

Final

Action Memorandum for Time-Critical Removal Action at Guam Way Area of Potential Interest

Former Naval Weapons Station Seal Beach Detachment Concord Concord, California

November 30, 2012

Prepared for:

**Department of the Navy
Base Realignment and Closure
Program Management Office West
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TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS	iv
I. PURPOSE.....	1
II. SITE CONDITIONS AND BACKGROUND	4
A. SITE DESCRIPTION.....	4
1. Removal Site Evaluation.....	4
2. Physical Location	5
3. Site Characteristics.....	5
4. Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant	7
5. National Priorities List Status	8
6. Maps, Pictures, and Other Graphic Representations.....	9
B. OTHER ACTIONS TO DATE.....	9
1. Previous Actions	9
2. Current Actions	9
C. STATE AND LOCAL AUTHORITIES' ROLES	9
1. State and Local Actions to Date.....	9
2. Potential for Continued State and Local Response.....	10
III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES	10
A. INTRODUCTION.....	10
B. THREATS TO PUBLIC HEALTH OR WELFARE.....	11
C. THREATS TO THE ENVIRONMENT.....	12
IV. ENDANGERMENT DETERMINATION	12
V. PROPOSED ACTIONS AND ESTIMATED COSTS	12
A. PROPOSED ACTION.....	13
1. Proposed Action Description	13
2. Contribution to Remedial Performance	14
3. Description of Alternative Technologies	14
4. Engineering Evaluation and Cost Analysis.....	16
5. Applicable or Relevant and Appropriate Requirements	16
6. Project Schedule.....	18
B. ESTIMATED COSTS	19

TABLE OF CONTENTS (CONTINUED)

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE
DELAYED OR NOT TAKEN19

VII. PUBLIC INVOLVEMENT.....19

VIII. OUTSTANDING POLICY ISSUES20

IX. RECOMMENDATION20

REFERENCES23

Appendix

A Historical Aerial Photographs

B Applicable or Relevant and Appropriate Requirements

C Index of Administrative Record for Guam Way, Former Naval Weapons Station Seal
Beach Detachment Concord

D Responses to Regulatory Agency Comments on the Draft Action Memorandum

FIGURES

- 1 Guam Way Site
- 2 Guam Way Excavation Areas
- 3 Guam Way Trench Logs
- 4 Lead in Soil, Guam Way Site

TABLES

- 1 Chemicals in Soil at Guam Way
- 2 Chemicals in Soil Gas at Guam Way
- 3 Chemicals in Groundwater at Guam Way
- 4 Health-Based Removal Action Goals
- 5 Capital Costs of Proposed Removal Action

ACRONYMS AND ABBREVIATIONS

§	Section
§§	Sections
ARAR	Applicable or relevant and appropriate requirement
bgs	Below ground surface
BRAC	Base Realignment and Closure
Ca-HSC	California Health and Safety Code
Cal. Code Regs.	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHHSL	California human health screening level
DoD	Department of Defense
DTSC	Department of Toxic Substances Control
EOD	Explosive Ordnance Disposal
EPA	U.S. Environmental Protection Agency
ESS	Explosive Safety Submission
MC	Munitions constituents
MDAS	Material documented as safe
MDEH	Material Documented as an Explosive Hazard
MEC	Munitions and explosives of concern
mg/kg	Milligram per kilogram
MMRP	Military Munitions Response Program
MOTCO	Military Ocean Terminal Concord
MPPEH	Materials potentially presenting an explosive hazard
NAVWPNSTA	Naval Weapons Station
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPDES	National Pollutant Discharge Elimination System
PA	Preliminary Assessment
PAH	Polynuclear aromatic hydrocarbons
PCE	Tetrachloroethene
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RSL	Regional screening level

ACRONYMS AND ABBREVIATIONS (Continued)

SI	Site Inspection
SLHHRA	Screening-level human health risk assessment
SVOC	Semivolatile organic compound
TCE	Trichloroethene
TCRA	Time-critical Removal Action
Tetra Tech	Tetra Tech EM Inc.
tit.	Title
TPH	Total petroleum hydrocarbon
U.S.C.	United States Code
UCL95	95 percent upper confidence limit of the mean
UXO	Unexploded ordnance
VOC	Volatile organic compound
Water Board	San Francisco Bay Regional Water Quality Control Board

**ACTION MEMORANDUM
FORMER NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD
CONCORD, CALIFORNIA**

Department of the Navy
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108

November 30, 2012

SUBJECT: Action Memorandum for Time-Critical Removal Action at Guam Way Area of Potential Interest, Former Naval Weapons Station Seal Beach Detachment Concord, Concord, California

Site Status:	National Priorities List
Category of Removal:	Time-Critical Removal Action
CERCLIS EPA ID:	CA7170024528
Site ID:	Guam Way Area of Potential Interest

I. PURPOSE

The purpose of this Action Memorandum is to document, for the administrative record, the Department of the Navy's decision to undertake a time-critical removal action (TCRA) at Guam Way Area of Potential Interest (Guam Way) at former Naval Weapons Station Seal Beach Detachment Concord (NAVWPNSTA Concord) in Concord, California (Figure 1). The TCRA will remove material potentially presenting an explosive hazard (MPPEH) and cultural (non munitions) debris. The MPPEH will be investigated and classified as either material documented as an explosive hazard (MDEH) or material documented as safe (MDAS) and removed from the site for treatment or disposal. The Department of Defense (DoD) has the authority to undertake Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions, including removal actions, under Title 42 of the United States Code (U.S.C.) Section (§) 9604, 10 U.S.C. § 2705, and federal Executive Orders 12580 and 13016. Furthermore, this TCRA is consistent, to the extent practicable, with Chapter 6.8 of the California Health and Safety Code (Ca-HSC).

Previous investigations at Guam Way identified the presence of buried debris intermingled with MPPEH. The debris appeared to be primarily trash and construction debris or debris associated with typical base operations, such as metal bins, chains, and glass. Based on the potentially significant risk to human health from lead in soil and MPPEH, the Navy intends to remove all debris, comingled MPPEH, and contaminated soil as part of this TCRA. Figures 2 and 3 show excavation limits and cross sections developed during investigative trenching. Excavation of the third trench in 2010 (trench GMT1) was stopped abruptly when MPPEH was found in the excavated material. The MPPEH was identified as intact World War II era bomb fuzes.

Samples from the bottom of the trenches excavated during the SI also indicated elevated concentrations of lead and motor oil in soil. The screening level human health risk assessment SLHHRA conducted during the SI indicated that lead in soil within the 0 to 10 foot below ground surface (bgs) depth horizon may pose unacceptable risks to future residents (Figure 4). Soils containing elevated concentrations of lead and motor oil are collocated with debris and will be removed in this action. Groundwater contamination was also discovered at Guam Way during the SI. Solvents were reported in samples collected near Guam Way Road. The contamination may have originated from material buried at Guam Way. This contamination will be further investigated during the Remedial Investigation.

Removal action excavation areas were developed based on the presence of MPPEH and waste debris in soil. The TCRA will consist of excavating soils and debris from areas shown in Figure 2 and removing all discovered munitions-related items before debris and contaminated soil are disposed of off site. Any MPPEH will be investigated by qualified unexploded ordnance (UXO) technicians and classified as either MDEH or MDAS. If the explosive hazard of an item cannot be determined, the item will remain classified as MPPEH, but will be treated as MDEH. MPPEH and MDEH will be treated on site to eliminate the explosive hazard, and MDAS will be demilitarized off site for recycling or disposal. Cultural (non-munitions) debris will be disposed of or recycled off site.

After all MPPEH has been removed, the remaining excavated soil and debris will be characterized and disposed of at an appropriate off-site facility. Soils that do not contain unacceptable levels of contaminants may be reused as backfill at the site. Confirmation samples from the bottom and sidewalls of the excavation will be analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), total petroleum hydrocarbons (TPH), polynuclear aromatic hydrocarbons (PAH), explosives, and metals to confirm excavation is complete. If high levels of any chemical constituents remain above the residential regional screening levels (RSL) or background concentrations for metals (whichever is greater), or health-based removal action goal for lead, the Navy will consult with the agencies before backfilling the excavation with clean fill to existing grade. A geophysical survey or hand held detector aided survey will be performed in the area inside of the ecological trapping fence (Figure 2), but outside of the excavated area to ensure that no MPPEH remains (within the trapping fence) in areas that were not excavated as part of the TCRA. Any “targets” (geophysical anomalies) will be investigated to confirm that no further MPPEH remains in subsurface soils.

The proposed TCRA will substantially reduce the potential for humans and wildlife to be exposed to MPPEH debris, and lead in soil at Guam Way and will remove a potential source of contamination to groundwater and soil gas. This TCRA is anticipated to be the final response action for soil at Guam Way.

The proposed removal action for this site is deemed consistent with the factors set forth within the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Title 40 of the Code of Federal Regulations (CFR) Part 300 based on the findings of:

- Actual or potential exposure to humans from hazardous substances or pollutants or contaminants (§ 300.415(b)(2)(i) of the NCP, § 25356.1 et seq.)

These findings are discussed in more detail in [Section III](#). The proposed removal action for this site is also deemed consistent with Chapter 6.8 of the Ca-HSC.

In addition, the following nine criteria required by 40 CFR § 300.430 (f)(1) of the NCP for remedial action selection were considered for the proposed TCRA at Guam Way:

- **Overall protection of human health and the environment.** [Section III](#) discusses how the TCRA provides adequate protection of human health and the environment. The protectiveness evaluation focuses on how site risks are reduced or eliminated by the proposed action.
- **Compliance with applicable or relevant and appropriate requirements (ARAR).** [Section V.A.5](#) provides a detailed analysis of how the proposed action meets all identified federal and state ARARs or whether justification exists for waiving one or more ARARs.
- **Long-term effectiveness and permanence.** [Section V.A.2](#) discusses how the proposed action will result in acceptable residual risk from MEC, MPPEH, and lead at the site and that no remedial controls are necessary to manage any residual risk.
- **Reduction of toxicity, mobility, or volume through treatment.** [Section V.A.3](#) discusses the evaluation of alternative technologies, including on-site treatment.
- **Short-term effectiveness.** [Section V.A.3](#) presents how human health (such as workers during fieldwork and the nearby community) and the environment are protected during the construction and implementation phase until the removal action objectives are met.
- **Implementability.** [Section V.A.3](#) addresses the technical and administrative feasibility of implementing the proposed action and the availability of various services and materials during its implementation.
- **Cost.** [Section V.A.3](#) provides the costs associated with the proposed action, including direct and indirect capital costs. Annual operation and maintenance costs are not applicable to this TCRA. In accordance with CERCLA guidance (U.S. Environmental Protection Agency [EPA] 1988), the accuracy of the cost estimate for the proposed action is within the range of 50 percent above to 30 percent below the estimate.
- **State acceptance.** [Section II.C.1](#) discusses the involvement of the state's representative agencies at Guam Way and acceptance of the proposed TCRA.
- **Community acceptance.** [Section VII](#) describes the steps taken by the Navy to meet the community involvement requirement for the TCRA at Guam Way.

There are no nationally significant or precedent-setting issues for this site.

II. SITE CONDITIONS AND BACKGROUND

This section presents the description, location, and background for Guam Way and the physical characteristics and past releases from the site, as well as the site regulatory status and current and previous actions.

A. SITE DESCRIPTION

Guam Way is a 1.6-acre undeveloped disposal area in the central portion of former NAVWPNSTA Concord, approximately 600 feet southeast of the intersection of Tarawa Way and Guam Way Road ([Figure 1](#)). The site is covered by grass and includes two man-made earthen berms on the side of a hill that slopes gently to the northeast toward an unpaved portion of Guam Way Road. The site is currently bounded by both a biological and electric fence for biological trapping performed at the site in 2011 and 2012.

Guam Way was identified through a review of historical aerial photographs as a disposal pit that may have been used for burning debris and trash. An area of disturbed soil is evident in a 1946 photograph, with an apparent graded access drive in the center of the area surrounded by two 230-foot-long earthen soil berms approximately 150 feet apart ([Appendix A](#)). Evidence of mowed vegetation indicates that a fire break surrounded the site. (Maintenance of fire breaks around burn pits was a common practice to prevent grass fires.) The 1946 aerial photograph ([Appendix A](#)) also indicates the presence of vehicles on the dirt road (Guam Way Road) adjacent to the site and on the access drive leading into the site from the dirt road. The 1948 photograph shows some activity at the site, but the 1949 aerial photograph shows the site no longer in use ([Appendix A](#)). During several site walks performed in 2010 as part of the preliminary assessment (PA)/SI work plan development and the SI, concrete and metal debris, cable, and one crushed shell casing were observed on the ground surface. PA activities included research into base records, interviews, and an aerial photograph review and found no information about the use of Guam Way. Because the existence of soil berms and a central drive as pictured in historical photographs suggested that Guam Way was potentially a site impacted by storage, disposal, or burning activities, so sampling and intrusive investigations using trenching were performed in the SI.

1. Removal Site Evaluation

A removal site evaluation was conducted for Guam Way pursuant to §300.410 of the NCP and is documented in this section of the Action Memorandum.

Previous investigations and actions at Guam Way include:

- Preliminary Assessment/Site Inspection Work Plan – 2010 ([ChaduxTt 2010](#)) (see [Section II.B.1](#))
- Site Inspection – 2010 - 2011 ([TriEco 2012](#)) (see [Section II.B.1](#))

Trenching performed as part of the SI uncovered buried debris at Guam Way that appeared to be primarily trash and construction or operating debris, such as metal bins, chains, and glass some of which had been burned. Display shells of various sizes were discovered in trench GMT2, and World War II-era bomb fuzes were found in GMT1, indicating that some MPPEH items were disposed of with other debris in this area. In addition to the explosive hazard from MPPEH, a SLHHRA performed as part of the SI indicated potential risk to human health posed by lead concentrations that exceed the residential and industrial Department of Toxic Substances Control (DTSC) California human health screening levels (CHHSL) of 80 and 320 milligrams per kilogram (mg/kg) (DTSC 2009). Consequently, the Navy determined a TCRA is warranted to remove MPPEH, debris, and elevated lead concentrations in soil at Guam Way.

Goals were developed for MPPEH, debris, and lead in soil. Removal action excavation areas were developed based on the presence of MPPEH and debris in trenches. Excavation of the debris will also result in removal of comingled soils with elevated concentrations of lead that may pose a risk to human health.

2. Physical Location

Former NAVWPNSTA Concord is a former munitions transport and shipment facility located in the north-central portion of Contra Costa County, California, about 30 miles northeast of San Francisco (Figure 1). The facility encompasses 5,038 acres and is bounded by Military Ocean Terminal Concord (MOTCO) to the north and the City of Concord to the south and west. Public access to the base is restricted and must be arranged through the Navy. The property is being prepared for transfer to civilian uses.

Guam Way is located in the central portion of former NAVWPNSTA Concord, within the Mount Diablo/Seal Creek Watershed, which drains to Suisun Bay (Figure 1). The mean annual rainfall for the area is 14 inches. As in most of northern California, about 84 percent of the rainfall occurs from November through March (Tetra Tech 2007).

The nearest communities to Guam Way are portions of the Cities of Concord (located approximately 2,000 feet south of Guam Way) and Clyde (located more than 1.5 miles northwest of Guam Way).

3. Site Characteristics

Three trenches were excavated at Guam Way in September 2010 as part of the SI to investigate the presence of debris. Trench logs are presented in Figure 3. Trenching indicated the site was used primarily as a disposal and possibly a burn pit for debris and trash, such as metal bins, chains, and glass. Several display shells were discovered in trench GMT2. The casings had been drilled, indicating display items, so these items were not considered MPPEH because they were never actively used as live munitions. However, World War II-era bomb fuzes were discovered in GMT1, indicating that MPPEH items were disposed of with other debris in this area. The fuzes were conical and approximately 3-1/2 inches long and 3 inches in diameter at the base. The fuzes were intact, but it was not clear if explosives were still present, so the fuzes were treated on site as a precaution.

The trenches provided the approximate horizontal limits and depths of subsurface debris along the northwest, southwest, and southeast side of the site. The waste appears to terminate inside of the man-made berms, suggesting that the berms were installed before waste was deposited there. The mowed fire breaks seen outside of the berms in the 1946 aerial photograph indicate the berms were likely also installed as a fire protection barrier for burning the trash in the pit ([Appendix A](#)). The aerial photographs presented in Appendix A indicate that the site did not extend northeast of the dirt access road (Guam Way Road). Based on the limited trench and photographic information, an estimated volume of 10,600 cubic yards (16,000 tons) of mixed soil and debris exists at the site.

Hydrogeologic characteristics of Guam Way were identified from installing and sampling three temporary monitoring wells at the site. Lithologies generally consisted of clays sporadically inter-bedded with silts, sands, and gravels to at least 63 feet bgs. The water-bearing units are likely the coarser-grained materials, sands and gravels, laterally discontinuous across the site and encountered only in well GMGW003 at 58 feet bgs. Less-permeable clays exist above the coarse units in this well and throughout the depth of the two remaining borings. Groundwater was encountered from 38 to 57 feet bgs. Groundwater flow direction and gradient were estimated based on the water levels measured in the temporary wells in September 2011, and is expected to flow to the northeast. Current land use is agricultural (cattle grazing). Planned reuse is residential ([City of Concord 2011](#)).

There are no surface water bodies present at Guam Way, but several are located nearby. The Contra Costa Canal is located approximately 500 feet northeast of Guam Way, and Mount Diablo Creek is located approximately 2,000 feet northeast of Guam Way.

During the SI, six soil samples were collected from trenches for analysis of lead, TPH, SVOC, and explosives. Five were collected from 5 to 6 feet bgs, and one sample was collected at 11 feet bgs. Lead was detected in all six samples with concentrations ranging from 11.3 to 1,420 mg/kg. Concentrations in two of the samples (GMT2C and GMT3A) collected from 5 to 6 feet bgs exceeded the background level of 33 mg/kg ([Tetra Tech 2007](#)) and the residential removal action goal of 113 mg/kg (Table 4) at concentrations of 442 and 1,420 mg/kg. Soil results for lead, are presented in [Figure 4](#). All soil sample results are presented in [Table 1](#). Explosives and SVOCs were not detected in soil samples collected at Guam Way.

Ten soil gas samples were collected during the SI with soil gas probes installed using direct-push technology from eight locations at Guam Way at 10 feet bgs and analyzed for VOCs. Soil gas sampling locations are shown on [Figure 4](#). In total, 24 VOCs were detected at Guam Way; the results are presented in [Table 2](#). 1,2,4-Trimethylbenzene, 1,2-dichloroethane, 1,3-butadiene, 2-hexanone, benzene, chloroform, ethylbenzene, and trichloroethene were detected in soil gas at concentrations above the screening levels. The SLHRA indicated that concentrations in soil gas would not cause a potential risk to commercial/industrial workers or an unacceptable risk to future residents.

