in soil at concentrations exceeding their respective screening levels. These metals concentrations, however, were found to be within the range of established ambient levels for Mare Island fill soil, and none of the metals were determined to pose an unacceptable site-related risk to human and ecological **receptors**.

Polycyclic aromatic hydrocarbons (PAH) benzo(a) pyrene and benzo[b]fluoranthene and **total petroleum hydrocarbons (TPH)** were detected exceeding screening levels in surface soils from 0 to 0.5 feet bgs and subsurface soils greater than 0.5 feet bgs in the SSA Uplands. Overall, PAH and TPH were detected infrequently and appear to be related to non-point sources including driveways, roadways, and railway rights-of-way.

MEC, **material documented as safe (MDAS)**, and DMM were concentrated at distinct disposal pit areas excavated from the surface to depths ranging from 4 to 12 feet bgs. These disposal pits were thoroughly excavated and

investigated within the defined extent of lateral and vertical impacts and cleared of munition items and munitions-related debris. A single MPPEH item found during visual inspection of the ground surface in inaccessible areas of the crawlspaces beneath Building A259 was identified as an expended SAA. A single MEC item classified as DMM was also found beneath Building A259 during magnetometer and dig investigations.

As part of the 2012-2013 NTCRA, the excavations to remove items identified as geophysical anomalies were scanned for potential radiation for the purpose of health and safety. No discrete radiological items were found during the NTCRA activities. In 2017, the Uplands Investigation of the DGM Grid Z004 Debris Mass and the Grid AF011 Pit effort included excavation and identification and removal of any metallic anomalies. The excavation spoils were also subjected to radiological screening consistent with general screening practices used during the NTCRA. No radiological items were found, and no elevated radiological readings were noted. Based on the nature of historical activities and the results of extensive radiological screening conducted concurrently with previous munitions response actions, SSA Uplands is not considered to be radiologically impacted.

Groundwater

Based on the results of groundwater sampling conducted during the RI, only two metals--molybdenum and nickel-were detected at concentrations above selected screening levels; however, concentrations were within ambient levels in monitoring wells located at the SSA Uplands. No organic compounds were detected above their respective screening levels.

Groundwater was not evaluated for cleanup because shallow groundwater to a depth of 20 feet bgs at the SSA Uplands is not considered suitable for municipal or domestic water supply and meets the criteria for an exception to the sources of drinking water policy.

SITE RISK DETAILS

Risk is defined as the likelihood or probability that a chemical or radiological constituent, when released to the environment, will adversely affect exposed human or ecological receptors. The Navy evaluated risk to humans from exposure to contaminated soil through recreational and occupational use. Although not a likely scenario, risk to future potential residents was also evaluated. Potential

risk to human receptors caused by injury from contact with MEC items and associated chemical constituents was assessed. In addition, ecological risk to plant and animal communities in the vicinity of the SSA Uplands was evaluated.

Human Health Risk Assessment

The Navy conducted a human health risk assessment (HHRA) in accordance with federal and state guidelines. An HHRA estimates the likelihood of health problems occurring if no action were taken at a site to prevent Table United exposure. 1 presents States Environmental Protection Agency's (USEPA) risk ranges, which were established to protect human health and assist with risk management decisions. Because the planned reuse for the SSA Uplands is a regional park, potential future human receptors include commercial/ industrial workers, recreational users, and construction workers, and, as noted, risk to hypothetical residents was also evaluated.

The Navy determined that shallow groundwater meets the criteria for an exception to sources of drinking water policy for municipal and domestic uses and the Regional Water Board concurred. Risk from drinking shallow groundwater was not evaluated because the groundwater ingestion pathway is incomplete.

The cancer and noncancer risks calculated for chemical and MEC at the SSA Uplands are presented in Table 2.