Groundwater samples from three locations were collected at Guam Way from 2-inch temporary wells installed using a hollow-stem auger rig in September 2011. The groundwater

in each temporary well was purged before it was sampled using a bladder pump, air compressor, flow controller, and flow cell. All samples were analyzed for SVOCs, explosives, and VOCs to evaluate whether materials that may have been stored, burned, or disposed of at Guam Way have contaminated groundwater. No SVOCs or explosives were detected in the groundwater samples. The seven VOCs and four chlorinated solvents detected in groundwater at Guam Way are summarized in [Table 3](#). Groundwater sampling locations are shown on [Figure 4](#).

Flora and fauna that may occur at Guam Way include those typical of grassland habitat listed in the biological assessment conducted in 2010 to support environmental investigations of six Inland Area sites at former NAVWPNSTA Concord (Condor Country Consulting, Inc [[Condor](#)] 2010a).

The Inland Area includes habitat that may support four special status species: the golden eagle (*Aquila chrysaetos*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), California red-legged frog, and the California tiger salamander. Although the golden eagle may forage at the Guam Way, there is no suitable nesting habitat within Guam Way. Potential habitat for the Alameda whipsnake includes scrub patches dominated by California sage (*Artemisia californica*) and rock outcrops present on ridges in the portion of the Inland area on the southeast side of Bailey Road ([Condor 2010a](#)); however, Guam Way is not within either of these areas. Habitat surveys for the California red-legged frog, federally listed as threatened and listed as a California species of special concern, and the California tiger salamander, federally and California listed as threatened, were conducted at the former NAVWPNSTA Concord in 2008 and 2010. Guam Way may provide potential habitat for the California red-legged frog, but the lack of preferred structural features (downed trees, logs, and boulders) makes it unlikely that California red-legged frog would prefer Guam Way to other areas. A habitat suitability analysis survey for the California tiger salamander did not include Guam Way ([EDAW 2008](#)). Based on the distance of Guam Way from known breeding locations and the presence of a dispersal barrier between ponds and the site (Willow Pass Road), the likelihood that the California tiger salamander is present at Guam Way is low. Regardless, the site was surrounded by biological fencing and traps in January 2011. No California tiger salamander or California red-legged frog were found at Guam Way in two seasons of trapping during winter 2011 and winter 2011/2012 or during the previous trenching.

4. Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant

Buried MPPEH at Guam Way pose a threat to human health at the site. Very little subsurface investigation has been performed in the disposal area at Guam Way. In addition to the World War II-era bomb fuzes, there is the potential for unknown types of MPPEH to be present. MPPEH in the subsurface may become exposed through erosion, activity of burrowing mammals, or livestock crossing the site. If exposed, there would be an increased potential explosive hazard. Additionally, the materials buried at Guam Way have not been completely characterized. Soil gas results and groundwater results indicate that a release from the buried material has occurred and has impacted both media with chlorinated solvents and other VOCs.

Lead in soil at Guam Way may pose unacceptable risk to future residents as indicated in the SLHHRA. Lead in soil did not pose unacceptable risk to ecological receptors in the 0- to 6-foot bgs depth interval that represents the exposure pathway to ecological receptors (TriEco 2012).

This TCRA addresses MPPEH and comingled soil at Guam Way. Other media of concern, groundwater and soil gas, will be addressed in a separate RI.

Therefore, given the potential for explosive safety hazards posed by MPPEH, a response action that either eliminates or minimizes this hazard is required at Guam Way. The proposed TCRA will remove debris material containing MPPEH and soil with lead concentrations above removal goals developed to protect human health (Section III.B) and will eliminate future potential exposure to and migration of these threats. Confirmation samples will be collected and analyzed for VOCs, SVOCs, TPH, PAHs, explosives, and metals to ensure that those chemicals are not present in residual soil at concentrations that would prevent future unrestricted use. Metallic items will also be removed from the surface and subsurface of the site within the biological fencing and outside of the excavated areas. The items will be located via geophysical survey.

The Guam Way areas that contain debris and MPPEH will be identified by excavating a total of approximately 1.5 acres (Figure 2). Soils will be excavated and screened to remove all debris larger than a 20 millimeter projectile. Any item smaller than a 20 millimeter projectile is not considered an explosive hazard. Geophysical or detector-aided clearance surveys will be performed in the bottom of the excavations before they are backfilled, and all metallic items will be removed to ensure no additional munitions-related items remain. Additionally, all stained soil, areas known to contain elevated concentrations of lead and debris will be excavated, screened, separated, and disposed of off site. Estimated excavation boundaries are shown on Figure 2. Confirmation sampling will be performed before the excavations are backfilled to determine if soils exceeding the residential RSLs or background concentrations for metals (whichever is greater), or health-based removal action goal for lead, have been removed. Confirmation samples will be collected along the bottom and side walls of the excavation and analyzed for VOCs, SVOCs, PAHs, TPH, explosives, and metals.

5. National Priorities List Status

Former NAVWPNSTA Concord was added to the National Priorities List (CERCLIS EPA ID No. CA7170024528) on December 16, 1994. In 2005, the Inland Area was included on the Base Realignment and Closure (BRAC) list (Tetra Tech 2007). Former NAVWPNSTA Concord was operationally closed on September 30, 2008.

Investigations conducted at Guam Way include a PA/SI (ChaduxTt 2010; TriEco 2012). The TCRA documented in this Action Memorandum is the first CERCLA removal action at the site.

6. Maps, Pictures, and Other Graphic Representations

Figure 1 shows the location of Guam Way and former NAVWPNSTA Concord. Figure 2 presents the proposed TCRA excavation areas to remove MPPEH, debris and contaminated soil. Figure 3 shows trench logs for three trenches at Guam Way. Figure 4 presents sampling locations and results for lead in soil at Guam Way.

B. OTHER ACTIONS TO DATE

1. Previous Actions

A PA/SI work plan — including records review, interviews, aerial photograph reviews, development of site conceptual models, and site visits — was completed in 2010 (ChaduxTt 2010). The results of the PA were used to develop the investigation approach for Guam Way (ChaduxTt 2010).

An SI was conducted from 2010 to 2012 to evaluate whether there is evidence of MPPEH or a chemical release or impact in soil, soil gas, and groundwater at Guam Way (TriEco 2012). The results of trenching investigations and analytical results from soil, soil gas, and groundwater sampling for the SI are presented in Section II.A.6, Site Characteristics.

Based on potentially significant risks to human health and the environment due to explosive hazards from MPPEH, soil and debris removal was recommended to address MPPEH. Based on potentially significant risks posed to future human residents, the SI report recommended further action at Guam Way to address solvents in groundwater and soil gas, lead in soils, and MPPEH.

2. Current Actions

The Navy will solicit comments from the appropriate environmental regulatory agencies (see following section) and notify the public (see Section VII) of the TCRA at Guam Way. No other government or private entities are currently undertaking any actions to address MPPEH or chemicals at Guam Way.

C. STATE AND LOCAL AUTHORITIES' ROLES

This section discusses the roles of regulatory agencies with potential involvement in the removal action for Guam Way.

1. State and Local Actions to Date

The Navy is the lead federal agency for environmental restoration at former NAVWPNSTA Concord, including Guam Way, pursuant to the Defense Environmental Restoration Act at 10 U.S.C §§ 2701 through 2710 and CERCLA, the NCP, and the delegation of Presidential authority under federal Executive Orders 12580 and 13016. The EPA is the lead environmental regulatory agency. Pursuant to 10 U.S.C. § 2705, the Navy is required to ensure state and local

officials be given timely opportunity to review and comment on the Navy's proposed response actions. Accordingly, the California Environmental Protection Agency's DTSC and the Regional Water Quality Control Board (Water Board) provide technical advice and environmental regulatory oversight during investigations and activities at Guam Way. Both regulatory agencies support and accept the Navy's decision to execute a TCRA at Guam Way.

The Restoration Advisory Board (RAB) consists of interested community members and public interest groups and provides input and feedback on the Navy's Environmental Restoration Program. The Navy made a presentation summarizing the results of the SI at Guam Way to the RAB on April 4, 2012, and indicating that further action should be taken for soil, soil gas, and groundwater at Guam Way.

No enforcement orders or agreements have been issued that are relevant to the TCRA.

2. Potential for Continued State and Local Response

EPA, DTSC, and the Water Board have provided and are expected to continue providing technical advice, environmental regulatory oversight, and assistance throughout the Navy's Environmental Restoration Program.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. INTRODUCTION

In accordance with the NCP, the following threats must be considered in determining the appropriateness of a removal action [40 CFR § 300.415(b)(2)]:

- Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals, or food chains
- Actual or potential contamination of drinking water supplies or sensitive ecosystems
- Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or bulk storage containers that may pose a threat of release
- High concentrations of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released
- Threat of fire or explosion
- The availability of other appropriate federal or state response mechanisms to respond to the release

- Other situations or factors that may pose threats to public health or welfare or the environment

B. THREATS TO PUBLIC HEALTH OR WELFARE

The following threat to the human health, listed above in [Section III.A](#), applies to Guam Way:

- Actual or potential explosive hazard from buried MPPEH.
- Actual or potential human exposure to unacceptable concentrations of lead in subsurface soil.

Intact World War II-era bomb fuzes were found in a trench at Guam Way, indicating that some MPPEH items were disposed of with other debris in this area. The potential presence of buried MPPEH items poses a potential explosive threat to human health and is the impetus for this TCRA. Items smaller than a 20 millimeter projectile are not considered an explosive hazard; consequently, the TCRA will remove all items larger than a 20 millimeter projectile to ensure that no MPPEH remain.

Debris at Guam Way has not been fully characterized and may contain MPPEH or other chemicals of concern. The TCRA will remove all subsurface debris to eliminate the potential for contamination of surrounding soil, soil gas, or groundwater.

Lead was detected in the subsurface soil at two locations (GMT2C and GMT3A) shallower than 10 feet bgs exceeding the residential removal action goal of 113 mg/kg with concentrations of 442 and 1,420 mg/kg ([Figure 4](#)). The lead was limited to subsurface soils below 5 feet bgs. Samples were not collected in the upper 5 feet of soil, so it is not known whether these soils have been affected by site activities. [Table 4](#) shows the health-based removal action goals for the Guam Way site. The TCRA will remove concentrations of lead in soil that pose potential risk to human health and groundwater beneficial use. The total estimated excavation volume for off-site disposal is 10,600 in-place yards.

A risk-based human health removal goal for lead of 113 mg/kg in the 0 to 10 foot bgs depth interval for protection of human health was calculated for the TCRA by adding the residential DTSC CHSSL of 80 mg/kg to the site background concentration for lead in soil of 33 mg/kg. The background concentration is the 95th percentile background levels for IR Sites 13 and 22, sites with a similar alluvial depositional environment ([Tetra Tech 2007](#)); Sites 13 and 22 are located approximately 1,000 feet west and 3,000 feet southeast of Guam Way.

A removal goal of 750 mg/kg for protection of groundwater was selected for the TCRA in soils deeper than 10 foot bgs and based on the Water Board's Environmental Screening Level for deep soils where groundwater is a potential source of drinking water ([Water Board 1997](#)). Although groundwater at Guam Way is not currently used as a potential source of drinking water, the goal is protective of future potential beneficial uses.

Attainment criteria for achievement of removal action goals for Guam Way are:

- All metal items larger than a 20 millimeter projectile will be removed. (Items smaller than a 20 millimeter projectile are generally not considered to be an explosive hazard.)
- All buried debris will be removed.
- After one 12-inch lift of soil is found to be free of MPPEH, remove another 12-inch lift to confirm all MPPEH has been removed.
- The average concentration within the excavated area must be below the risk-based removal goals established for lead. The average concentration will be estimated using the one-sided 95 percent upper confidence limit of the mean (UCL95) concentration measured in the confirmation samples.
- No single confirmation sample can have a concentration that exceeds a risk-based removal goal by a factor of 3.
- No more than three confirmation samples can have concentrations that exceed an individual risk-based removal goal by a factor of 1.5.

C. THREATS TO THE ENVIRONMENT

An ecological risk assessment for Guam Way has been conducted and will be presented in the SI report ([TriEco 2012](#)). The contamination identified in soils at Guam Way is deeper than the exposure pathway for ecological receptors at the site (deeper than 6 feet bgs). Thus, no threats to the environment are currently identified at Guam Way, based on the soil samples collected during the SI. However, the SI made no attempt to characterize the chemicals potentially present in the waste material buried at Guam Way. Because this material has not been sampled, there is the potential for ecological receptors to encounter contaminants in the buried waste material.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of MPPEH and lead in soil at Guam Way, if not addressed by implementing the response action selected in this Action Memorandum, may present potential endangerment to human health.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

This section describes the TCRA to remove MPPEH, waste debris, and soil containing lead or other chemicals at concentrations that may pose potential risk to human health and to wildlife at Guam Way. This section also describes alternative technologies considered, discusses ARARs, and presents the estimated costs for the TCRA.

A. PROPOSED ACTION

This section describes the proposed action of soil excavation and off-site disposal, and the selected alternative, as well as other alternatives evaluated, but not selected. ARARs and the proposed schedule are also discussed. The discussion of the proposed removal action and the associated work plan, scheduled for completion in July 2012, will satisfy the substantive requirements for removal action work plans in Ca-HSC § 25323.1, as further discussed in [Section V.A.5.1](#).

1. Proposed Action Description

The proposed action for Guam Way to substantially reduce potential threats to human health and wildlife consists of the following tasks:

- Excavate soil and debris at the site and screen to ensure all MPPEH have been removed. Use hand-held detectors at the bottom of the excavations to ensure that all MPPEH has been removed before backfilling.
- Screen excavated soil for munitions-related items. Classify MPPEH as material documented as safe (MDAS) or material documented as an explosive hazard (MDEH), if possible. Designate as MPPEH, items that cannot be classified as either MDAS or MDEH by visual inspection, and handle and treat the items as MDEH as a safety precaution. Treat all MPPEH and MDEH, (by detonation) on site to eliminate the potential explosive hazard. Segregate MDAS from other debris and demilitarize off site for disposal or recycling. Recycle or dispose of other scrap metal and debris off site. Dispose of all soils exhibiting visible staining or evidence of any impacts off site. Analyze and use as backfill clean soil.
- After the excavation is clear of all MPPEH and anomalies based on visual inspections and digital geophysical mapping, collect confirmation samples from the sidewalls and bottom of the excavation. Analyze confirmation samples for VOCs, SVOCs (including PAHs), TPH, explosives and metals. If concentrations of contaminants in the confirmation samples do not exceed the removal action level for lead, an RSL, or background level (if higher than the RSL) then no additional excavation will be performed. If concentrations of contaminants in the confirmation samples exceed the removal action level for lead, an RSL, and/or background level (if higher than the RSL) then the Navy will evaluate if additional soil excavation is warranted.
- Once all soil above removal action goals has been removed, backfill and compact the excavation with clean fill and grade to match pre-excavation grade.
- Collect and analyze samples from the soil and debris stockpile for waste characterization analysis using EPA methods.

- Transport and dispose of the contaminated soil at an appropriate, approved disposal facility in accordance with the California Code of Regulations (Cal. Code Regs.) Title (tit.) 22 and tit. 27 requirements, and CERCLA § 121(d)(3) and 40 CFR § 300.440 identified as ARARs.
- Perform a geophysical survey in the areas inside of the fence, but outside of the excavation area, and remove all target anomalies detected during the survey to ensure no MPPEH remains outside of the excavation area.
- Document the removal action and the confirmation sampling results in the removal action completion report.

2. Contribution to Remedial Performance

All significant MPPEH, debris and soil contaminants that may pose potential risk to human health will be removed, treated on site (MPPEH and MDEH) and disposed of (contaminated soil) or recycled (large metal debris) off site as part of the TCRA. After completion of the TCRA, it is anticipated there will be no unacceptable risks to human health or the environment from soil at Guam Way. As such, the removal action is anticipated to provide long-term effectiveness and permanent protection for the environment and will be the final remedy for MPPEH and soil at the site. This TCRA does not address groundwater or soil gas, which will be investigated further.

3. Description of Alternative Technologies

The Navy considered the following alternatives for the proposed removal action at Guam Way:

- **Alternative 1, MPPEH Removal, Soil Excavation, and Off-Site Disposal:** This alternative includes identifying and removing any MPPEH in soil for off-site disposal. It also includes removal of the soil and debris and screening of this material to removal metal items larger than a 20 millimeter projectile. A detector aided survey will be performed of the bottom of the excavation and confirmation samples will be collected to verify that all MPPEH and contaminants that may pose a risk to human health are removed from Guam Way. Contaminated soil and debris will be disposed off-site. Items screened out of the soil will then be evaluated by UXO technicians and classified as scrap metal or MPPEH. MPPEH will be further classified, if possible, as MDEH or MDAS and placed in the appropriate storage areas. Items where the explosive hazard cannot be determined through visual inspection will remain designated as MPPEH, but will be handled as MDEH as a safety precaution. Scrap metal will be recycled off site. MDAS will be demilitarized and recycled or disposed of off site. MDEH and MPPEH will be detonated on site so that it is no longer an explosive hazard. This alternative is appropriate because it removes the source of contamination in a timely manner (effective), is implementable, complies with federal and state regulations, and is relatively cost effective.

- **Alternative 2, Capping:** This alternative would involve placement of a cap (either soil or other material) over the buried debris and MPPEH. This cap would require long-term monitoring to ensure its protectiveness as well as institutional controls to ensure that the cap remains in place. This alternative is not appropriate because of the ongoing maintenance and administrative requirements associated with leaving MPPEH and contaminated soil in place and the associated long-term costs. The risk associated with the explosive hazard is too great to allow the items to remain in place. The site will be transferred to the public and there are plans for it to be graded and developed for residential use.
- **Alternative 3, On-Site In-Situ or Ex-Situ Treatment:** MPPEH and MDEH will be treated on site regardless of the alternative, so this analysis focused on the soil treatment. On-site ex-situ treatment, such as soil washing, would be cost prohibitive because mobilization of the treatment systems required for removal could not be justified for the small volume of soil to be treated. In-situ treatment such as stabilization to chemically fix the lead, while cost-effective, would not be implementable at this site because of the large subsurface debris mixed with the soil and the fact that MPPEH is also present in the subsurface debris.

The selected alternative for the proposed removal action is Alternative 1, MPPEH Removal, Soil Excavation, and Off-Site Disposal. This alternative is evaluated in this Action Memorandum against the three selection criteria of effectiveness, implementability, and cost. The proposed removal action would effectively protect human health at Guam Way from lead in soil by removing contaminated soil from the site. The proposed removal action would effectively protect human health and potential wildlife from an explosive hazard by treating MPPEH and MDEH on site (by detonation), thus removing the explosive hazard and demilitarizing MDAS off site for disposal or recycling. This alternative complies with the chemical-, location-, and action-specific ARARs discussed in [Section V.A.5](#) and identified in [Appendix B](#).

The proposed removal action would provide effective short- and long-term reduction of exposure to MPPEH by destroying it on site away from the public. Exposure to lead in soil would be eliminated by removing it from Guam Way and disposing of it in a permitted landfill. In the short term, worker exposure during the TCRA would be minimized through the proper use of engineering controls and personal protective equipment. Public exposure would also be minimized by using appropriate truck routing and equipment during transportation of contaminated soil from the site to the disposal facility.

Over the long term, no explosive hazard, debris, or concentrations of lead above removal goals would remain on site; therefore, exposure of humans or potential wildlife at Guam Way to MPPEH, debris, or lead would be minimal. This alternative does not present any technical or administrative constraints on implementability. The remedial alternative has been successfully used at other sites at former NAVWPNSTA Concord to protect the environment.

The estimated cost of the proposed alternative is \$3,213,750 (see [Section V.B.](#)).

4. Engineering Evaluation and Cost Analysis

An engineering evaluation and cost analysis was not conducted for the removal action because it has been deemed time-critical [40 CFR § 300.415(b)(4)].

5. Applicable or Relevant and Appropriate Requirements

The purpose of the evaluation of ARARs is to identify and evaluate federal and state ARARs and set forth the Navy's determinations on the ARARs for this TCRA.

NCP § 300.415 provides that removal actions must attain ARARs to the extent practicable, considering the exigency of the situation.

NCP § 300.5 defines applicable requirements as those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site.

NCP § 300.5 defines relevant and appropriate requirements as cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site and are well-suited to the particular site.

Because CERCLA on-site response actions do not require permitting, only substantive requirements are considered as possible ARARs. Administrative requirements such as approval of, or consultation with administrative bodies, issuance of permits, documentation, reporting and record-keeping are not ARARs for CERCLA actions confined to the site.

There are three types of ARARs. The first type includes "chemical-specific" requirements. These ARARs set limits on concentrations of specific hazardous substances, contaminants, and pollutants in the environment. Examples of this type of ARAR are ambient water quality criteria and drinking water standards. The second type of ARAR includes location-specific requirements that set restrictions on certain types of activities based on site characteristics. These ARARs include restrictions on activities in wetlands, floodplains, and historic sites. The third type of ARAR includes action-specific requirements. These ARARs are technology-based restrictions triggered by the type of action under consideration. Examples of action-specific ARARs are Resource Conservation and Recovery Act (RCRA) regulations for waste treatment, storage, and disposal.

ARARs must be identified on a site-specific basis from information about specific chemicals at the site, specific features of the site location, and actions that are being considered as removal actions.

As the lead federal agency, the Navy has primary responsibility for identifying ARARs for the TCRA at Guam Way at former NAVWPNSTA Concord. On May 21, 2012, the Navy requested the State of California identify state ARARs for the TCRA.

The federal and state ARARs the Navy identified are discussed in more detail in [Appendix B](#).

The following subsections set forth the federal and state ARARs for the TCRA for Guam Way.

5.1. Chemical-Specific ARARs

Chemical-specific ARARs are health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, result in establishment of numerical cleanup values. These values establish the acceptable amount or concentration of a chemical found in or discharged to the ambient environment that is protective of human or ecological health.

The TCRA will remove MPPEH, debris and contaminated soil containing concentrations that may pose potential risk human health and to wildlife at Guam Way. Some of the material may be disposed of off site as waste. If the material is disposed of as waste, RCRA waste disposal requirements are ARARs.

Soil is the only environmental medium of concern for the TCRA at Guam Way and the TCRA includes excavation and off-site disposal of soil. Since the soil would be considered waste, RCRA waste disposal requirements are ARARs.

The Navy has identified the substantive provisions of the following requirements as ARARs for properly characterizing the munitions-related material and the excavated soil:

- RCRA, Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100, which define RCRA characteristic hazardous waste.
- Military Munitions Rule identification of hazardous waste munitions and treatment and storage requirements for hazardous waste munitions at 40 CFR Part 266, subpart M.

The Navy will also characterize the excavated soil according to the substantive provisions of the following state ARARs:

- Cal. Code Regs. tit. 27, §§ 20210, 20220 and 20330 (defining designated waste, nonhazardous waste, and inert waste).
- Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (4), 66261.24(a)(2) through (a)(8), 66261.101, 66261.3(a)(2)(C), or 66261.3(a)(2)(F) (defining non-RCRA state-regulated hazardous waste).

5.2. Location-Specific ARARs

Location-specific ARARs are restrictions on activities as a result of the physical characteristics of the site or its immediate environment. Guam Way is not within a coastal zone or floodplain; there are no wetlands, no buildings of archaeological historical significance are present. Migratory birds may be present at the site, and as a result, the substantive provisions of the Migratory Bird Treaty Act (16 U.S.C. §§ 703–712) are ARARs.

The California tiger salamander and the red-legged frog have been observed near Guam Way, and both are listed as threatened species under the Endangered Species Act. If either species is found to be present during the TCRA, the substantive provisions of Section 7(a) of the Endangered Species Act (16 U.S.C. §§ 1531–1543) will be ARARs.

5.3. Action-Specific ARARs

Action-specific ARARs are technology-based restrictions that are triggered by the type of action under consideration. The substantive provisions of the following are federal action-specific ARARs for the TCRA:

- Cal. Code Regs. tit. 22, §§ 66262.10(a) and 66262.11: Requiring generators determine if a waste is hazardous.
- Cal. Code Regs. tit. 22, § 66264.13(a) and (b): Requiring that generators analyze waste to determine if it is hazardous.
- 40 CFR § 264.554(d)(1)(i–ii) and (d)(2), (e), (f), (h), (i), (j), and (k): Allowing the temporary staging of soil for up to 2 years prior to off-site disposal.
- Cal. Code Regs. tit. 22, § 66264.258(a) and (b), except references to procedural requirements: RCRA waste pile closure requirements.
- RCRA Military Munitions Rule, 40 CFR § 266.203, 266.205, and 266.206: Sets forth standards for transportation and storage of solid waste military munitions and treatment and disposal of waste military munitions.
- The Clean Air Act, Bay Area Air Quality Management District Regulation 6-302: Prohibiting emissions from any source equal to or greater than 20 percent opacity for a period more than 3 minutes in any hour.
- The Clean Water Act § 402(p) and 40 CFR § 122.44(k)(2) and (4) setting forth the requirements for the Phase I stormwater National Pollutant Discharge Elimination System (NPDES) requirements.

6. Project Schedule

Removal of contaminated soil and debris at Guam Way is anticipated to begin in the summer of 2012 and be completed by the fall of 2012. The project schedule will be regularly updated with the progress of the project. The Navy will inform all key project personnel of any known or anticipated

delays or acceleration of project activities. If schedule modifications are needed or anticipated, the Navy will develop and outline the methods needed to maintain the overall project schedule.

B. ESTIMATED COSTS

The Navy has calculated a present-worth estimate of the removal action costs including the direct and indirect capital costs of the proposed removal action. Post-removal site control costs are not anticipated for this TCRA. The items listed below are considered capital costs.

Direct Capital Costs

UXO Oversight
Sampling and Analytical
Backfill and grading
Equipment and material
Excavation and screening
Biological monitoring
Transport and disposal
Treatment of MEC and MDAS
Contingency allowances

Indirect Capital Costs

Engineering and design
Construction management
Plan and report documentation
Project management

[Table 5](#) describes the capital costs for the proposed removal action.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If action is delayed or not taken, humans at Guam Way could be exposed to an explosive hazard. Delay or no action at the site will not be protective of the environment and may result in increased future cleanup costs.

VII. PUBLIC INVOLVEMENT

The Navy has made this Action Memorandum available to the RAB for review and comment and the Administrative Record is available to the public at the Information Repository located at the Concord Public Library. The Navy will comply with 40 CFR § 300.415(n), which requires a notice of availability of the Administrative Record be published in a major local newspaper within 60 days after the on-site removal action begins. An index of the Administrative Record for Guam Way at former NAVWPNSTA Concord is included as [Appendix C](#). The regulations also require that a public comment period of not less than 30 days from the time the Administrative Record file is available to the public, and a written response be prepared for significant comments as required by 40 CFR § 300.820(b)(3). The Navy will respond to public comments on the TCRA in the Removal Action Completion Report after the TCRA.

VIII. OUTSTANDING POLICY ISSUES

No outstanding policy issues are associated with Guam Way.

IX. RECOMMENDATION

This Action Memorandum was developed in accordance with current EPA and Navy guidance documents for removal actions under CERCLA (EPA 1990; Navy 2006). This Action Memorandum documents, for the Administrative Record, the Navy's decision to undertake a TCRA at Guam Way.

In arriving at this decision, three alternatives were identified, and evaluated. These alternatives included: (1) MPPEH removal, soil excavation and off-site disposal, (2) capping, and (3) on-site in situ or ex situ treatment. Based on the evaluation of the removal action alternatives completed in [Section V.A.3](#), the removal action selected is Alternative 1, consisting of removal of MPPEH, excavation of contaminated soil, waste characterization, and off-site disposal. Alternative 1 is recommended because it removes the source of contamination in a timely manner, complies with federal and state regulations, and is cost effective.

The selected alternative (Alternative 1, MPPEH Removal, Soil Excavation, and Off-Site Disposal) also satisfies the following nine criteria required by 40 CFR § 300.430 (f)(1) of the NCP:

- **Overall protection of human health and the environment.** The proposed action will remove MPPEH from the site, will reduce concentrations of lead and other potential contaminants in soil, will remove a potential source of contamination to soil gas and groundwater, and will be protective of human health and the environment.
- **Compliance with ARARs.** The proposed action meets all identified federal and state ARARs.
- **Long-term effectiveness and permanence.** Soil removal and off-site disposal will permanently reduce concentrations of MPPEH, and lead in soil at the site, remove other debris material, and will not require remedial controls to manage any residual risk.
- **Reduction of toxicity, mobility, or volume through treatment.** On-site treatment was evaluated as a removal action alternative ([Section V.A.3](#)). On-site treatment for soil was not selected because of the high cost relative to the small quantities of soil proposed for removal. The selected alternative, soil excavation and off-site disposal, will not include treatment of the removed soil. Soil disposal may include stabilization treatment at the receiving facility to reduce mobility, depending on the results of the waste characterization analysis. On-site treatment (detonation) will be used for MPPEH to eliminate the explosive hazard.

- **Short-term effectiveness.** The proposed action includes appropriate engineering controls to minimize potential human and ecological exposure to MPPEH and lead in soil during the TCRA.
- **Implementability.** Implementation of the proposed action is technically and administratively feasible. Services and materials necessary for the proposed removal action are available during its implementation.
- **Cost.** The proposed action is the most cost-effective among the implementable alternatives evaluated.
- **State acceptance.** DTSC and Water Board were involved in planning for the TCRA and concur with the TCRA Action Memorandum and work plan for the protection of the environment. Responses to regulatory agency comments on the draft Action Memorandum are provided in [Appendix D](#).
- **Community acceptance.** The proposed action is anticipated to be acceptable to the community because it will permanently remove the MPPEH and contaminated soil from the site with minimal disturbance to the community during the removal action field work. The Navy will make the Administrative Record for Guam Way available to the public for review and will include responses to any comments in the Removal Action Completion Report.

This decision document represents the selected removal action for Guam Way within the Inland Area at former NAVWPNSTA Concord in Concord, California, developed in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act, and it is consistent with the NCP. This decision is based on the Administrative Record for the site.



SCOTT ANDERSON
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BRAC Environmental Coordinator
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Program Management Office West

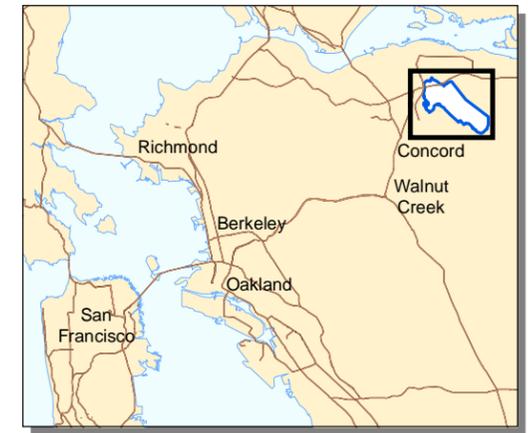
11/29/12
Date

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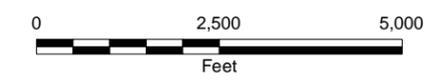
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FIGURES



- Guam Way Site Boundary
- Ammunition Magazine
- Building
- Former Naval Weapons Station Seal Beach Detachment Concord Boundary
- Clayton Fault
- Street

Note:
Aerial imagery courtesy of
Google Earth Pro, October 2011.



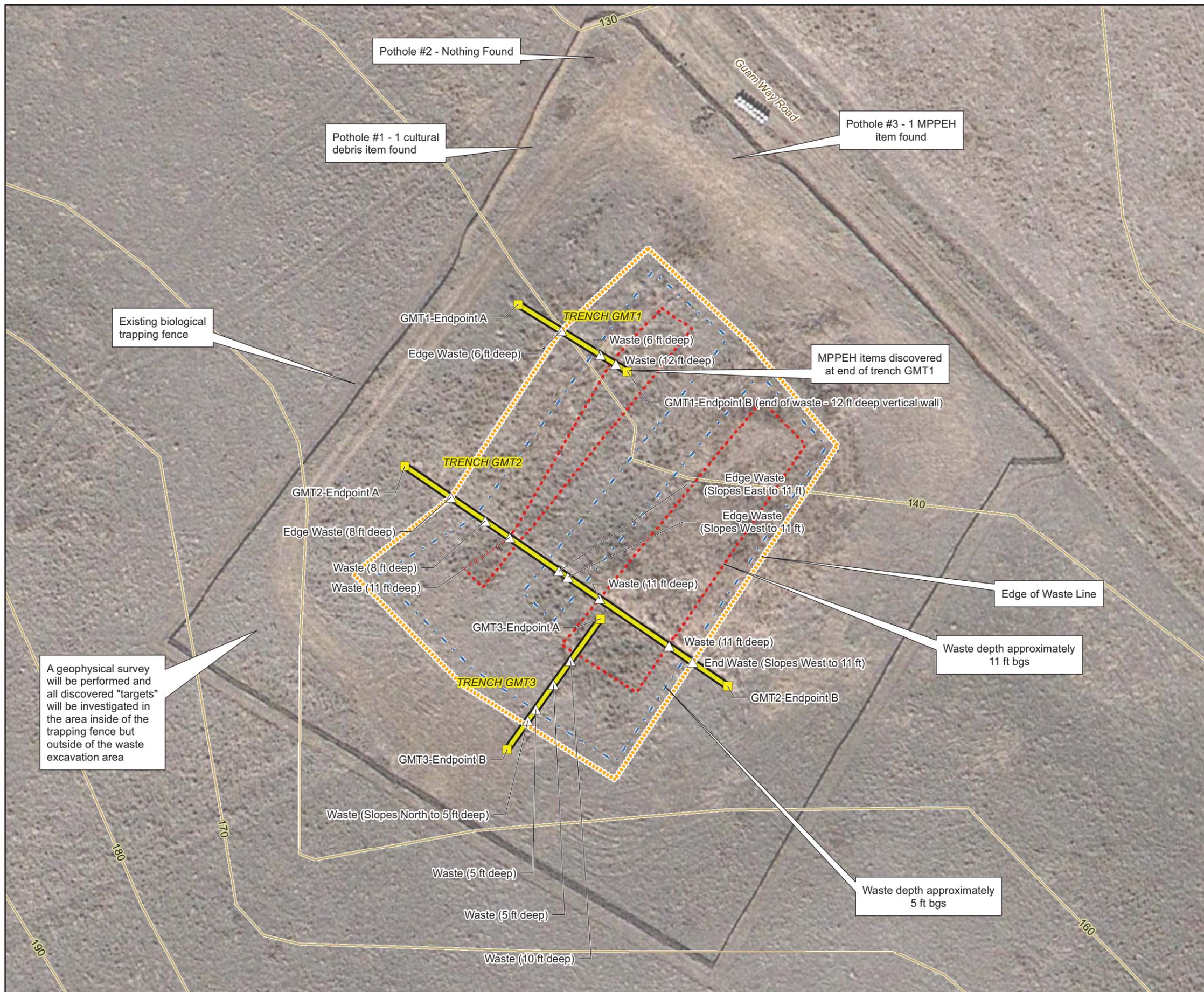
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**FORMER NAVAL WEAPONS STATION
SEAL BEACH DETACHMENT CONCORD**

**FIGURE 1
GUAM WAY SITE**

Action Memorandum for Guam Way

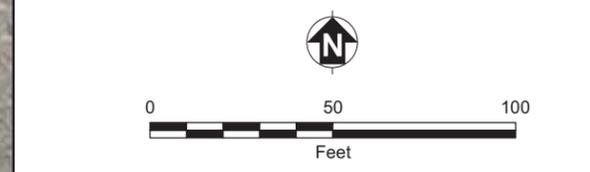


- Approximate Extent of Waste
- Waste Depth (Approximately 5 ft bgs)
- Waste Depth (Approximately 11 ft bgs)
- Approximate Trench Location
- 10-Foot Topographic Contour

Note:

1. Aerial imagery courtesy of Google Earth Pro, October 2011.
2. 10-foot topographic contours courtesy of Contra Costa County, CA Official Website - Maps & GIS: <http://www.co.contra-costa.ca.us/index.aspx?NID=1818>.