Screening Level Ecological Risk Assessment

The Navy's screening-level ecological risk assessment (SLERA) for the SSA evaluated the exposure risk to plants, invertebrates, birds, and mammals to chemical constituents and MPPEH. The SLERA concluded that contaminants in soil did not pose unacceptable risk to ecological receptors. Further, ecological receptors are not expected to be exposed to groundwater, since groundwater occurs at a depth below the expected depth of burrowing mammals. MEC is only considered an ecological risk if it is detonated by human activity, and it is considered extremely unlikely that detonation could be caused by any species present in the SSA Uplands.

The SLERA results for chemical and MPPEH at the SSA Uplands are presented in Table 2.

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Health Risks	Unacceptable Risks	Generally Acceptable Risks	Acceptable Risks
Cancer	More than one additional cancer case in a population of 10,000 (greater than 10 ⁻⁴)	One additional cancer case in a population of 10,000 to one addi- tional cancer case in a population of 1,000,000 (10 ⁻⁴ to 10 ⁻⁶)	Less than one additional cancer case in a population of 1,000,000 (less than or equal to 10 ⁻⁶)
Noncancer	A hazard index (HI) greater than 1	—	An HI less than or equal to 1

Potential Risk from MEC and Radiological Items

The Navy completed a **MEC hazard analysis (HA)**, which is a method for establishing the probability for injury from an encounter with possible remaining MEC and MPPEH, for the entire SSA as part of the 2011 EECA/IRAP prepared for the MEC NTCRA. The MEC HA framework provides for four unique hazard levels, with a hazard level of 1 representing the highest potential for an explosive hazard and hazard level of 4 representing a low potential for an explosive hazard.

The MEC HA evaluated the reduction in risk that would occur based on three remedial alternatives proposed for the MEC NTCRA. The remedial alternative selected for the NTCRA included the clearance of 100 percent of all geophysical anomalies in areas most likely to contain MEC sectors, those that are considered most likely to contain additional MEC, and a minimum of 20 percent of anomalies in areas less likely to contain MEC sectors, those where the likelihood of additional MEC is low, to a depth of 4 feet bgs. The MEC HA found a hazard level of 4 for the SSA based on the selected remedy, a low potential for an explosive hazard.

In more general terms, a total of two single, discrete radiological items (deck markers) have been found amongst the more than 5,000 munitions items recovered from the former disposal area near the base of Dike 14. Radiological screening was performed, and no additional items were found buried with the more than 17,000 geophysical anomalies cleared from the former debris disposal areas identified at the SSA during the NTCRA (2012 to 2013). Based on these findings, the potential risk for encountering additional radiological items at the SSA is considered low.

FEASIBILITY STUDY

The Navy evaluated remedial alternatives for the SSA Uplands because of the uncertainty related to the possible presence of residual MEC in the subsurface. The following RAO was established for the SSA Uplands:

• Minimize the potential for exposure to MEC in soil at SSA Uplands for human and ecological receptors.

SUMMARY OF REMEDIAL ALTERNATIVES

There is uncertainty about the presence of buried residual MEC at the SSA Uplands, which could render the area

TABLE 2. SUMMARY OF R	ISK RESULTS				
		HHRA Re	sults		
Receptor	Cancer Risk	Hazard Index	Risk Drivers	Unacceptable Risk from Potential Chemical Drivers	Potential Risk from MEC
Hypothetical Future Commercial/ Industrial Worker	8.3×10 ⁻⁷	0.08	None		
Future Recreational User (Adult)	3.5×10⁻⁵	0.05	BaP(eq) in Surface Soil*	No – Maximum estimated cancer risk for all future receptors evaluated (3.4×10^5) is within risk management range $(10^4$ to $10^6)$.	
Future Recreational User (Child)	1.8×10 ⁻⁶	0.48	BaP(eq) in Surface Soil*		Yes ^b
Hypothetical Future Construction Worker	4.6×10 ⁻⁷	11.2ª	Manganese		
Hypothetical Future Adult/ Lifetime Resident	2.4×10⁻⁵	0.16	BaP(eq) in Surface Soil*		
Hypothetical Future Child Resident	2.2 ×10 ⁻⁶	1.6	BaP(eq) in Surface Soil*		
	No unacceptable risk	from potential cher	nical risk drivers to		h h
SLERA Results	ecological receptors (plants, invertebrates, birds, and		Potential Risk from MEC – Yes ^o		
		maninaisj		1	