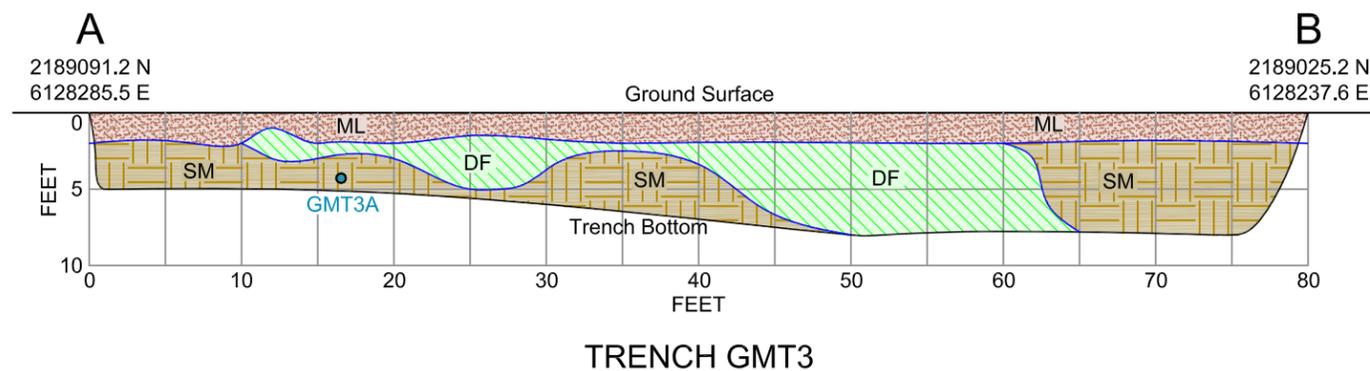
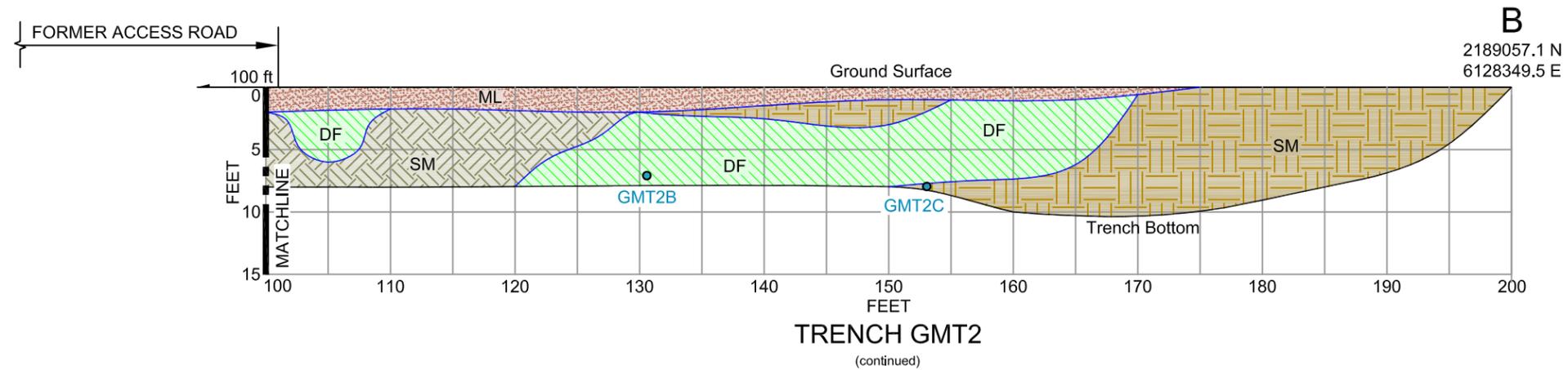
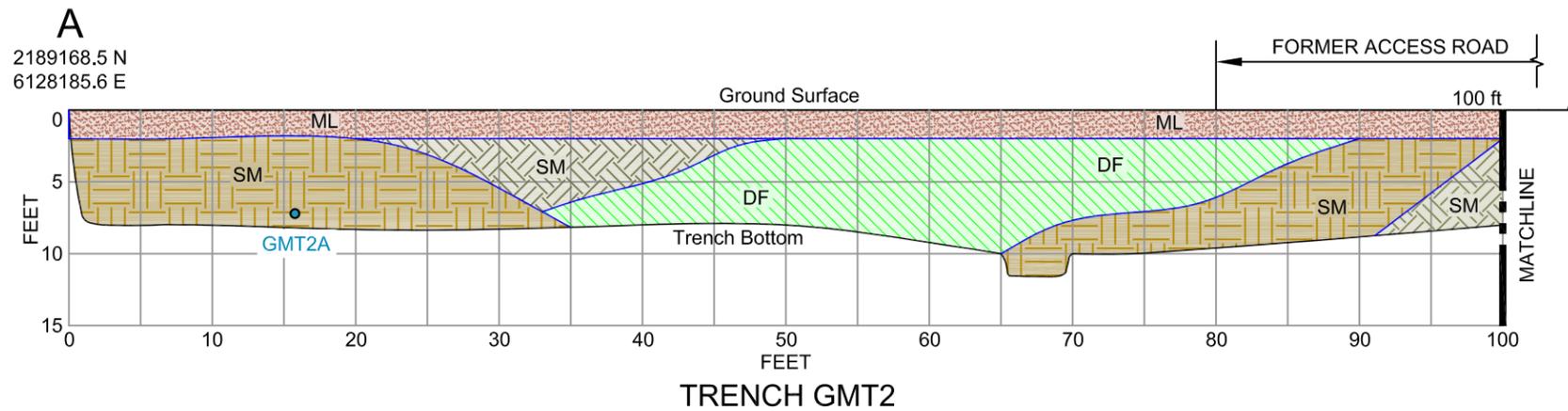
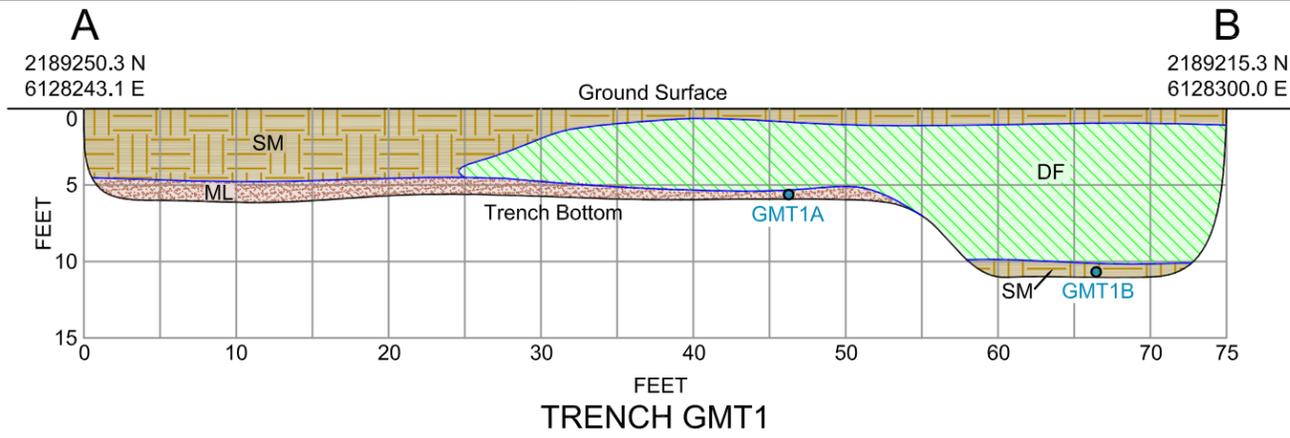
bgs Below ground surface
 ft Feet
 MPPEH Materials Potentially Presenting an Explosive Hazard



Former Naval Weapons Station
 Seal Beach Detachment Concord

FIGURE 2
GUAM WAY EXCAVATION AREAS

Action Memorandum for Guam Way



-  **ML** Dark Brown Silt with Organics and Trace Sand, Hard, Low Plasticity, Dry
-  **SM** Light Brown Silty Sand, Fine to Medium Grained, Medium Density, Dry
-  **SM** Light Grayish Brown Silty Sand, Medium Dense, Medium Grained, Dry
-  **DF** Fill Material with Debris, Burn Ash, Metal, Asphalt, Wood, Concrete, MDAS, and MEC
-  Trench/Excavation Limits
-  Geologic Contact
-  **GMT1E** Trench Sampling Location

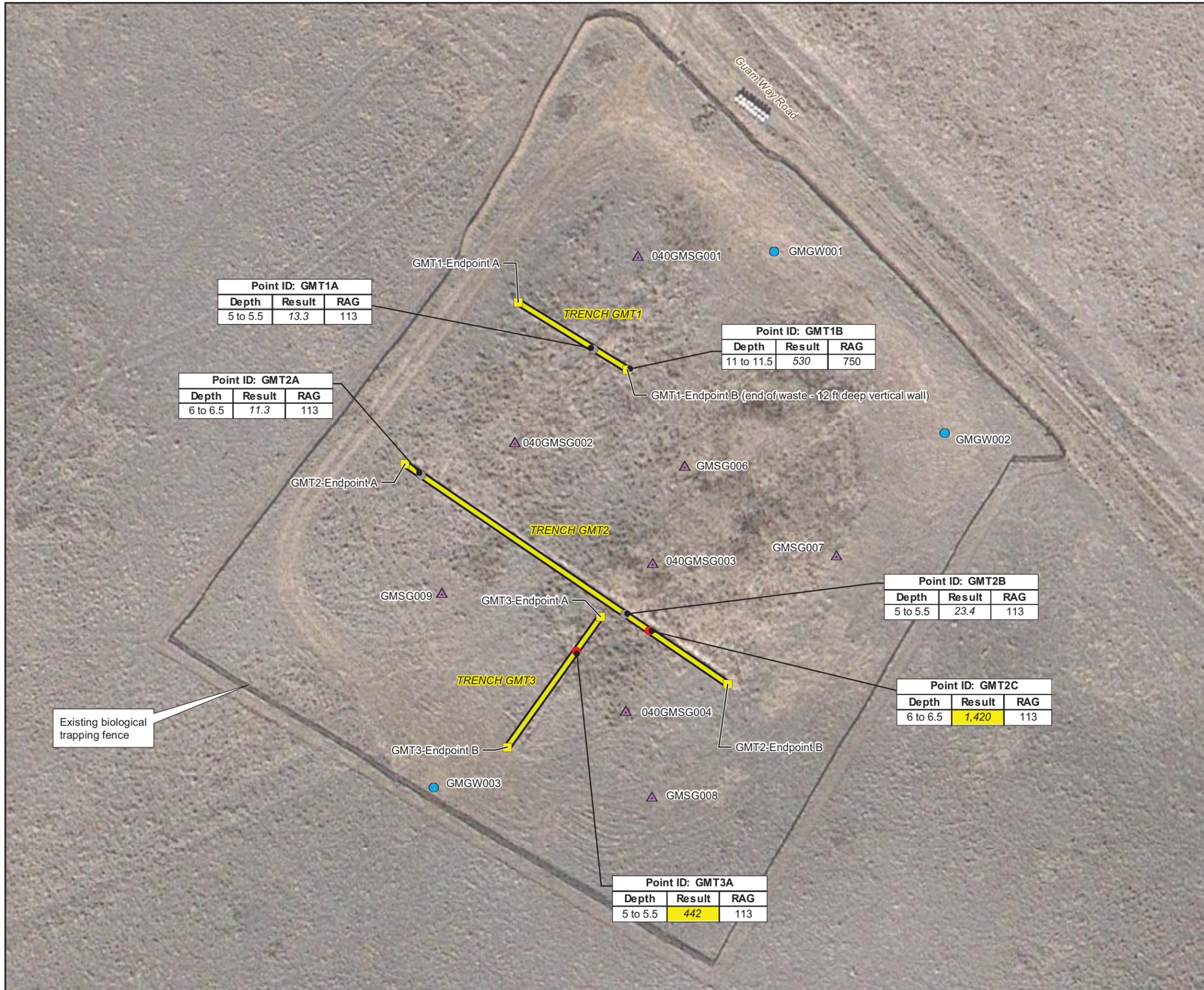
- Notes:
- Small pieces of surface debris were present at all trenching locations. However, only subsurface metal or debris was recorded in the trench logs.
 - Trench locations surveyed by Hunter Surveying, Inc. of Granite Bay, California on October 1, 2010.
 - Coordinates in CCS83 Northing and Easting.



FORMER NAVAL WEAPONS STATION
SEAL BEACH DETACHMENT CONCORD

**FIGURE 3
GUAM WAY TRENCH LOGS**

Action Memorandum for Guam Way



Point ID: GMT1A

Depth	Result	RAG
5 to 5.5	13.3	113

Point ID: GMT1B

Depth	Result	RAG
11 to 11.5	530	750

Point ID: GMT2A

Depth	Result	RAG
6 to 6.5	11.3	113

Point ID: GMT2B

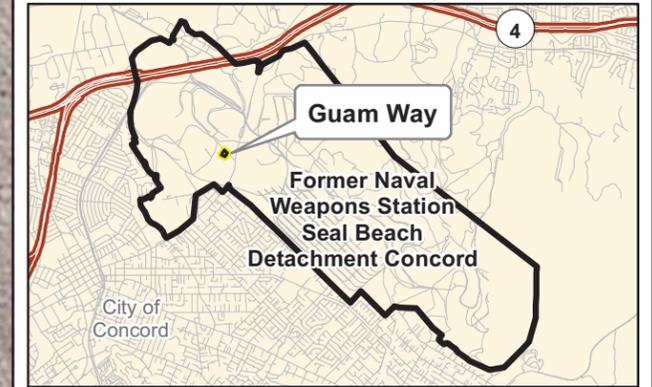
Depth	Result	RAG
5 to 5.5	23.4	113

Point ID: GMT2C

Depth	Result	RAG
6 to 6.5	1,420	113

Point ID: GMT3A

Depth	Result	RAG
5 to 5.5	442	113

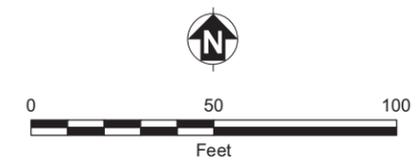


- Lead Concentration Above the Removal Action Goal
- Lead Concentration Below the Removal Action Goal
- Groundwater Grab Sampling Location
- ▲ Soil Gas Sampling Location
- Approximate Trench Locations

Note:

- Aerial imagery courtesy of Google Earth Pro, October 2011.
- Results are presented in mg/kg.
- RAG for soils between 0 to 10 feet below ground surface is based on the CHHSL for residential use (80 mg/kg) and background concentration for lead in Inland Area soils (33 mg/kg). RAG for soils deeper than 10 feet below ground surface is based on the Water Board's Environmental Screening level for deep soils where groundwater is a potential source of drinking water.
- Non-detected results not reported.
- Depths are measured in feet below ground surface.

CHHSL California Human Health Screening Level
 mg/kg Milligrams per kilograms
 RAG Removal Action Goal



**Former Naval Weapons Station
 Seal Beach Detachment Concord**

**FIGURE 4
 LEAD IN SOIL,
 GUAM WAY SITE**

Action Memorandum for Guam Way

TABLES

Table 1. Chemicals in Soil at Guam Way

Action Memorandum for TCRA at Guam Way, Former NAVWPNSTA Concord, Concord, California

Point ID ^a	Sample ID	Sample Date	Sample Top Depth (ft bgs)	Sample Bottom Depth (ft bgs)	Analyte Group	Analyte	Result (mg/kg)	Qualifier	Detection Limit (mg/kg)	Residential CHSSL (mg/kg) ^c	Greater than Residential CHSSL? ^c	Industrial CHSSL (mg/kg)	Greater than Industrial CHSSL? ^c	Background Value (mg/kg) ^d	Greater than Background Value? ^d
GMT1A	040GMSS001	17-Sep-10	5	5.5	TMETAL	Lead	13.3		5.72	80	No	320	No	33	No
GMT1B	040GMSS002	17-Sep-10	11	11.5	TMETAL	Lead	530		6.27	80	Yes	320	Yes	33	Yes
GMT2A	040GMSS004	16-Sep-10	6	6.5	TMETAL	Lead	11.3		6.32	80	No	320	No	33	No
GMT2B	040GMSS005	16-Sep-10	5	5.5	TMETAL	Lead	23.4		5.92	80	No	320	No	33	No
GMT2C	040GMSS006	16-Sep-10	6	6.5	TMETAL	Lead	1420		6.86	80	Yes	320	Yes	33	Yes
GMT3A	040GMSS007	15-Sep-10	5.5	6	TMETAL	Lead	442		6.16	80	Yes	320	Yes	33	Yes
GMT1B	040GMSS002	17-Sep-10	11	11.5	TPHEXT	Diesel	19		13	NA	No	NA	NA	NA	NA
GMT2C	040GMSS006	16-Sep-10	6	6.5	TPHEXT	Diesel	87		14	NA	No	NA	NA	NA	NA
GMT1B	040GMSS002	17-Sep-10	11	11.5	TPHEXT	Motor Oil	180		25	NA	No	NA	NA	NA	NA
GMT2C	040GMSS006	16-Sep-10	6	6.5	TPHEXT	Motor Oil	1300		27	NA	No	NA	NA	NA	NA

Notes:

- a Nondetect results are excluded from this table.
- b Highlighted cells indicate the result is greater than the screening level.
- c California Office of Environmental Health Hazard Assessment soil CHHSL (DTSC 2009) was available for lead; thus, the DTSC value was used for comparison in this table for lead.
- d The background value for lead is the former NAVWPNSTA Concord Inland Area 95th percentile background concentration for Sites 13 and 22 (Tetra Tech and Montgomery and Watson 1997).

- bgs Below ground surface
- CHSSL California human health screening level
- DTSC California Department of Toxic Substances Control
- EPA U.S. Environmental Protection Agency
- ft Feet
- mg/kg Milligram per kilogram
- RSL Regional screening level

References:

- DTSC. 2011. "DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities." Office of Human and Ecological Risk (HERO). HERO HHRA Note 3. May 20.
- Tetra Tech and Montgomery Watson. 1997. "Draft Final Remedial Investigation Report, Inland Area Sites 13, 17, 22, 24A, and 27, Naval Weapons Station Concord, California." October.

Table 2. Chemicals in Soil Gas at Guam Way

Action Memorandum for TCRA at Guam Way, Former NAVWPNSTA Concord, Concord, California

Site	Point ID ^a	Sample ID	Sample Date	Sample Type	Duplicate Sample ID	Analyte	Result (µg/m ³)	Qualifier	Detection Limit (µg/m ³)	Residential RSL (µg/m ³) ^d	Greater than Residential RSL? ^c	Industrial RSL (µg/m ³) ^d	Greater than Industrial RSL? ^c
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		1,2,4-TRIMETHYLBENZENE	21		6.9	7.3	Yes	31	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		1,2,4-TRIMETHYLBENZENE	22		6.5	7.3	Yes	31	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		1,2,4-TRIMETHYLBENZENE	31		6.6	7.3	Yes	31	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		1,2,4-TRIMETHYLBENZENE	26		6.6	7.3	Yes	31	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	1,2,4-TRIMETHYLBENZENE	32		6.6	7.3	Yes	31	Yes
Guam Way	040GMSG001	040GMSG001	04-Oct-10	ORIG		1,2-DICHLOROETHANE	14		4.2	0.094	Yes	0.47	Yes
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		1,3,5-TRIMETHYLBENZENE	7.9		6.9	--	No	--	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		1,3,5-TRIMETHYLBENZENE	6.9		6.5	--	No	--	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		1,3,5-TRIMETHYLBENZENE	8.9		6.6	--	No	--	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		1,3,5-TRIMETHYLBENZENE	6.7		6.6	--	No	--	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	1,3,5-TRIMETHYLBENZENE	8.3		6.6	--	No	--	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		1,3-BUTADIENE	9.4		3	0.081	Yes	0.41	Yes
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	1,3-BUTADIENE	52		3.3	0.081	Yes	0.41	Yes
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		1,3-BUTADIENE	15		2.9	0.081	Yes	0.41	Yes
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		1,3-BUTADIENE	23		3	0.081	Yes	0.41	Yes
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		1,3-BUTADIENE	6.8		3	0.081	Yes	0.41	Yes
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	1,3-BUTADIENE	27		3	0.081	Yes	0.41	Yes
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	1,3-DICHLOROBENZENE	9.1		8.9	210	No	880	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		2-BUTANONE	39		4.1	5200	No	22000	No
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		2-BUTANONE	40		3.8	5200	No	22000	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	2-BUTANONE	48		4.4	5200	No	22000	No
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		2-BUTANONE	1600		16	5200	No	22000	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		2-BUTANONE	1300		16	5200	No	22000	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		2-BUTANONE	1600	J	16	5200	No	22000	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		2-BUTANONE	3100	J	16	5200	No	22000	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	2-BUTANONE	1800	J	16	5200	No	22000	No
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		2-HEXANONE	89	J	23	31	Yes	130	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		2-HEXANONE	76	J	22	31	Yes	130	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		2-HEXANONE	140	J	22	31	Yes	130	Yes
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		2-HEXANONE	180	J	22	31	Yes	130	Yes
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	2-HEXANONE	150	J	22	31	Yes	130	Yes
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		4-ETHYLTOLUENE	13		6.9	5200	No	22000	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		4-ETHYLTOLUENE	8.8		6.5	5200	No	22000	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		4-ETHYLTOLUENE	23		6.6	5200	No	22000	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		4-ETHYLTOLUENE	21		6.6	5200	No	22000	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	4-ETHYLTOLUENE	24		6.6	5200	No	22000	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		ACETONE	100		13	NA	NA	140000	No
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		ACETONE	300		12	NA	NA	140000	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	ACETONE	200		14	NA	NA	140000	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		ACETONE	340		13	32000	NA	140000	No

Table 2. Chemicals in Soil Gas at Guam Way

Action Memorandum for TCRA at Guam Way, Former NAVWPNSTA Concord, Concord, California

Site	Point ID ^a	Sample ID	Sample Date	Sample Type	Duplicate Sample ID	Analyte	Result (µg/m ³)	Qualifier	Detection Limit (µg/m ³)	Residential RSL (µg/m ³) ^d	Greater than Residential RSL? ^c	Industrial RSL (µg/m ³) ^d	Greater than Industrial RSL? ^c
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	ACETONE	390		13	32000	NA	140000	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		BENZENE	4.7		4.4	0.31	Yes	1.6	Yes
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		BENZENE	16		4.1	0.31	Yes	1.6	Yes
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	BENZENE	14		4.7	0.31	Yes	1.6	Yes
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		BENZENE	8.8		4.5	0.31	Yes	1.6	Yes
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		BENZENE	7.8		4.2	0.31	Yes	1.6	Yes
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		BENZENE	6.7		4.3	0.31	Yes	1.6	Yes
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		BENZENE	7.2		4.3	0.31	Yes	1.6	Yes
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	BENZENE	7.2		4.3	0.31	Yes	1.6	Yes
Guam Way	040GMSG001	040GMSG001	04-Oct-10	ORIG		CHLOROFORM	11		5.1	0.11	Yes	0.53	Yes
Guam Way	040GMSG001	040GMSG001	04-Oct-10	ORIG		CHLOROMETHANE	22		8.6	94	No	390	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	CHLOROMETHANE	16		12	94	No	390	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		CYCLOHEXANE	10		4.5	6300	No	26000	No
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		DICHLORODIFLUOROMET	11		6.4	100	No	440	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		ETHANOL	69		10	4200	No	18000	No
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		ETHANOL	130		9.7	4200	No	18000	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	ETHANOL	120		11	4200	No	18000	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		ETHYLBENZENE	7.2		6	0.97	Yes	4.9	Yes
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	ETHYLBENZENE	8.8		6.4	0.97	Yes	4.9	Yes
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		ETHYLBENZENE	13		6.1	0.97	Yes	4.9	Yes
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		ETHYLBENZENE	12		5.7	0.97	Yes	4.9	Yes
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		ETHYLBENZENE	12		5.8	0.97	Yes	4.9	Yes
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		ETHYLBENZENE	14		5.9	0.97	Yes	4.9	Yes
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	ETHYLBENZENE	13		5.8	0.97	Yes	4.9	Yes
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		HEPTANE	5.9		5.3	730	No	3100	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	HEPTANE	10		6.1	730	No	3100	No
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		HEPTANE	11		5.8	730	No	3100	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		HEPTANE	14		5.4	730	No	3100	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		HEPTANE	13		5.5	730	No	3100	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		HEPTANE	14		5.5	730	No	3100	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	HEPTANE	13		5.5	730	No	3100	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		HEXANE	8.7		4.9	730	No	3100	No
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		HEXANE	7.1		4.5	730	No	3100	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	HEXANE	27		5.2	730	No	3100	No
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		HEXANE	10		5	730	No	3100	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		HEXANE	20		4.6	730	No	3100	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		HEXANE	16		4.7	730	No	3100	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		HEXANE	12		4.8	730	No	3100	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	HEXANE	17		4.7	730	No	3100	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		M,P-XYLENE	24		6	100	No	440	No

Table 2. Chemicals in Soil Gas at Guam Way

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Site	Point ID ^a	Sample ID	Sample Date	Sample Type	Duplicate Sample ID	Analyte	Result (µg/m ³)	Qualifier	Detection Limit (µg/m ³)	Residential RSL (µg/m ³) ^d	Greater than Residential RSL? ^c	Industrial RSL (µg/m ³) ^d	Greater than Industrial RSL? ^c
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		M,P-XYLENE	14		5.6	100	No	440	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	M,P-XYLENE	28		6.4	100	No	440	No
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		M,P-XYLENE	66	J	6.1	100	No	440	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		M,P-XYLENE	54	J	5.7	100	No	440	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		M,P-XYLENE	62	J	5.8	100	No	440	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		M,P-XYLENE	70	J	5.9	100	No	440	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	M,P-XYLENE	65	J	5.8	100	No	440	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		O-XYLENE	6.7		6	100	No	440	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	O-XYLENE	7.8		6.4	100	No	440	No
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		O-XYLENE	18		6.1	100	No	440	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		O-XYLENE	16		5.7	100	No	440	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		O-XYLENE	18		5.8	100	No	440	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		O-XYLENE	19		5.9	100	No	440	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	O-XYLENE	19		5.8	100	No	440	No
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		TETRACHLOROETHENE	13		9.4	0.41	Yes	2.1	Yes
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		TETRACHLOROETHENE	640		8.8	0.41	Yes	2.1	Yes
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		TETRACHLOROETHENE	28		9.5	0.41	Yes	2.1	Yes
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		TETRACHLOROETHENE	96		9	0.41	Yes	2.1	Yes
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		TETRACHLOROETHENE	48		9.2	0.41	Yes	2.1	Yes
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		TETRAHYDROFURAN	6.4		4.1	NA	NA	NA	NA
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		TETRAHYDROFURAN	7.4		3.8	NA	NA	NA	NA
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	TETRAHYDROFURAN	9.1		4.4	NA	NA	NA	NA
Guam Way	040GMSG002	040GMSG002	04-Oct-10	ORIG		TOLUENE	270		5.2	5200	No	22000	No
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		TOLUENE	35		4.9	5200	No	22000	No
Guam Way	040GMSG004	040GMSG004	04-Oct-10	ORIG		TOLUENE	230		110	5200	No	22000	No
Guam Way	040GMSG004	040GMSG005	04-Oct-10	DUP	040GMSG004	TOLUENE	250		5.6	5200	No	22000	No
Guam Way	GMSG006	040GMSG006	19-Sep-11	ORIG		TOLUENE	61		5.3	5200	No	22000	No
Guam Way	GMSG007	040GMSG007	19-Sep-11	ORIG		TOLUENE	51		5	5200	No	22000	No
Guam Way	GMSG008	040GMSG008	19-Sep-11	ORIG		TOLUENE	46		5	5200	No	22000	No
Guam Way	GMSG009	040GMSG009	19-Sep-11	ORIG		TOLUENE	58		5.1	5200	No	22000	No
Guam Way	GMSG009	040GMSG010	19-Sep-11	DUP	040GMSG009	TOLUENE	48		5	5200	No	22000	No
Guam Way	040GMSG003	040GMSG003	04-Oct-10	ORIG		TRICHLOROETHENE	800		6.9	0.43	Yes	3	Yes

Table 2. Chemicals in Soil Gas at Guam Way

Action Memorandum for TCRA at Guam Way, Former NAVWPNSTA Concord, Concord, California

Site	Point ID ^a	Sample ID	Sample Date	Sample Type	Duplicate Sample ID	Analyte	Result ($\mu\text{g}/\text{m}^3$)	Qualifier	Detection Limit ($\mu\text{g}/\text{m}^3$)	Residential RSL ($\mu\text{g}/\text{m}^3$) ^d	Greater than Residential RSL? ^c	Industrial RSL ($\mu\text{g}/\text{m}^3$) ^d	Greater than Industrial RSL? ^c
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Notes:

- a Screening values were provided for detected chemicals only.
- b Low and high inhalation TRVs are from MWH (2010).
- c Highlighted cells indicate the result is greater than the screening level.
- d RSLs for ambient air are from EPA (2011a).

- $\mu\text{g}/\text{m}^3$ Microgram per cubic meter
- EPA U.S. Environmental Protection Agency
- RSL Regional screening level
- TRV Toxicity reference value

References:

- MWH. 2010. Technical Memorandum, Inhalation Toxicity Reference Value Updates for Use in Ecological Risk Assessments at the Santa Susana Field Laboratory, Ventura County, California. March 26.
- EPA. 2011a. "Region 9 Regional Screening Levels." Available on-line at: <http://www.epa.gov/region9/superfund/prg/> November.

Table 3. Chemicals in Groundwater at Guam Way

Action Memorandum for TCRA at Guam Way, Former NAVWPNSTA Concord, Concord, California

Point ID ^a	Sample ID	Sample Date	Sample Type	Duplicate Sample ID	Analyte Group	Analyte	Result (µg/L)	Qualifier	Detection Limit (µg/L)	Tap Water RSL (µg/L) ^b	Greater than Tap Water RSL? ^c	MCL (µg/L) ^d	Greater than MCL? ^c
GMGW001	040GMGW001	20-Sep-11	ORIG		VOA8260	Benzene	0.54	J	1	0.39	Yes	1	No
GMGW001	040GMGW005	20-Sep-11	DUP	040GMGW001	VOA8260	Benzene	0.57	J	1	0.39	Yes	1	No
GMGW001	040GMGW005	20-Sep-11	DUP	040GMGW001	VOA8260	Carbon Disulfide	0.21	J	1	720	No	NA	No
GMGW001	040GMGW001	20-Sep-11	ORIG		VOA8260	Chloroform	4.9		1	0.19	Yes	NA	No
GMGW001	040GMGW005	20-Sep-11	DUP	040GMGW001	VOA8260	Chloroform	5		1	0.19	Yes	NA	No
GMGW002	040GMGW002	20-Sep-11	ORIG		VOA8260	Chloroform	1.2		1	0.19	Yes	NA	No
GMGW001	040GMGW001	20-Sep-11	ORIG		VOA8260	cis-1,2-Dichloroethene	280		25	28	Yes	6	Yes
GMGW001	040GMGW005	20-Sep-11	DUP	040GMGW001	VOA8260	cis-1,2-Dichloroethene	290		25	28	Yes	6	Yes
GMGW002	040GMGW002	20-Sep-11	ORIG		VOA8260	cis-1,2-Dichloroethene	0.66	J	1	28	No	6	No
GMGW001	040GMGW001	20-Sep-11	ORIG		VOA8260	Tetrachloroethene	58		1	0.072	Yes	5	Yes
GMGW001	040GMGW005	20-Sep-11	DUP	040GMGW001	VOA8260	Tetrachloroethene	63		1	0.072	Yes	5	Yes
GMGW002	040GMGW002	20-Sep-11	ORIG		VOA8260	Tetrachloroethene	4.2		1	0.072	Yes	5	No
GMGW001	040GMGW001	20-Sep-11	ORIG		VOA8260	trans-1,2-Dichloroethene	5.4		1	86	No	10	No
GMGW001	040GMGW005	20-Sep-11	DUP	040GMGW001	VOA8260	trans-1,2-Dichloroethene	5.5		1	86	No	10	No
GMGW001	040GMGW001	20-Sep-11	ORIG		VOA8260	Trichloroethene	36		1	0.44	Yes	5	Yes
GMGW001	040GMGW005	20-Sep-11	DUP	040GMGW001	VOA8260	Trichloroethene	39		1	0.44	Yes	5	Yes
GMGW002	040GMGW002	20-Sep-11	ORIG		VOA8260	Trichloroethene	0.36	J	1	0.44	No	5	No

Notes:

- a Nondetect results are excluded from this table.
- b Tap water RSLs are from EPA (2011a).
- c Highlighted cells indicate the result is greater than the screening level.
- d MCLs are the lower from EPA (2009) and the California Department of Public Health (2008).

- µg/L Microgram per liter
- EPA U.S. Environmental Protection Agency
- J Estimated
- MCL Maximum contaminant level
- RSL Regional screening level

References:

- California Department of Public Health. 2008. "Maximum Contaminant Levels and Regulatory Dates for Drinking Water U.S. EPA vs California." November.
- EPA. 2009. "National Primary Drinking Water Regulations - List of Contaminants and their MCLs." Available on-line at: <<http://water.epa.gov/drink/contaminants/index.cfm#List>>.
- EPA. 2011a. "Region 9 Regional Screening Levels." Available on-line at: <<http://www.epa.gov/region9/superfund/prg/>>. November.

Table 4. Health-Based Removal Action Goals

Action Memorandum for TCRA at Guam Way, Former NAVWPNSTA Concord, Concord, California

Item or Chemical of Concern	Removal Action Goal Basis	Residential User Scenario	Groundwater Protection
MEC and MPPEH	Complete removal of explosive hazard	Removal of all metal items larger than 20 mm	Removal of all metal items larger than 20 mm
Debris	Complete removal of debris	Removal of all debris from 0 to 10 foot below ground surface	Removal of all subsurface debris below 10 foot below ground surface
Lead ^a	Risk-based Level	113 mg/kg in soils from surface to 10 feet below ground surface	750 mg/kg for lead is based on the Water Board's ESL for deep soils

Notes:

a Action level of 113 mg/kg for lead is based on DTSC's California human health screening level (CHHSL) of 80 mg/kg for a resident added to the background value of 33 mg/kg. Action level of 750 mg/kg for lead is based on the Water Board's ESL for deep soils where groundwater is a current or potential source of drinking water.

ESL Environmental screening level
 MEC Munitions and explosives of concern
 mg/kg Milligram per kilogram
 mm Millimeter
 MPPEH Material potentially presenting an explosive hazard
 Water Board California Regional Water Quality Control Board

Table 5. Capital Costs of Proposed Removal Action

Action Memorandum for TCRA at Guam Way, Former NAVWPNSTA Concord, Concord, California

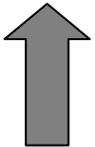
Item Cost	Estimated Cost in 2012
Direct Cost	
Screening Subcontractor (Incl. Disposal)	\$1,713,720
UXO Oversight Field Personnel	\$478,400
Work Plan, ESS, HASP	\$120,000
Biological Monitoring	\$80,000
Sampling and Surveying	\$45,000
Geophysical/Manual Clearance Screen	\$35,000
Total Direct Cost:	\$2,472,120
20% Contingency	\$494,424
Indirect Cost (10% of Direct Cost):	\$247,212
Total Cost:	\$3,213,756

APPENDIX A
HISTORICAL AERIAL PHOTOGRAPHS

Guam Way Bermed Area

1946

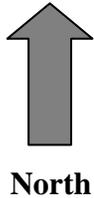
Guam Way Road



North

Guam Way Bermed Area

1948

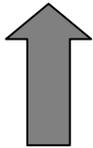


North

Guam Way Bermed Area

1949

Guam Way Road



North

APPENDIX B
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS	B-iii
B1.0 INTRODUCTION	B-1
B1.1 SUMMARY OF COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT AND NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN REQUIREMENTS.....	B-1
B1.2 METHODOLOGY DESCRIPTION	B-4
B1.2.1 General	B-4
B1.2.2 Identifying and Evaluating Federal ARARs	B-4
B1.2.3 Identifying and Evaluating State ARARs	B-4
B1.3 OTHER GENERAL ISSUES.....	B-5
B1.3.1 General Approach to Federal RCRA Requirements.....	B-5
B1.4 WASTE CHARACTERIZATION	B-6
B1.4.1 RCRA Hazardous Waste Determination	B-6
B1.4.2 California-Regulated, Non-RCRA Hazardous Waste.....	B-8
B1.4.3 Other California Waste Classifications.....	B-8
B2.0 CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS.....	B-9
B2.1 SUMMARY OF CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS CONCLUSIONS	B-9
B2.2 DETAILED DISCUSSION OF CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS	B-10
B2.2.1 Soil	B-10
B2.2.2 Unexploded Ordnance (UXO) and Munitions ARARs	B-12
B3.0 LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS.....	B-14
B3.1 SUMMARY OF LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS.....	B-14
B3.1.1 Cultural Resources ARARs Conclusions.....	B-14
B3.1.2 Wetlands Protection and Floodplain Management Conclusions.....	B-14
B3.1.3 Hydrologic Resources Conclusions	B-14
B3.1.4 Biological Resources Conclusions.....	B-15
B3.2 DETAILED DISCUSSION OF LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS	B-15
B3.2.1 ARARs for Biological Resources	B-15

TABLE OF CONTENTS (CONTINUED)

B4.0 ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS.....B-16
 B.4.1 FEDERAL ARARs FOR EXCAVATION AND OFF-SITE DISPOSALB-16
 B.4.2 STATE ARARs FOR EXCAVATION AND OFF-SITE DISPOSAL.....B-17
B5.0 REFERENCESB-18

LIST OF TABLES

B-1 Federal Chemical-Specific ARARs
B-2 State Chemical-Specific ARARs
B-3 Federal Location-Specific ARARs
B-4 Federal Action-Specific ARARs
B-5 State Action-Specific ARARs

ACRONYMS AND ABBREVIATIONS

§	Section
§§	Sections
ARAR	Applicable or relevant and appropriate requirement
Cal. Code Regs.	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
ch.	Chapter
div.	Division
DoD	Department of Defense
DTSC	Department of Toxic Substances Control
EP	Extraction procedure
EPA	U.S. Environmental Protection Agency
Fed. Reg.	Federal Register
IR	Installation Restoration
MOU	Memorandum of Understanding
NAVWPNSTA	Naval Weapons Station Seal Beach Detachment Concord
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OEW	Ordnance or explosive waste
RCRA	Resource Conservation and Recovery Act
STLC	Soluble threshold limit concentration
TBC	To be considered
TCLP	Toxicity characteristic leaching procedure
tit.	Title
TTLC	Total threshold limit concentration
U.S.C.	United States Code
WET	Waste extraction test

B1.0 INTRODUCTION

The Navy has decided to undertake a time-critical removal action (TCRA) at the Guam Way site at former Naval Weapons Station Seal Beach Detachment Concord (NAVWPNSTA) in Concord, California. This appendix is an attachment to the Action Memorandum. The TCRA will remove soil containing material presenting a potential explosive hazard (MPPEH) and lead that pose a potentially unacceptable risk to human health.