Notes:

The HHRA conducted for the RI reported risk values for the entire SSA using combined data for soils (including soil and hydric soil samples in SSA Shoreline and additional COCs only relevant for SSA Shoreline). This data likely provides a conservative estimate of risk at the SSA Uplands.

* Surface Soil (0 to 2 feet bgs)

a "Manganese is the primary non-cancer hazard driver for the Construction Worker exposure scenario. However, the noncancer hazard assessment for the Construction Worker is likely overestimated. Manganese concentrations are similar to ambient concentrations. If the noncancer chronic toxicity values are modified to account for the Construction Worker's subchronic exposure, the manganese HI [Hazard Index] drops to approximately 2 from 11 for Construction Worker, but remains above the threshold of 1. The Construction Worker exposure parameters were not modified.

b FS evaluates land use controls for potential residual MEC not identified during removal actions or geophysical surveys per USEPA Guidance for MEC Assessment Methodology.

RI - remedial investigation

UF - uncertainty factor

SSA - South Shore Area at the former MINS

SLERA - screening-level ecological risk assessment

USEPA - United States Environmental Protection Agency

BaP(eq) – benzo(a)pyrene potency equivalency factor

CalEPA – California Environmental Protection Agency

FS – Feasibility Study

HHRA – human health risk assessment

MEC - munitions and explosives of concern

RfC – reference concentration

Page 7

inappropriate for some future uses. During the feasibility study, the Navy considered remedial alternatives that may have applicability to address the potential MEC in soil at the SSA Uplands. The response technologies were intended to present options for decision makers to consider in the remedy selection process. The purpose of the screening is to assess alternatives early in the feasibility process and only retain those that are effective, implementable at reasonable cost, and consistent with the current and planned future use of the site. Alternative 3 Surface and Subsurface Clearance (Removal of MEC Source), using two different technologies for detection and removal of all potential MEC (Alternatives 3a and 3b) were eliminated for any further detailed analysis as these alternatives were not expected to be technically feasible due to potential MEC presence at the SSA Uplands beyond the depth of detection, were not cost effective (high administrative/logistical and removal costs due to large area of the site and mechanical digging, surface and subsurface removal including vegetation, as necessary, removal of MEC, and demolition and disposal operations cost) and were eliminated as alternatives. The remaining two alternatives were evaluated to achieve the RAO:

- Alternative 1 -- No Action; and
- Alternative 2 -- Land Use Controls.

Table 3 describes remedial alternatives evaluated in the FS and presents the Navy's estimated costs to implement each alternative. The Navy has identified Alternative 2, shown in the blue shaded row, as the preferred remedial alternative.

EVALUATION OF REMEDIAL ALTERNATIVES

The Navy evaluated each alternative against the first seven of the nine NCP cleanup action evaluation criteria shown in Figure 4. Both alternatives were rated based on the capability of each alternative to meet the NCP criteria. A rating of low indicates that the alternative is unlikely to