This appendix identifies and evaluates federal and State of California applicable or relevant and appropriate requirements (ARAR) from the universe of regulations, requirements, and guidance and sets forth the Department of the Navy (Navy) determinations of ARARs for the TCRA. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Section (§) 300.415 provides that removal actions must attain ARARs to the extent practicable, considering the exigency of the situation. This appendix contains the Navy's final determination of ARARs that the TCRA can attain considering the exigency of the situation at Guam Way.

B1.1 SUMMARY OF COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT AND NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN REQUIREMENTS

Section (§) 121(d) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. § 9621[d]), as amended, states that remedial actions at CERCLA sites must attain (or the decision document must justify the waiver of) any federal or more stringent state environmental standards, requirements, criteria, or limitations determined to be legally applicable or relevant and appropriate. Although CERCLA § 121 does not itself expressly require that CERCLA removal actions comply with ARARs, the U.S. Environmental Protection Agency (U.S. EPA) has promulgated a requirement in the NCP mandating that CERCLA removal actions “. . . shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws” (Title 40 *Code of Federal Regulations* [40 C.F.R.] § 300.415[j]). It is Navy policy to follow this requirement. Certain specified waivers may be used for removal actions, as is the case with remedial actions.

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address the situation at a CERCLA site. The requirement is applicable if the jurisdictional prerequisites of the standard show a direct correspondence when objectively compared with the conditions at the site. An applicable federal requirement is an ARAR. An applicable state requirement is an ARAR only if it is more stringent than federal ARARs.

If the requirement is not legally applicable, then the requirement is evaluated to determine whether it is relevant and appropriate. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not applicable, address problems or situations similar to the circumstances of the proposed response action and are well

suited to the conditions of the site (EPA 1988a). A requirement must be determined to be both relevant and appropriate in order to be considered an ARAR.

The criteria for determining relevance and appropriateness are listed in Title 40 of the Code of Federal Regulations (CFR) § 300.400(g)(2) and include the following:

- The purpose of the requirement and the purpose of the CERCLA action
- The medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site
- The substances regulated by the requirement and the substances found at the CERCLA site
- The actions or activities regulated by the requirement and the response action contemplated at the CERCLA site
- Any variances, waivers, or exemptions of the requirement and their availability for the circumstances at the CERCLA site
- The type of place regulated and the type of place affected by the release or CERCLA action
- The type and size of structure or facility regulated and the type and size of structure or facility affected by the release or contemplated by the CERCLA action
- Any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resources at the CERCLA site

According to CERCLA ARARs guidance (EPA 1988a), a requirement may be “applicable” or “relevant and appropriate,” but not both. Identification of ARARs must be done on a site-specific basis and involves a two-part analysis. First, a determination is made of whether a given requirement is applicable. Second, if it is not applicable, a determination is made of whether it is nevertheless both relevant and appropriate. It is important to explain that some regulations may be applicable or, if not applicable, may still be relevant and appropriate. When the analysis determines a requirement is both relevant and appropriate, such a requirement must be complied with to the same degree as if it were applicable (EPA 1988a).

Tables B-1 through B-5 included at the end of this appendix present each ARAR with determination of ARAR status (applicable or relevant and appropriate). For the determination of relevance and appropriateness, the pertinent criteria were examined to determine whether the requirements addressed problems or situations sufficiently similar to the circumstances of the release or response action contemplated, and whether the requirement was well suited to the site.

To qualify as a state ARAR under CERCLA and the NCP, a state requirement must be:

- A state law or regulation
- An environmental or facility siting law or regulation
- Promulgated (of general applicability and legally enforceable)
- Substantive (not procedural or administrative)
- More stringent than federal requirements
- Identified in a timely manner
- Consistently applied

To constitute an ARAR, a requirement must be substantive; therefore, only the substantive provisions of requirements identified as ARARs in this analysis are considered to be ARARs. Permits are considered to be procedural or administrative requirements. Provisions of generally relevant federal and state statutes and regulations determined to be procedural or non-environmental, including permit requirements, are not considered to be ARARs. CERCLA § 121(e)(1), 42 U.S.C. § 9621(e)(1), states, “No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely on-site, where such remedial action is selected and carried out in compliance with this section.” The term *on site* is defined for purposes of this ARARs discussion as “the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action” (40 CFR § 300.5).

Non-promulgated advisories or guidance issued by federal or state governments are not legally binding and do not have the status of ARARs. Such requirements may, however, be useful and are “to be considered” (TBC). TBC [40 CFR § 300.400(g)(3)] requirements complement ARARs, but do not override them and are useful for guiding decisions on cleanup levels or methodologies when regulatory standards are not available.

Pursuant to EPA guidance ([EPA 1988a](#)), ARARs are generally divided into three categories: chemical-specific, location-specific, and action-specific requirements. These classifications aid in the identification of ARARs; some ARARs do not fall precisely into one group or another. ARARs are identified on a site basis for response actions where CERCLA authority is the basis for cleanup.

As the lead federal agency at former NAVWPNSTA Concord, the Navy has primary responsibility for identifying federal ARARs at Guam Way. Pursuant to the definition of the term *on site* in 40 CFR § 300.5, the on-site area is Guam Way and any areas in close proximity to Guam Way that may be used to implement the TCRA.

The methodology, other general issues, and waste characterization are discussed below. Only the substantive provisions of the specific citations discussed in the following sections are considered ARARs.

B1.2 METHODOLOGY DESCRIPTION

This section describes the methodology used to identify and evaluate ARARs.

B1.2.1 General

As the lead federal agency, the Navy has primary responsibility for identification of ARARs for Guam Way TCRA. In preparing this ARARs analysis, the Navy undertook the following measures consistent with CERCLA and the NCP:

- Identified federal ARARs for the removal action described in the Action Memorandum taking into account site-specific information for Guam Way

B1.2.2 Identifying and Evaluating Federal ARARs

The Navy is responsible for identifying federal ARARs as the lead federal agency under CERCLA and the NCP. The federal government implements a number of federal environmental statutes that are the source of potential federal ARARs, either in the form of the statutes or regulations promulgated thereunder. Examples include the Resource Conservation and Recovery Act (RCRA), the Clean Water Act, the Safe Drinking Water Act, the Toxic Substances Control Act, and their implementing regulations, to name a few. See the NCP preamble at 55 Federal Register (Fed. Reg.) Sections (§§) 8764–8765 (1990) for a more complete listing.

The Navy reviewed the removal action against all potential federal ARARs, including, but not limited to, those set forth at 55 Fed. Reg. §§ 8764–8765 (1990) to determine if they are applicable or relevant and appropriate using CERCLA and NCP criteria and procedures for ARARs identification by lead federal agencies.

B1.2.3 Identifying and Evaluating State ARARs

The process of identifying and evaluating state ARARs by the state and the Navy is described in this subsection.

B1.2.3.1 Solicitation of State ARARs under NCP

EPA guidance recommends that the lead federal agency consult with the state when identifying state ARARs for response actions ([EPA 1988b](#)). The state must respond within 30 days of receipt of the lead federal agency requests. The remainder of this section documents the Navy's efforts to date to identify and evaluate state ARARs.

B1.2.3.2 Chronology of Efforts to Identify State ARARs

In a letter dated May 21, 2012, the Navy requested state ARARs from Department of Toxic Substances Control (DTSC) for the TCRA at Guam Way. To date, DTSC has not responded to this request. If DTSC responds in a timely manner considering the exigencies of the situation, the Navy will analyze any requirements identified by DTSC to determine if any qualify as state ARARs for the TCRA.

Key correspondence between the Navy and the state agencies relating to this effort is included in the Administrative Record for the AM for Guam Way ([Appendix C](#)).

B1.3 OTHER GENERAL ISSUES

This section discusses the general issues identified during the evaluation of ARARs for Guam Way.

B1.3.1 General Approach to Federal RCRA Requirements

RCRA is a federal statute passed in 1976 to meet four goals: (1) protection of human health and the environment, (2) reduction of waste, (3) conservation of energy and natural resources, and (4) elimination of the generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 significantly expanded the scope of RCRA by adding new corrective action requirements, land disposal restrictions, and technical requirements. RCRA, as amended, contains several provisions that are potential ARARs for CERCLA sites.

Substantive RCRA requirements are applicable to response actions on CERCLA sites if the waste is a RCRA hazardous waste, and either:

- The waste was initially treated, stored, or disposed of after the effective date of the particular RCRA requirement; or
- The activity at the CERCLA site constitutes treatment, storage, or disposal, as defined by RCRA ([EPA 1988a](#)).

The preamble to the NCP indicates that state regulations that are components of a federally authorized or delegated state program are generally considered federal requirements and potential federal ARARs for the purposes of ARARs analysis (55 Fed. Reg. §§ 8666, 8742 [1990]). The State of California received approval for its base RCRA hazardous waste management program on July 23, 1992 (57 Fed. Reg. § 32726 [1992]). The State of California “Environmental Health Standards for the Management of Hazardous Waste,” set forth in California Code of Regulations (Cal. Code Regs.), Title (tit.) 22, Division (div.) 4.5, were approved by EPA as a component of the federally authorized State of California RCRA program. On September 26, 2001, the State of California received final authorization of its revised State Hazardous Waste Management Program by EPA (63 Fed. Reg. § 49118 [2001]).

The regulations of Cal. Code Regs. tit. 22, div. 4.5 are therefore a source of potential federal ARARs for CERCLA response actions. The exception is when a state regulation is “broader in scope” than the corresponding federal RCRA regulations. In that case, such regulations are not considered part of the federally authorized program or potential federal ARARs. Instead, they are purely state law requirements and potential state ARARs.

The EPA July 23, 1992, notice approving the State of California RCRA program (57 FR § 32726 [1992]) specifically indicated that the state regulations addressed certain non-RCRA, state-regulated hazardous wastes that fell outside the scope of federal RCRA requirements. The Cal. Code Regs. tit. 22, div. 4.5 requirements would be potential state ARARs for such non-RCRA, state-regulated wastes.

A key threshold question for the ARARs analysis is whether excavated soil at Guam Way constitutes federal hazardous waste as defined under RCRA and the state's authorized program or qualifies as non-RCRA, state-regulated hazardous wastes. Waste characterization is discussed below in [Section B1.4](#).

B1.4 WASTE CHARACTERIZATION

Selection of ARARs involves the characterization of wastes, as described below.

B1.4.1 RCRA Hazardous Waste Determination

Federal RCRA hazardous waste determination is necessary to evaluate whether a waste is subject to RCRA requirements at Cal. Code Regs. tit. 22, div. 4.5 and other state requirements at Cal. Code Regs. tit. 23, div. 3, Chapter (ch.) 15. The first step in the RCRA hazardous waste characterization process is to evaluate contaminated media at the site(s) and determine whether the contaminant constitutes a "listed" RCRA waste. The preamble to the NCP states that "... it is often necessary to know the origin of the waste to determine whether it is a listed waste and that, if such documentation is lacking, the lead agency may assume it is not a listed waste" (55 Fed. Reg. §§ 8666, 8758 [1990]).

This approach is confirmed in EPA guidance for CERCLA compliance with other laws ([EPA 1988a](#)), as follows below.

To determine whether a waste is a listed waste under RCRA, it is often necessary to know the source. However, at many Superfund sites, no information exists on the source of wastes. The lead agency should use available site information, manifests, storage records, and vouchers in an effort to ascertain the nature of these contaminants. When this documentation is not available, the lead agency may assume that the wastes are not listed RCRA hazardous wastes, unless further analysis or information becomes available that allows the lead agency to determine that the wastes are listed RCRA hazardous wastes.

RCRA hazardous wastes that have been assigned EPA hazardous waste numbers (or codes) are listed in Cal. Code Regs. tit. 22, §§ 66261.30–66261.33. The lists include hazardous waste codes beginning with the letters "F," "K," "P," and "U."

Knowledge of the exact source of a waste is required for source-specific listed wastes ("K" waste codes). Some knowledge of the nature or source of the waste is required even for listed wastes from nonspecific sources, such as spent solvents ("F" waste codes) or commercial chemical products ("P" and "U" waste codes). These listed RCRA hazardous wastes are restricted to commercially pure chemicals used in particular processes such as degreasing.

“P” and “U” wastes cover only unused and unmixed commercial chemical products, particularly spilled or off-specification products (EPA 1992). Not every waste containing a “P”- or “U”-listed chemical is a hazardous waste. To determine whether a CERCLA investigation-derived waste contains a “P” or “U” waste, there must be direct evidence of product use. In particular, all the following criteria must be met. The chemicals must be:

- Discarded (as described in 40 CFR § 261.2[a][2]),
- Either an off-specification commercial product or a commercially sold grade,
- Not used (soil contaminated with spilled unused wastes is a “P” or “U” waste), and
- The sole active ingredient in a formulation.

The Navy has determined that the mere presence of contamination does not classify the soil as RCRA-listed hazardous waste. The Navy has not found any information to indicate the wastes at Guam Way are RCRA listed wastes.

The second step in the RCRA hazardous waste characterization process is to evaluate potential hazardous characteristics of the waste. The evaluation of characteristic waste is described in EPA guidance (EPA 1988a), as follows below.

Under certain circumstances, although no historical information exists about the waste, it may be possible to identify the waste as RCRA characteristic waste. This is important in the event that (1) remedial alternatives under consideration at the site involve on-site treatment, storage, or disposal, in which case RCRA may be triggered as discussed in this section; or (2) a remedial alternative involves off-site shipment. Since the generator (in this case, the agency or responsible party conducting the Superfund action) is responsible for determining whether the wastes exhibit any of these characteristics (defined in 40 CFR Sections 261.21 through 261.24), testing may be required. The lead agency must use best professional judgment to determine, on a site-specific basis, if testing for hazardous characteristics is necessary.

In determining whether to test for the toxicity characteristic using the extraction procedures (EP) toxicity test, it may be possible to assume that certain low concentrations of waste are not toxic. For example, if the total waste concentration in soil is 20 times or less the EP toxicity concentration, the waste cannot be characteristic hazardous waste. In such a case, RCRA requirements would not be applicable. In other instances, where it appears that the substances may be characteristic hazardous waste (ignitable, corrosive, reactive, or EP toxic), testing should be performed.

Hazardous waste characteristics as defined in 40 CFR §§ 261.21 through 261.24 are commonly referred to as ignitability, corrosivity, reactivity, and toxicity. California environmental health standards for the management of hazardous waste set forth in Cal. Code Regs. tit. 22, div. 4.5 were approved by EPA as a component of the federally authorized California RCRA program; therefore, the characterization of RCRA waste is based on the state requirements.

The characteristics of ignitability, corrosivity, reactivity, and toxicity are defined in Cal. Code Regs. tit. 22, §§ 66261.21 through 66261.24. According to Cal. Code Regs. tit. 22, § 66261.24(a)(1)(A), “A waste that exhibits the characteristic of toxicity pursuant to Subsection (a)(1) of this section has the EPA Hazardous Waste Number specified in Table I of this section which corresponds to the toxic contaminant causing it to be hazardous.” Table I assigns hazardous waste codes beginning with the letter “D” to wastes that exhibit the characteristic of toxicity; D waste codes are limited to “characteristic” hazardous wastes.

According to Cal. Code Regs. tit. 22, § 66261.10, waste characteristics can be measured by an available standardized test method or be reasonably classified by generators of waste based on their knowledge of the waste provided that the waste has already been reliably tested or if there is documentation of chemicals used.

The requirements at Cal. Code Regs. tit. 22, § 66261.24 list the toxic contaminant concentrations that determine the characteristic of toxicity. The concentration limits are in milligrams per liter. These units are directly comparable to total concentrations in waste groundwater and surface water. For waste soils, these concentrations apply to the extract or leachate produced by the toxicity characteristic leaching procedure (TCLP).

A waste is considered hazardous if contaminants in the wastewater or in the soil TCLP extract equal or exceed the TCLP limits. TCLP testing is required only if total contaminant concentrations in soil equal or exceed 20 times the TCLP limits because TCLP uses a 20-to-1 dilution for the extract ([EPA 1988a](#)).

B1.4.2 California-Regulated, Non-RCRA Hazardous Waste

A waste determined not to be a RCRA hazardous waste may still be considered a state-regulated, non-RCRA hazardous waste. The state is broader in scope in its RCRA program in determining hazardous waste. Cal. Code Regs. tit. 22, § 66261.24(a)(2) lists the total threshold limit concentrations (TTLC) and soluble threshold limit concentrations (STLC) for non-RCRA hazardous wastes. The state applies its own leaching procedure, the waste extraction test (WET), which uses a different acid reagent and has a different dilution factor (10-fold). There are other state requirements that may be broader in scope than federal ARARs for identifying non-RCRA wastes regulated by the state. These requirements may be potential ARARs for wastes not covered under federal ARARs. See additional subsections of Cal. Code Regs. tit. 22, § 66261.24. A waste is considered hazardous if its total concentrations exceed the TTLCs or if the extract concentrations from the WET exceed the STLCs.

A WET is required when the total concentrations exceed the STLC, but are less than the TTLCs [Cal. Code Regs. tit. 22, div. 4.5, ch. 11, Appendix II (b)].

B1.4.3 Other California Waste Classifications

For waste discharged after July 18, 1997, solid waste classifications at Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230 are used to determine applicability of waste management requirements. These classifications are summarized below.

A “designated waste” under Cal. Code Regs. tit. 27, § 20210, is defined at California Water Code § 13173. Under California Water Code § 13173, designated waste is hazardous waste that has been granted a variance from hazardous waste management requirements or nonhazardous waste that consists of or contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state.

A nonhazardous solid waste under Cal. Code Regs. tit. 27, § 20220 consists of all putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes, and other discarded waste (whether of solid or semisolid consistency), provided that such wastes do not contain wastes that must be managed as hazardous wastes or wastes that contain soluble pollutants in concentrations that exceed applicable water quality objectives or could cause degradation of waters of the state.

Under Cal. Code Regs. tit. 27, § 20230, inert waste is that subset of solid waste that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives and does not contain significant quantities of decomposable waste.

B2.0 CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Chemical-specific ARARs are generally health- or risk-based numerical values or methodologies applied to site-specific conditions that result in the establishment of a cleanup level. Many ARARs associated with particular remedial alternatives (such as closure or discharge) can be characterized as action-specific but include numerical values or methods to establish them so they fit in both categories (chemical- and action-specific). To simplify the comparison of numerical values, most action-specific requirements with numerical values are included in this chemical-specific section and, if repeated in the action-specific section, the discussion refers back to this section.

B2.1 SUMMARY OF CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS CONCLUSIONS

The TCRA will remove debris, MPPEH, MDAS, and soils containing lead that pose a potentially unacceptable risk to human health. ARARs associated with the munitions-related material are presented in [Section B2.2.2](#). Since the soil would be considered waste, RCRA waste disposal requirements are ARARs. ARARs associated with soil are presented in [Section B2.2.1](#). [Tables B-1 and B-2](#) summarize federal and state chemical-specific ARARs.