Figure 4. NCP Cleanup Action Evaluation Criteria

TABLE 3. SUMMARY	OF REMEDIAL ALTERNATIVES	
Remedial Alternative	Components of Remedial Alternatives	Cost
Alternative 1: No Action	The No Action alternative is required by CERCLA to be evaluated for comparison purposes. Under this alternative, no action would be undertaken at the SSA Uplands.	\$0
Alternative 2: Land Use Controls	Alternative 2 includes ECs in the form of signs to alert future users to the potential pres- ence of buried MEC and to alert users of necessary precautions and notifications if a sus- pected munitions item is encountered. Signs will also notify authorized site users of a pro- hibition on unauthorized digging or soil disturbance. In addition, ICs will be implemented to prohibit sensitive uses such as residential, hospital, school, or daycare use, and restrict land disturbing activity without approval from the Navy and the regulatory agencies. Fenc- ing is not considered part of the remedy for SSA Uplands. Alternative 2 also includes a MEC educational awareness program. The land use control ECs and ICs will be inspected and maintained as long as the potential for MEC remains at the SSA Uplands. To address potential site and selected remedial alternative vulnerabilities and identify adaptation measures that may maximize climate resilience, sea level rise projections and impacts will be considered and incorporated into the Navy's Land Use Control Remedial Design (LUC RD) document prior to remedy implementation or property transfer.	\$700,459
Notes: Preferred alte CERCLA – Comprehensiv EC – engineering control IC – institutional control MEC – munitions and exp SSA – South Shore Area	ernative indicated in table by blue shading. ve Environmental Response, Compensation, and Liability Act losives of concern at the former Mare Island Naval Shipyard	
	Page 8	

or will not meet the criteria, while a rating of high indicates that the alternative will likely meet the criteria. The results of the evaluation are summarized in Table 4. The last two NCP criteria, state acceptance and community acceptance, will be addressed through public comment and regulatory agency review of this PP/Draft RAP and are not evaluated here.

SUMMARY AND RATIONALE OF THE PREFERRED ALTERNATIVE

The preferred remedy for the SSA Uplands is Alternative 2: Land Use Controls. This alternative is preferred for the reasons summarized below:

- Overall protection to human health and the environment is provided by constructing signs, restricting land use and future activities, and informing site users on how to avoid the potential for contact with possible residual MEC;
- Federal and state applicable or relevant and appropriate requirements (ARARs) are met; and
- Redevelopment of the site is allowed in a manner consistent with the City of Vallejo's 2013 amended Mare Island Specific Plan.

A final decision will not be made until all community and agency comments are considered as submitted during the public comment period. Community acceptance will be evaluated after the public comment period for this PP/ Draft RAP. The Navy will document and address comments in a Responsiveness Summary presented in the ROD/Final RAP.

STATE OF CALIFORNIA LAWS

California Health and Safety Code

Pursuant to California Health and Safety Code (HSC) Division 45, Part 2, Chapter 5, Article 12, Section (§) 79215 for remedial action plans prepared for DTSC-listed sites, DTSC is to prepare a preliminary nonbinding allocation of responsibility among all identifiable potentially responsible parties. This PP serves as a Draft RAP to fulfill the public notice and comment requirements of the California HSC, and the CERCLA ROD for the SSA Uplands will serve as the Final RAP.

California Environmental Quality Act

DTSC has determined that the remedial action proposed for the SSA Uplands (land use controls) does not meet the definition of a project under the **California Environmental Quality Act (CEQA)** and therefore is not subject to the requirements of CEQA. If the remedy changes, the remedy may be re-evaluated to determine if it meets the definition of a project that requires further review by DTSC pursuant to CEQA requirements.

Nonbinding Allocation of Responsibility

California HSC § 79215 requires DTSC to prepare a nonbinding allocation of responsibility among all identifiable potentially responsible parties. Based on the available information regarding the former MINS, DTSC has determined that the Navy is the only identifiable responsible party.

TABLE 4. RANKING SSA UPLANDS REMEDIAL ALTERNATIVES FOR NCP CRITERIA

NCP Criteria	Alternative 1 – No Action	Alternative 2 – Land Use Controls
Overall Protection of Human Health and the Environment ^a	No	Yes
Compliance with ARARs ^a	NA ^b	Yes
Long-Term Effectiveness and Permanence	Low	High
Reduction of Toxicity, Mobility, or Volume Through Treatment	Low	Low
Short-Term Effectiveness	High	High
Implementability	High	High
Cost	NA	Moderate
Overall Ranking	2	1

Notes:

b

Overall protection of human health and the environment and compliance with ARARs are threshold criteria that an alternative must meet to be selected as the remedy for a site. Both criteria are rated "yes" or "no" on its ability to meet the threshold criteria. Not Applicable. ARARs do not apply to the No Action alternative.

ARARs – applicable or relevant and appropriate requirements

NA – not applicable

COMMUNITY PARTICIPATION

Next Steps

Public comments on this PP/Draft RAP received during the period from August 1, 2024, through August 30, 2024, will be considered by the Navy, in consultation with the regulatory agencies, prior to selecting a final remedy for the SSA Uplands. Responses to comments will be addressed in a responsiveness summary presented in the ROD/Final RAP. The selected remedy for the SSA Uplands will be formally documented in the ROD/Final RAP. Additional information on opportunities to comment on this PP/Draft RAP can be found on page 11.

A public notice will be published in the local papers announcing when the SSA Uplands ROD/Final RAP is available to the public in the information repositories listed below.

The PP/Draft RAP may also be viewed online at the following Navy website: https://www.bracpmo.navy.mil/BRAC-Bases/California/Former-Mare-Island-Naval-Shipyard/

Restoration Advisory Board

The Navy provides information on the SSA Uplands to the public through public meetings, the **administrative record (AR)** file for the site, the local library, and notices published in the local newspapers. Restoration Advisory Board (RAB) meetings are generally held every three months on the fourth Thursday of the month and are open to the public. Please visit the following Navy website for more RAB information and current RAB meeting dates and times:

https://www.bracpmo.navy.mil/BRAC-Bases/California/Former-Mare-Island-Naval-Shipyard/Meeting-Material/

INFORMATION RESPOSITORIES

John F. Kennedy Library	Official Administrative Record
505 Santa Clara Street Vallejo, California 94590 (866) 572-7587	Naval Facilities Engineering Command Southwest Naval Base San Diego 2965 Mole Road, Building 3519, San Diego, CA 92136 Ms. Diane Silva, Administrative Records Coordinator (619) 556-1280 Diane.Silva@navy.mil
Monday—Thursday: 9 a.m.– 8 p.m. Friday, Saturday: 9 a.m 5 p.m. Sunday 12 p.m. to 5 p.m.	The Navy AR file review hours are Monday through Friday, 8:00 am to 5:00 pm.
The John F. Kennedy Library provides public access to technical reports and other information that support this PP/Draft RAP.	The Navy AR file is a collection of reports and historical documents used to select remedial alternatives. AR documents are also available on line: <u>https://www.bracpmo.navy.mil/BRAC-Bases/California/Former-Mare</u> <u>-Island-Naval-Shipyard/Documents/</u>

OTHER SITE DOCUMENTS

The Navy is issuing this PP/Draft RAP as part of its public participation responsibilities under CERCLA § 117(a) and § 300.430(f)(2) and (3) of the NCP to ensure that the public has the opportunity to comment. This PP/Draft RAP summarizes information detailed in previous documents, contained in the AR file for the SSA Uplands, including the RI report and FS report. The Navy encourages the public to review these documents to gain an understanding of the environmental investigations, removal actions, and risk assessments that have been conducted. Documents generated for the SSA Uplands that are listed on page 4 are available for public review at the information repositories listed above.

Some documents may also be available online at the Navy website,

https://www.bracpmo.navy.mil/BRAC-Bases/California/Former-Mare-Island-Naval-Shipyard/Documents/

and at the DTSC website: http://www.envirostor.dtsc.ca.gov/public.

MULTI-AGENCY ENVIRONMENTAL TEAM CONCURS WITH THE PROPOSED SSA UPLANDS REMEDY

The Base Realignment and Closure (BRAC) Cleanup Team (BCT), composed of representatives from the Navy, DTSC, and the Regional Water Board, was established with the primary goals of protecting human health and the environment, expediting the environmental cleanup, and coordinating the environmental investigations and cleanup at the former MINS.