There are no chemical-specific ARARs for soil or munitions-related material at Guam Way that establish a cleanup standard.

The Navy will generate waste in the performance of the TCRA. The munitions-related material, the excavated soil, and any other items that are to be disposed of off-site are waste. The following ARARs require characterization of the waste for proper off-site disposal. The substantive provisions of the following requirements are federal and state chemical-specific ARARs:

- RCRA hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Military Munitions Rule identification of hazardous waste munitions and treatment and storage requirements for hazardous waste munitions at 40 CFR Part 266, subpart M
- Non-RCRA, state-regulated hazardous waste definitions at Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (a)(4), 66261.24(a)(2) through (a)(8), 66261.101, 66261.3(a)(2)(C) and (a)(2)(F)
- Designated and nonhazardous solid waste definitions at Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230

B2.2 DETAILED DISCUSSION OF CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

B2.2.1 Soil

There are no chemical-specific ARARs for soil at the Guam Way Site that present a cleanup standard. However, there are chemical-specific ARARs for excavation activities that generate waste. These federal and state chemical-specific ARARs are discussed below.

The key threshold question is whether or not the soil would be classified as hazardous waste. Excavated soil may be classified as a federal hazardous waste as defined by RCRA and the state-authorized program, or as non-RCRA, state-regulated hazardous waste. If the excavated soil is determined to be hazardous waste, the appropriate requirements apply.

B2.2.1.1 Federal ARARs

Resource Conservation and Recovery Act

The federal RCRA requirements at 40 CFR Part 261 do not apply in California because the state RCRA program is authorized. The authorized state RCRA requirements are therefore considered potential federal ARARs. The applicability of RCRA requirements depends on whether the waste is a RCRA hazardous waste; whether the waste was initially treated, stored, or disposed of after the effective date of the particular RCRA requirement; and whether the activity at the site constitutes treatment, storage, or disposal as defined by RCRA. However, RCRA requirements may be relevant and appropriate even if they are not applicable. Examples include activities that are similar to the definition of RCRA treatment, storage, or disposal for waste that is similar to RCRA hazardous waste.

The determination of whether a waste is a RCRA hazardous waste can be made by comparing the site waste to the definition of RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are ARARs because they define RCRA hazardous waste. These requirements are ARARs for soil and for any other waste generated in performance of the TCRA. A waste can meet the definition of hazardous waste if it meets any of these characteristic waste definitions.

The Navy will determine if the excavated soil meets the definition of RCRA hazardous waste at the time it is generated. If the excavated soil is RCRA hazardous waste, the Navy will comply with all applicable requirements for proper off-site disposal, such as packaging and manifesting. The Navy has not identified packaging or manifesting as ARARs because the disposal of the waste will take place off-site and ARARs apply on-site.

In addition, as long as the waste remains inside the area of contamination, it will not be subject to RCRA land disposal restrictions (LDR).

B2.2.1.2 State ARARs

State RCRA requirements included within the EPA-authorized RCRA program for California are considered to be federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 Fed. Reg. § 60848). The Cal. Code Regs. tit. 22, div. 4.5 requirements that are part of the state-approved RCRA program would be potential state ARARs for non-RCRA, state-regulated hazardous wastes.

The waste characteristics need to be compared with the definition of non-RCRA, state-regulated hazardous waste. The non-RCRA, state-regulated waste definition requirements at Cal. Code Regs. tit. 22, § 66261.24(a)(2) are state ARARs for determining whether other RCRA requirements are state ARARs. This section lists the TTLCs and STLCs. The site waste may be compared to these thresholds to determine whether it meets the characteristics for a non-RCRA, state-regulated hazardous waste. Section 66261.24(a)(2) lists the TTLCs and STLCs. The Navy will determine whether the excavated soil meets the definition of a non-RCRA, state-regulated hazardous waste prior to off-site disposal.

Cal. Code Reg. tit. 23, div. 3, ch. 15

The requirements at this section define a hazardous waste that is covered by ch. 15. These requirements are not more stringent than the federal or state RCRA ARARs for identifying hazardous waste; therefore, they are not chemical-specific ARARs.

Cal. Code Reg. tit. 27, div. 2, Subdivision 1

The former requirements at Cal. Code Regs. tit. 23, div. 3, ch. 15 were repealed and recodified at Cal. Code Regs. tit. 27, div. 2, Subdivision 1, and became effective July 18, 1997. The following sections of Cal. Code Regs. tit. 27, div. 2, Subdivision 1 define waste characteristics for

discharge of waste to land. These requirements may be applicable for soil left in place that was discharged after the effective date of the requirements. They are not applicable to discharges before that date, but may be relevant and appropriate.

Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230 are state definitions for designated waste and nonhazardous waste, and inert waste, respectively. These regulations are state ARARs for characterizing the excavated soil for appropriate off-site disposal. These soil classifications determine state classification and siting requirements for discharging waste to land. The Navy will determine if excavated soil meets the definition of inert, designated, or nonhazardous solid waste at the time it is generated and will dispose of the soil in an appropriate landfill.

B2.2.2 Unexploded Ordnance (UXO) and Munitions ARARs

Federal regulations that are the source of ARARs for military munitions-related material include the military munitions rule, promulgated at 40 CFR part 266, subpart M, and RCRA. Both the military munitions rule and RCRA require proper characterization of munitions-related material for off-site disposal as waste.

Neither munitions-related material nor UXO is, as a class, designated as CERCLA hazardous substances. However, the Navy is addressing ordnance items at Guam Way through the CERCLA framework, which is consistent with Department of Defense (DoD) policy.

Addressing the unique problems associated with UXO on military installations requires an approach that modifies the one taken under the CERCLA response and RCRA corrective action programs. The most significant reason for this difference is the absolute need to minimize explosives safety risks in planning, conducting, and implementing response actions. This is because the acute hazards associated with military munitions-related material (especially UXO) are the primary factors driving the scope, sequence, and types of actions that are possible on the impacted sites. These concerns are unique to military installations in that most actions on CERCLA response or RCRA corrective action sites do not need to consider an explosion hazard posed by the presence of munitions or explosives. Removal actions to address potentially live ordnance items require a different approach to balance the risks and impacts of addressing the military munitions-related material or UXO with the risks of inaction. Minimizing explosives safety risks while achieving the proper balance between these competing concerns is the goal of this removal action. Therefore, prior to commencement of the TCRA activities, an explosives safety remediation plan will be prepared in accordance with the DoD's guidance titled *DoD Ammunition and Explosives Safety Standards*, dated October 5, 2004.

At Guam Way, the alternative to sift ordnance items from soil would produce solid wastes, including potential ordnance or explosive waste (OEW), OEW scrap, and buried debris. Therefore, certain substantive requirements of RCRA are ARARs for handling the waste material from Guam Way.

B2.2.2.1 Federal

Military Munitions Rule

Ammunition products produced or owned by the DoD are regulated under the Military Munitions Rule (62 Fed. Reg. 6621, February 12, 1997). The Military Munitions Rule identifies when conventional and chemical military munitions become a hazardous waste under RCRA. It also provides for safe storage and transport of such waste. Munitions are defined under 40 CFR § 260.10, and the definition includes items such as explosive rounds and small arms rounds. A military munition is classified as hazardous waste if it is either a listed waste or exhibits a hazardous waste characteristic. The DoD has tested small arms ammunition (less than .50 caliber) and these items were found to not exhibit the RCRA reactive characteristic at 40 CFR § 261.23(a)(6). See Office of Solid Waste and Emergency Response (OSWER) Directives 9442.1994 (06) (November 3, 1994), 9443.1998 (07) (June 6, 1988), and 9443.1984 (10) (November 30, 1984). Munitions rounds of .50 caliber or greater may be reactive and the individual items may constitute a reactive characteristic hazardous waste. Hazardous waste classification analysis of military munitions must also consider other hazardous waste characteristics such as toxicity and ignitability.

The definition of solid waste in regards to OEW is further defined in the military munitions rule at 40 CFR § 266.202. A military munition is not a solid waste when it is used for its intended purpose. An unused military munition is a solid waste when abandoned, removed from storage for treatment or disposal, or is deteriorated or damaged to the point that it is not serviceable. A used or fired military munition is a solid waste when transported off-site for disposal or if collected and disposed by burying or landfilling. A used or fired military munition is a solid waste if it lands off-range and is not promptly rendered safe or retrieved. These criteria must be evaluated to determine whether the military munitions or unexploded ordinance could be a hazardous waste. In order to be a hazardous waste, the military munitions would have to be a solid waste.

The requirements for military munitions have been consolidated into 40 CFR part 266, subpart M with appropriate references to other requirements (such as treatment and disposal). These requirements are applicable if munitions-related material is found at Guam Way. The state of California has not yet adopted the federal RCRA Military Munitions Rule and continues to regulate ordnance items that meet the definition of “hazardous waste” under Cal. Code Regs. tit. 22 hazardous waste regulations.

Resource Conservation and Recovery Act

In order to be a hazardous waste, the munition-related waste needs to first meet the definition of a solid waste under 40 CFR § 266.202. If the munition-related waste is a solid waste, the substantive provisions of 40 CFR § 266.202 and the RCRA hazardous waste characteristic definitions are ARARs for characterizing the military munitions-related material and unexploded ordnance found in Guam Way in performance of the TCRA. The RCRA requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(I), 66261.23, 66261.24(a)(I), and 66261.100 are applicable ARARs because they define RCRA characteristic hazardous waste. The Navy will determine if the munitions-related material is a solid waste and a RCRA characteristic waste at the time it is generated. Once those determinations are made, the Navy will dispose of the waste at an appropriate off-site disposal site.

B2.2.2.2 State

Cal. Code Regs. tit. 27, div. 2, subdiv. 1, §§ 20210 and 20220 are state definitions for designated waste and nonhazardous waste. These are ARARs for waste that meets these definitions. Section 20230(a) defines inert waste as waste “that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives, and does not contain significant quantities of decomposable waste.” Section 20230(b) states that “inert wastes do not need to be discharged at classified waste management units.” Sections 20230(a) and (b) are state ARARs for waste that meets the definition of inert waste.

B3.0 LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Location-specific ARARs are identified and discussed in this section. The discussions are presented based on various attributes of the site location, such as whether it is within a floodplain.

B3.1 SUMMARY OF LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Eight general resource categories are associated with evaluating and identifying location-specific ARARs. These resource categories are cultural resources, wetland protection, floodplain management, hydrologic resources, biological resources, coastal resources, other natural resources, and geologic characteristics. Biological resources are the only category potentially affected by the response action at the Guam Way area, as discussed below. No protected wetlands or hydrologic resources are present on Guam Way, and Guam Way is not within a floodplain. Furthermore, no regulated geologic characteristics exist at the site and the proposed removal action does not include construction of a RCRA facility within 61 meters of a fault with displacement in Holocene time or disposal of hazardous waste in salt dome formations, salt bed formations, or underground mines or caves. Location-specific ARARs are also presented in [Table B-3](#) at the end of this appendix.

B3.1.1 Cultural Resources ARARs Conclusions

No cultural resources were identified at Guam Way that could be affected by the TCRA.

B3.1.2 Wetlands Protection and Floodplain Management Conclusions

No wetlands or floodplain resources were identified at Guam Way that could be affected by the TCRA.

B3.1.3 Hydrologic Resources Conclusions

No hydrologic resources were identified at Guam Way that could be affected by the TCRA.

B3.1.4 Biological Resources Conclusions

Migratory birds and endangered species are the only potential regulated biological resources found at Guam Way. The Navy has identified the substantive provisions of the Migratory Bird Treaty Act and the Endangered Species Act as federal ARARs.

B3.2 DETAILED DISCUSSION OF LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Location-specific ARARs are identified and discussed in this section. Location-specific ARARs are also presented in [Table B-3](#).

B3.2.1 ARARs for Biological Resources

Migratory Bird Treaty Act of 1972

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703–712) protects migratory bird species. The substantive provisions at 16 U.S.C. § 703 prohibit at any time, using any means or manner, the pursuit, hunting, capturing, and killing or the attempt to take, capture, or kill any migratory bird. The MBTA also prohibits the possession, sale, export, and import of any migratory bird or any part of a migratory bird, as well as nests and eggs. A list of migratory birds for which this requirement applies is found at 50 CFR § 10.13. It is the Navy’s position that this act is not legally applicable to Navy actions; however, in July 2006, the DoD signed a Memorandum of Understanding (MOU) with the United States Fish and Wildlife Service. The MBTA will continue to be evaluated as a potentially relevant and appropriate requirement for Navy CERCLA response actions.

Because migratory birds may be present at Guam Way, the substantive provisions of the Migratory Bird Treaty Act are ARARs. Implementation of the TCRA will not result in the taking of migratory birds.

Endangered Species Act of 1973

The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§ 1531–1543) provides a means for conserving various species of fish, wildlife, and plants that are threatened with extinction. The substantive requirements at 16 U.S.C. §§ 1531–1543 are ARARs for CERCLA sites that have federal listed threatened or endangered species or designated critical habitats. The administrative requirements of the ESA, including the Section 7 consultation process and the associated production of Biological Assessment (BA) and Biological Opinion (BO) documents and the Section 10 permit requirements, are not ARARs. *See CERCLA Compliance with Other Laws Manual, part II*, page 4-12, USEPA, 1989 (providing guidance that ESA consultation is not a requirement for CERCLA actions conducted entirely on site). *See generally preamble to NCP final rule*, 55 Fed. Reg. 8756, 8757 (1990) (explaining distinction between substantive and administrative requirements). Compliance with the substantive requirements of ESA requires the Navy to determine whether federal listed species and designated critical habitat are present at the CERCLA site and to identify reasonable and prudent mitigation measures to avoid “takes” of listed species and allow the response action to be undertaken without

jeopardizing the continued existence of a listed species or resulting in the destruction or adverse modification of designated critical habitat.

The California tiger salamander and the red-legged frog are listed as federal threatened species under the ESA and are potentially present at or near Guam Way. In the event that these species are found at Guam Way during the TCRA, the ESA will be an ARAR.

B4.0 ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action-specific ARARs are identified below only for the alternative the Navy will implement as a TCRA. The components of the TCRA include excavating soil to remove munitions-related material and lead above the remediation goal. The Navy will use hand-held detectors at the bottom of the excavations to ensure that all MPPEH has been removed before backfilling. The Navy will treat all MEC, MDAH, and MPPEH (by detonation) on site to eliminate the potential explosive hazard, and will then segregate MDAS from other debris and demilitarized off site for disposal or recycling. All soils exhibiting visible staining or evidence of any impacts will be disposed of off site. Once the excavation is certified clear of all MPPEH by qualified UXO technicians, confirmation samples will be collected in the sidewalls and bottom of the excavation at a rate of one per 100 square feet (10-foot by 10-foot grid). The samples will be analyzed for lead to ensure that all soils containing lead above the cleanup goal have been removed. Once all soil above cleanup goals has been removed, the Navy will backfill and compact the excavation with clean fill and grade to match pre-excavation grade.

Federal and state action-specific ARARs are presented in [Tables B-4 and B-5](#), included at the end of this appendix.

B.4.1 FEDERAL ARARs FOR EXCAVATION AND OFF-SITE DISPOSAL

Resource Conservation and Recovery Act

The Navy has identified the following federal ARARs under RCRA for excavation and off-site disposal of soil and other generated waste:

- The requirement to determine if generated waste is hazardous waste at Cal. Code Regs. tit. 22, §§ 66262.10(a) and 66262.11
- The requirement to analyze generated waste to determine if it is hazardous at Cal. Code Regs. tit. 22, § 66264.13(a) and (b)
- Temporary staging pile requirements at 40 CFR § 264.554(d)(1)(i) through (ii), (d)(2), (e), (f), (h), (i), (j), and (k)
- RCRA waste pile closure requirements Cal. Code Regs. tit. 22, § 66264.258(a) and (b) except references to procedural requirements

Military Munitions Rule

The Navy has identified the following federal ARARs under the RCRA Military Munitions Rule for excavation and off-site disposal of munition-related material:

- Standards for transportation and storage of solid waste military munitions and treatment and disposal of waste military munitions at 40 C.F.R. § 266.203, 266.205, and 266.206

Clean Air Act

In addition, the Navy has identified the following federal action-specific ARAR under the Clean Air Act for the excavation:

- The requirement that source emissions not equal or exceed 20 percent opacity under Bay Area Air Quality Management District Regulation 6-302

Clean Water Act

- The Navy has also identified the substantive provisions of the following Clean Water Act storm water requirements as federal ARARs because the planned excavation will affect more than one acre: Clean Water Act § 402(p) and implementing regulations at 40 CFR § 122.44(k)(2) and (4) – requiring best management practices to control or abate the discharge of pollutants from stormwater discharges

Under CERCLA § 121(e)(1), no federal, state, or local permit is required for any remedial action conducted entirely on site, where it is selected and carried out in compliance with CERCLA § 121. Therefore, the Navy is not required to obtain an individual storm water permit or submit a notice of intent under the state's general permit. However, the Navy will take into account the substantive requirements of the state's general permit for storm water discharges as TBC criteria to comply with the requirement to implement best management practices to control or abate the discharge of pollutants from stormwater discharges.

B.4.2 STATE ARARs FOR EXCAVATION AND OFF-SITE DISPOSAL

The following are state ARARs:

- The requirement to accurately characterize wastes under Cal. Code Regs. tit. 27, § 20200(c)
- The discharge requirements for designated waste to Class I or Class II waste management units at Cal. Code Regs. tit. 27, § 20210
- The discharge requirements for nonhazardous solid to classified units at Cal. Code Regs. tit. 27, §§ 20220(b)

B5.0 REFERENCES

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TABLES

TABLE B-1: FEDERAL CHEMICAL-SPECIFIC ARARs^a

Action Memorandum for Time-Critical Removal Action at Guam Way, Former Naval Weapons Station Concord, Concord, California

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901 through 6991[i])^c				
These requirements define RCRA hazardous waste. Solid waste is characterized as toxic based on the TCLP results if the waste exceeds the TCLP maximum concentrations or is a RCRA characteristic waste if the waste meets the definition of ignitability, reactivity, corrosivity, or toxicity.	Waste	Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Applicable for determining whether waste (excavated soil, munitions-related material, and other generated waste) is RCRA hazardous.
Military Munitions Rule (40 CFR Part 266 Subpart M)^c				
Identification of hazardous waste munitions and treatment and storage requirements for hazardous waste munitions.	Storage of military munitions	40 CFR Part 266, Subpart M	Applicable	Military munitions must be managed in accordance with 40 CFR Part 266, subpart M requirements

Notes:

- a Many action-specific ARARs may contain chemical-specific limitations and are addressed in the action-specific tables.
 - b Only the substantive provisions of the requirements cited in this table are ARARs.
 - c Statutes and policies and their citations are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only pertinent substantive requirements of the specific citations are considered ARARs.
- §§ Sections
 ARAR Applicable or relevant and appropriate requirement
 Cal. Code Regs. California Code of Regulations
 CFR Code of Federal Regulations
 ch. Chapter
 RCRA Resource Conservation and Recovery Act
 TCLP Toxicity characteristic leaching procedure
 tit. Title
 U.S.C. *United States Code*

TABLE B-2: STATE CHEMICAL-SPECIFIC ARARs^a

Action Memorandum for Time-Critical Removal Action at Guam Way, Former Naval Weapons Station Concord, Concord, California

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Cal/EPA Department of Toxic Substances Control^c				
Defines “non-RCRA hazardous waste.”	Waste	Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (4), 66261.24(a)(2)–(a)(8), 66261.101, 66261.3(a)(2)(C), or 66261.3(a)(2)(F)	Applicable	Applicable for determining whether a waste (excavated soil and other generated waste) is a non-RCRA hazardous waste.
California State and Regional Water Quality Control Boards^b				
Definitions of designated waste, non-hazardous waste, and inert waste	Waste	Cal. Code Regs. tit. 27, §§ 20210, 20220 and 20230	Applicable	These requirements are ARARs for characterizing waste (excavated soil, munitions-related material, and other generated waste).