The BCT obtains a consensus on issues regarding the installation's environmental activities and makes a concerted effort to integrate current and potential future uses into the cleanup decisions. The BCT has been involved in the review of all major documents and activities associated with the SSA Uplands. This review included the recent RI report and FS Report for the SSA Uplands, which included risk assessments, an evaluation of the effectiveness of the remedial alternatives for the SSA Uplands, and documentation that these alternatives meet the NCP evaluation criteria.

Based on reviews and discussions of key documents and activities, the BCT recommends Alternative 2: Land Use Controls.

HOW DO YOU PROVIDE INPUT TO THE NAVY?

There are two ways to provide comments during the public comment period from August 1 through August 30, 2024:

- 1. Offer oral comments during the public meeting.
- 2. Provide written comments by mail, or email to the Navy using the contact information below no later than August 30, 2024. A mail-in comment form is provided on page 15

Public Meeting August 15, 2024 — 7:00 PM

Instructions for attending are on page 14

- Attend in person at Mare Island Conference Center, 375 G Street, Vallejo, California. OR
- Attend by computer or mobile app at: <u>https://tinyurl.com/MINS-SSAUplands</u> OR
- Attend by telephone at: Call Toll-Free: 1 (833) 240-9982 and enter Conference Number: 853 053 52#

Navy and DTSC representatives will provide information on the environmental investigations, completed removal actions, and remedial alternatives for the SSA Uplands. You will have an opportunity to formally comment on the remedial alternatives summarized in this PP/Draft RAP during that meeting.

Additionally, written comments can be sent to:

BRAC Program Management Office West Attn: Mr. Scott Anderson, BRAC Environmental Coordinator 33000 Nixie Way, Building 50, Suite 207, San Diego, California 92147 Phone (619) 524-5808 | scott.d.anderson11.civ@us.navy.mil

PROJECT REPRESENTATIVES

For further information on the environmental program at former Mare Island Naval Shipyard or the PP/Draft RAP, please contact one of the following representatives:

Mr. Scott Anderson

BRAC Environmental Coordinator BRAC PMO West 33000 Nixie Way, Building 50, Suite 207, San Diego, California 92147 Phone (619) 524-5808 scott.d.anderson11.civ@us.navy.mil Mr. Franklin Mark, Project Manager Department of Toxic Substances Control Site Mitigation and Restoration Program 8800 Cal Center Drive Sacramento, CA 95826 Phone (916) 255-3584 Fax (510) 540-3738 franklin.mark@dtsc.ca.gov **Ms. Asha Setty** Public Participation Specialist Department of Toxic Substances Control 700 Heinz Avenue, Suite 200 Berkeley, California 94710 Phone (510) 540-3910 Fax (510) 540-3819 asha.setty@dtsc.ca.gov

GLOSSARY OF TECHNICAL TERMS

Administrative record (AR) is a collection of reports and historical documents used in the selection of a cleanup approach or environmental management activities.

Applicable or relevant and appropriate requirements (ARARs) are the federal and state environmental laws and regulations that must be followed for the selected remedial alternative. These requirements may vary among sites and alternatives.

Below ground surface (bgs) is the collection depth of a sample or depth of an excavation or other feature.

California Environmental Quality Act (CEQA) requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of proposed projects, and to reduce those environmental impacts to the extent feasible.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, is a federal law that regulates environmental investigation and cleanup of sites identified as potentially posing a risk to human health and/or the environment.

Digital Geophysical Mapping (DGM) is a method of detecting certain physical properties below the ground surface. The data produced provides the location of subsurface anomalies.

Discarded Military Munitions (DMM) includes military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include military munitions that have been properly disposed of consistent with applicable environmental laws and regulations.

Engineering controls (ECs) are engineered (constructed) mechanisms to limit human exposure to contamination. These mechanisms may include fences and signs.

Engineering Evaluation/Cost Analysis/Interim Removal Action Plan (EECA/IRAP) is a study to identify the objectives of a removal action and to analyze the cost effectiveness and implement ability of the various alternatives that may be used to satisfy these objectives. **Feasibility Study (FS)** is an evaluation of different actions to prevent exposure by humans or ecological receptors to contamination at a site.

Hazard Index (HI) is a calculated value used to represent potential noncancer health effects. An HI value of 1 or less is considered protective of human health.

Human health risk assessment (HHRA) is an evaluation of the likelihood that humans exposed to contaminants at a site would suffer harm.

Institutional controls (ICs) are non-engineering mechanisms established to limit human exposure to contamination. These mechanisms may include deed restrictions, covenants, easements, laws, and regulations.

Land use controls include ECs and ICs and help to minimize the potential for exposure to contamination and are typically designed to limit land or resource use by modifying or guiding human behavior at a site.

Material Documented as Safe (MDAS) is MPPEH that has been assessed and documented as not presenting an explosive hazard and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH.

Material Potentially Presenting an Explosive Hazard (MPPEH) is material that, prior to determination of its explosive safety status, potentially contains explosives or munitions or potentially contains a high enough concentration of explosives that the material presents an explosive hazard.

Munitions and explosives of concern (MEC) includes: (1) unexploded ordnance; or (2) DMM.

MEC Hazard Analysis (HA) is a method for establishing the probability for injury from an encounter with MEC and is intended to support site management decisions specifically related to explosive hazards used to assign a hazard level score on the potential for an explosive hazard at the site ranging from 1 to 4. A hazard level score of 1 is the highest potential for an explosive hazard at a site and a hazard level score of 4 is the lowest potential for an explosive hazard at a site.

GLOSSARY OF TECHNICAL TERMS CONTINUED

National Oil and Hazardous Substances Pollution Contingency Plan (NCP) are the federal regulations that guide investigation and cleanup of CERCLA sites.

Non-time critical removal action (NTCRA) is an interim removal action that may occur when cleanup does not need to begin within 6 months after the lead agency determines that a removal action is necessary.

Polycyclic aromatic hydrocarbons (PAH) is a group of more than 100 different chemicals made up of one or more fused carbon rings present in coal and petroleum products and are formed when organic substances are burned.

Proposed Plan (PP)/Draft remedial action plan (**RAP**) is a document that reviews remedial alternatives presented in the FS, summarizes the recommended remedial action, explains the reasons for recommending the action and solicits comments from the community. A Draft RAP is the California HSC equivalent of the Navy's PP.

Receptors are humans, animals, or plants that may be exposed to contaminants related to a given site.

Record of Decision (ROD)/Final Remedial Action Plan (RAP) is a decision document that identifies the selected remedy to be implemented at a specific site. The ROD/ Final RAP is based on information and technical analysis generated during the RI and FS and consideration of public comments received throughout the process and in response to the PP/ Draft RAP. A Final RAP is the California HSC equivalent of the Navy's ROD.

Remedial Action (RA) is a general term used to describe the implementation of the selected remedy.

Remedial action objective (RAO) is the goal to be achieved by the RA for the protection of human health and the environment.

Remedial Design (RD) is the phase in Superfund site cleanup where the technical specifications for cleanup remedies and technologies are designed.

Remedial investigation (RI) is an in-depth study to gather data needed to determine the nature and extent of the contamination at a site and to evaluate risks to human health and the environment posed by the contamination.

Removal action is an action taken to clean up or prevent exposure to contamination before final cleanup decisions for the site have been made.

Small Arms Ammunition (SAA) refers to the complete round/cartridge or its components, including bullets or projectiles (less than 20 mm or .60 inch in diameter), cartridge cases, primers/ caps and propellants that are used in small arms.

Screening Level Ecological Risk Assessment (ERA) is a simplified risk assessment that can be conducted with limited data to evaluate the likelihood that ecological receptors (plants and animals) exposed to contaminants at a site may suffer harm.

Total Dissolved Solids (TDS) is the total concentration of dissolved substances in water. TDS is made up of inorganic salts, as well as a small amount of organic matter. Common inorganic salts that can be found in water include calcium, magnesium, potassium and sodium, which are all cations, and carbonates, nitrates, bicarbonates, chlorides and sulfates, which are all anions. Cations are positively charged ions and anions are negatively charged ions.

U.S. Environmental Protection Agency (USEPA) is the federal agency that is charged with protecting human health and the environment.

Unexploded Ordnance (UXO) Military munitions that (a) have been primed, fuzed, armed, or otherwise prepared for action; (b) have been fired, dropped, launched, projected or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and (c) remain unexploded either by malfunction, design, or any other cause. (U.S.C. 2710 (e) (9)). The term UXO as used in the Proposed Plan is an identifier applied to the name of an area requiring environmental cleanup for munitions. In the case of the SSA Uplands (UXO 7), it is important to note, UXO has not been found at the site.

FORMER MARE ISLAND NAVAL SHIPYARD South Shore Area Uplands PUBLIC MEETING

August 15, 2024 7:00pm

The public comment period for the PP/Draft RAP for the SSA Uplands is from August 1 through August 30, 2024. You may provide your comments verbally at the public meeting where a court reporter will record your comments. Alternatively, you may provide written comments in the space provided below or on your own stationery. **All written comments must be postmarked no later than August 30, 2024.** After completing your comments and your contact information, please mail this form to the address provided on the reverse side. Comments are also being accepted by e-mail; please e-mail messages to Mr. Scott Anderson at scott.d.anderson11.civ@us.navy.mil.

A public meeting to present the PP/Draft RAP will be held **August 15, 2024 at 7:00 PM**.

You may participate in person: Mare Island Conference Center, 375 G Street, Vallejo, California

OR

There are two ways to attend this meeting virtually:

 by computer - download the Microsoft Teams App to your desktop, phone, or tablet

OR

(2) by phone - use the call-in phone number and

meeting ID below

- Download the app and sign into Teams to join as an authenticated user.
- If you're not signed into Teams, you will not be able to participate in the meeting.
- Mobile phones and tablets are not supported for <u>web browser</u> login so you must use the app.

If you're attending the meeting on your computer via the web, use one of the supported browsers: Chrome, Firefox, or Edge.

Join Using your computer, click the meeting link: Join the meeting now

Meeting ID: 280 921 569 780

Passcode: eJ5iQ3

Or Click or Type in: <u>https://tinyurl.com/MINS-SSAUplands</u>

To join using your phone, call in:

Toll Free: 1-(833) 240-9982 Phone conference ID: 853 053 52#



Watch the live event in Microsoft Teams

Watch on the web instead

Download the Windows app

	Final Proposed Plan/Draft Romodial Action Plan Comment F
	Final Proposed Plan/Draft Remedial Action Plan – Comment Fo
	Name:
	Representing (optional):
	Phone Number (optional):
	Address (optional):
	Please check the appropriate box if you would like to be added to or removed from the Navy's environmental mailing list for Mare Island: Add Me Remove Me
Com	ments:
	Return to: BRAC Program Management Office West
	Attn: Mr. Soott Anderson, BDAC Environmental Coordinator

V:00 PM Vngust 15, 2024 PUBLIC MEETING

FINAL PROPOSED PLAN/DRAFT REMEDIAL ACTION PLAN South Shore Area Uplands Portion of Unexploded Ordnance Site 7, Former Mare Island Naval Shipyard

Navy BRAC PMO Office West Attn: Mr. Scott Anderson BRAC Environmental Coordinator 33000 Nixie Way, Bldg 50, Ste 207 San Diego, CA 92147

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