Notes:

- a Many potential action-specific ARARs may contain chemical-specific limitations and are addressed in the action-specific ARAR tables.
 - b Only the substantive provisions of the requirement(s) cited in this table are ARARs.
 - c Statutes and policies, and their citations, are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific ARARs are addressed in the table below each general heading; only pertinent substantive requirements of specific citations are considered ARARs.
- §§ Sections
 ARAR Applicable or relevant and appropriate requirement
 Cal. Code Regs. California Code of Regulations
 Cal/EPA California Environmental Protection Agency
 RCRA Resource Conservation and Recovery Act
 tit. Title

TABLE B-3: FEDERAL LOCATION-SPECIFIC ARARs

Action Memorandum for Time-Critical Removal Action at Guam Way, Former Naval Weapons Station Concord, Concord, California

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Migratory Bird Treaty Act of 1972 (16 U.S.C. §§ 703 through 712)^b					
Migratory bird area	Protects almost all species of native migratory birds in the United States from unregulated “take,” which can include poisoning at hazardous waste sites.	Presence of migratory birds	16 U.S.C. § 703	Relevant and appropriate	Migratory birds have been observed at Guam Way. The TCRA will not result in the taking of migratory birds.
Endangered Species Act of 1973 (16 U.S.C. §§ 1531–1543)^b					
Location where endangered or threatened species are present or location designated as critical habitat.	Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat.	Presence of endangered species, listed species, or critical habitat	16 U.S.C. §§ 1531–1543	Applicable	The California tiger salamander and the red-legged frog are listed as federal threatened species and may be present at Guam Way. If they are found during the TCRA, the substantive provisions of these requirements will be ARARs.

Notes:

a Only the substantive provisions of the requirements cited in this table are ARARs.

b Statutes and policies and their citations are provided as headings to identify general categories of ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statute or policy as a ARAR; specific ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered ARARs.

§ Section

§§ Sections

ARAR Applicable or relevant and appropriate requirement

U.S.C. United States Code

TABLE B-4: FEDERAL ACTION-SPECIFIC ARARS

Action Memorandum for Time-Critical Removal Action at Guam Way, Former Naval Weapons Station Concord, Concord, California

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
EXCAVATION AND OFF-SITE DISPOSAL					
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901 through 6991[i])					
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generator of waste	Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11	Applicable	Applicable to operations where waste is generated. The Navy will generate waste (excavated soil, munitions-related material and other generated waste). The Navy will determine if the waste is hazardous at the time it is generated.
Excavate soil or generate waste	Requirements for analyzing waste for determining whether waste is hazardous.	Generator of waste	Cal. Code Regs. tit. 22, § 66264.13(a) and (b)	Applicable	Applicable to operations where waste is generated. The Navy will generate waste (excavated soil, munitions-related material and other generated waste). The Navy will determine if the waste is hazardous at the time it is generated.
Temporary staging piles	Allows generators to accumulate solid remediation waste in an EPA-designated pile for storage only, up to 2 years, during remedial operations without triggering LDRs.	Hazardous remediation waste temporarily stored in piles	40 CFR §§ 264.554(d)(1)(i-ii) and (d)(2), (e), (f), (h), (i), (j), and (k)	Relevant and Appropriate	The Navy will temporarily store excavated soil in a staging pile prior to use as backfill or off-site disposal.

TABLE B-4: FEDERAL ACTION-SPECIFIC ARARs (CONTINUED)

Action Memorandum for Time-Critical Removal Action at Guam Way, Former Naval Weapons Station Concord, Concord, California

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901 through 6991[i]) (Continued)					
Closure of temporary staging pile	At closure, owner shall remove or decontaminate all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste. If waste is left on site, perform postclosure care in accordance with the closure and postclosure care requirements that apply to landfills.	Waste pile used to store hazardous waste	Cal. Code Regs. tit. 22, § 66264.258(a) and (b) except references to procedural requirements	Relevant and Appropriate	The Navy will close the temporary staging pile according to these ARARs when the excavation and off-site disposal is complete.
Military Munitions Rule (40 C.F.R. pt. 266 subpt. M)^a					
Military munitions	Standards for transportation and storage of solid waste military munitions and treatment and disposal of waste military munitions	Management of military munitions	40 C.F.R. § 266.203, 266.205, and 266.206	Applicable	Military munitions must be managed as a hazardous waste when conditions occur that cause the munitions to be classified as hazardous waste. The substantive provisions of these requirements are applicable for transportation, storage and treatment and disposal of military munitions.
Clean Air Act (42 U.S.C. § 7401 et seq.)^a					
Excavation	Prohibits emissions equal to or greater than 20 percent opacity.	Emission from a source	BAAQMD Regulation 6-302	Applicable	Applicable for excavation activities.

TABLE B-4: FEDERAL ACTION-SPECIFIC ARARs (CONTINUED)

Action Memorandum for Time-Critical Removal Action at Guam Way, Former Naval Weapons Station Concord, Concord, California

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Clean Water Act, as Amended (33 U.S.C., ch. 26, §§ 1251–1387)^a					
Discharge to surface waters, including storm water	Owners and operators of construction activities must be in compliance with discharge standards, including substantive provisions of the general requirements for storm water plans and BMPs.	Construction that affects at least 1 acre	CWA Section 402 (33 U.S.C. ch. 26, § 1342) and 40 CFR § 122.44(k)(2) and (4)	Applicable	The substantive provisions are ARARs the TCRA because the excavation will affect at least one acre and will have the potential to discharge to surface water. Typically, a NPDES permit is required. However, pursuant to CERCLA § 121(e) the Navy does not need to get a permit or submit a notice of intent to discharge under a general NPDES permit. However, the Navy would use the State of California's General Construction Storm Water Permit (SWRCB Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ) as TBC criteria for developing a stormwater plan that complies with these CWA ARARs.

Notes:

a Statutes and policies and their citations are provided as headings to identify general categories of ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered ARARs.

§	Section	DWQ	Department of Water Quality
§§	Sections	EPA	U.S. Environmental Protection Agency
ARAR	Applicable or relevant and appropriate requirement	LDR	Land disposal restriction
BAAQMD	Bay Area Air Quality Management District	Navy	Department of the Navy
BMP	Best management practice	NPDES	National Pollution Discharge Elimination System
Cal. Code Regs.	California Code of Regulations	RCRA	Resource Conservation and Recovery Act
CERCLA	Comprehensive Environmental Response, Liability and Compensation Act	TBC	To be considered
CFR	Code of Federal Regulations	tit.	Title
ch.	Chapter	U.S.C.	United States Code

TABLE B-5: STATE ACTION-SPECIFIC ARARS

Action Memorandum for Time-Critical Removal Action at Guam Way, Former Naval Weapons Station Concord, Concord, California

Action	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
EXCAVATION AND OFF-SITE DISPOSAL					
State Water Resources Control Board					
Generate waste	Dischargers shall be responsible for accurate characterization of wastes, including determinations of whether or not wastes will be compatible with containment features and other wastes at a Unit and whether or not wastes are required to be managed as hazardous wastes.	Discharges of designated waste after July 18, 1997 (nonhazardous waste that could cause degradation of surface or ground water) to land for treatment, storage, or disposal	Cal. Code Regs. tit. 27, § 20200(c)	Applicable	Applicable to operations where waste is generated. The Navy will generate waste (excavated soil, munitions-related material and other generated waste). The Navy will determine if the waste meets the definition of designated waste at the time it is generated.
Disposal of waste	Requires that designated waste as defined at California Water Code § 13173 be discharged to Class I or Class II waste management units.	Discharges of designated waste after July 18, 1997 (nonhazardous waste that could cause degradation of surface or ground water) to land for treatment, storage, or disposal	Cal. Code Regs. tit. 27, § 20210	Applicable	Applicable to operations where waste is generated. The Navy will generate waste (excavated soil, munitions-related material and other generated waste). The Navy will determine if the waste meets the definition of designated waste at the time it is generated.
Disposal of waste	Requires that nonhazardous solid waste as defined at § 20220(a) be discharged to a classified waste management unit.	Discharge of nonhazardous solid waste after July 18, 1997 to land for treatment, storage, or disposal	Cal. Code Regs. tit. 27, § 20220(b)	Applicable	Applicable to operations where waste is generated. The Navy will generate waste (excavated soil, munitions-related material and other generated waste). The Navy will determine if the waste meets the definition of designated waste at the time it is generated.

TABLE B-5: STATE ACTION-SPECIFIC ARARs (CONTINUED)

Action Memorandum for Time-Critical Removal Action at Guam Way, Former Naval Weapons Station Concord, Concord, California

Notes:

- a Statutes and policies and their citations are provided as headings to identify general categories of ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered ARARs
- § Section
- ARAR Applicable or relevant and appropriate requirement
- Cal. Code Regs. California Code of Regulations
- CERCLA Comprehensive Environmental Response, Liability and Compensation Act

APPENDIX C
INDEX OF ADMINISTRATIVE RECORD FOR GUAM WAY,
FORMER NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD

NWS CONCORD

DRAFT ENVIRONMENTAL RESTORATION RECORD INDEX - UPDATE (SORTED BY RECORD DATE/RECORD NUMBER)

APPENDIX C - INDEX OF RESTORATION RECORD FOR GUAM WAY

FORMER NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD

UIC No. _ Rec. No.	Record Date	Author	Subject	Distribution	Sites	Location SWDIV Box No(s) CD No.	FRC Accession No. FRC Warehouse FRC Box No(s)
Doc. Control No.	Prc. Date	Author Affil.					
Record Type	SSIC No.	Recipient					
Contract No.	CTO No.	Recipient Affil.					
Approx. # Pages							
AR_N60036_001985 BRAC SER BPMOW.LKB/0371 CORRESPONDENCE NONE 2	06-12-2009 03-02-2010 5090.3.A. NONE	HILL, J. BRAC PMO WEST RAMSEY, P. U.S. EPA - SAN FRANCISCO, CA	TRANSMITTAL OF THE DRAFT WORK PLAN FOR PRELIMINARY ASSESSMENT / SITE INSPECTION AT AREAS OF POTENTIAL INTEREST (W/OUT ENCLOSURE)	ADMIN RECORD BASE INFO REPOSITORY	BLDG IA-20	NAVFAC - SOUTHWEST	
SF_N60036_001986 CHAD-3213-0040- 0003 REPORT N62473-07-D-3213 556	06-12-2009 03-02-2010 5090.3.C. CTO 0040	CHADUX TT, JOINT VENTURE BRAC PMO WEST	DRAFT WORK PLAN FOR PRELIMINARY ASSESSMENT/SITE INSPECTION AT AREAS OF POTENTIAL INTEREST (CD COPY ENCLOSED) [SEE RECORD # 1985 - BRAC PMO WEST TRANSMITTAL LETTER]	SENSITIVE SITE FILE	BLDG 0000081 BLDG 0000093 BLDG IA-100 BLDG IA-20 BLDG IA-25 BLDG IA-27 SITE 00023A	NAVFAC - SOUTHWEST	
AR_N60036_002170 NONE CORRESPONDENCE NONE 12	10-02-2009 08-17-2011 5090.3.A. NONE	RAMSEY, P. U.S. EPA - SAN FRANCISCO, CA STEWART, K. BRAC PMO WEST	REVIEW AND COMMENTS ON THE 1) DRAFT WORK PLAN FOR PRELIMINARY ASSESSMENT/SITE INSPECTION AT AREAS OF POTENTIAL INTEREST; AND 2) LETTER ON THE NAVY'S EVALUATION OF VARIOUS BUILDINGS	ADMIN RECORD	BLDG 0000081 BLDG 0000087 BLDG 0000093 BLDG 0000097 BLDG IA-20 BLDG IA-25 BLDG IA-27 SITE 00023A SITE 00027 SITE 00029	NAVFAC - SOUTHWEST	
AR_N60036_002023 BRAC SER BPMOW.LKB/0410 CORRESPONDENCE NONE 2	04-07-2010 06-16-2010 5090.3.A. NONE	STEWART, K. BRAC PMO WEST GARVEY, M. U.S. EPA - SAN FRANCISCO, CA	TRANSMITTAL OF THE DRAFT FINAL WORK PLAN FOR SITE INSPECTION AT AREAS OF POTENTIAL INTEREST (W/OUT ENCLOSURE)	ADMIN RECORD INFO REPOSITORY		NAVFAC - SOUTHWEST	

APPENDIX C - INDEX OF RESTORATION RECORD FOR GUAM WAY

FORMER NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD

UIC No. _ Rec. No.	Record Date	Author	Author Affil.	Location	FRC Accession No.	
Doc. Control No.	Prc. Date	Author	Author Affil.	SWDIV Box No(s)	FRC Warehouse	
Record Type	SSIC No.	Author Affil.	Author Affil.	CD No.	FRC Box No(s)	
Contract No.	CTO No.	Recipient	Subject	Distribution	Sites	
Approx. # Pages	CTO No.	Recipient Affil.	Subject	Distribution	Sites	
SF_N60036_002024 CHAD-3213-0040-0004 REPORT N62473-07-D-3213 900	04-07-2010 06-16-2010 5090.3.C. CTO 0040	CHADUX TT, JOINT VENTURE BRAC PMO WEST	DRAFT FINAL WORK PLAN FOR SITE INSPECTION AT AREAS OF POTENTIAL INTEREST (CD COPY ENCLOSED) [SEE RECORD # 2023 - BRAC PMO WEST TRANSMITTAL LETTER]	SENSITIVE SITE FILE	BLDG 0000081 BLDG 0000093 BLDG IA-100 BLDG IA-20 BLDG IA-25 BLDG IA-27 SITE 00023A	NAVFAC - SOUTHWEST
AR_N60036_002053 BRAC SER BPMOW.VJH/0662 CORRESPONDENCE NONE 2	07-27-2010 09-17-2010 5090.3.A. NONE	STEWART, K. BRAC PMO WEST GARVEY, M. U.S. EPA - SAN FRANCISCO, CA	TRANSMITTAL OF THE FINAL WORK PLAN FOR SITE INSPECTION AT AREAS OF POTENTIAL INTEREST	ADMIN RECORD INFO REPOSITORY		NAVFAC - SOUTHWEST
AR_N60036_002054 CHAD-3213-0040-0005 REPORT N62473-07-D-3213 725	07-27-2010 09-17-2010 5090.3.A. DO 0040	CHADUX TT, JOINT VENTURE BRAC PMO WEST	FINAL WORK PLAN FOR SITE INSPECTION AT AREAS OF POTENTIAL INTEREST (CD COPY ENCLOSED) [SEE RECORD # 2053 - BRAC PMO WEST TRANSMITTAL LETTER]	ADMIN RECORD INFO REPOSITORY SENSITIVE	BLDG 0000081 BLDG 0000093 BLDG 0000420 BLDG IA-20 BLDG IA-25 BLDG IA-27	NAVFAC - SOUTHWEST
AR_N60036_002201 CHAD-3213-0040-0005.A1/F REPORT N62473-07-D-3213 412	07-01-2011 10-31-2011 5090.3.A. DO 0040	WOOLLEY, S. CHADUX TT, JOINT VENTURE BRAC PMO WEST	FINAL ADDENDUM 01 TO THE MUNITIONS CONSTITUENTS SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN) FOR SITE INSPECTION AT AREAS OF POTENTIAL INTEREST (CD COPY ENCLOSED)	ADMIN RECORD INFO REPOSITORY SENSITIVE	BLDG 0000093	NAVFAC - SOUTHWEST
AR_N60036_002165 BRAC SER BPMOW.VJH/0703 CORRESPONDENCE NONE 7	07-07-2011 08-05-2011 5090.3.A. NONE	ANDERSON, S. BRAC PMO WEST GARVEY, M. U.S. EPA - SAN FRANCISCO, CA	ADDITIONAL SAMPLING FOR SITE INSPECTION AT AREAS OF POTENTIAL INTEREST (W/ ENCLOSURES)	ADMIN RECORD INFO REPOSITORY SENSITIVE	BLDG 0000093	NAVFAC - SOUTHWEST

APPENDIX C - INDEX OF RESTORATION RECORD FOR GUAM WAY

FORMER NAVAL WEAPONS STATION SEAL BEACH, DETACHMENT CONCORD

UIC No. _ Rec. No.	Record Date	Author	Author Affil.	Location	FRC Accession No.
Doc. Control No.	Prc. Date	Author	Author Affil.	SWDIV Box No(s)	FRC Warehouse
Record Type	SSIC No.	Author Affil.	Author Affil.	CD No.	FRC Box No(s)
Contract No.	CTO No.	Recipient	Recipient		
Approx. # Pages		Recipient Affil.	Subject	Distribution	Sites
AR_N60036_002200 BRAC SER BPMOW.VJH/0786 CORRESPONDENCE NONE 2	08-09-2011 10-31-2011 5090.3.A. NONE	ANDERSON, S. BRAC PMO WEST DRAGONE, M. U.S. EPA - SAN FRANCISCO, CA	TRANSMITTAL OF THE FINAL ADDENDUM 01 TO THE MUNITIONS CONSTITUENTS SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN) FOR SITE INSPECTION AT AREAS OF POTENTIAL INTEREST (ENCLOSURE IS RECORD # 2201)	ADMIN RECORD INFO REPOSITORY	BLDG 0000093 NAVFAC - SOUTHWEST
AR_N60036_002206 BRAC SER BPMOW.DP/0973 CORRESPONDENCE NONE 2	08-15-2011 11-03-2011 5090.3.A. NONE	ANDERSON, S. BRAC PMO WEST NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY (NOSSA) - INDIAN HEAD, MD	TRANSMITTAL OF THE AMENDMENT 1 TO THE FINAL EXPLOSIVE SAFETY SUBMISSION FOR EAGLE'S NEST EXPLOSIVE ORDNANCE DISPOSAL SITE, FORMER INLAND BURN/RAILROAD SIDINGS EXCAVATIONS SITE, NORTHERN RAILROAD REVETMENT B, GUAM WAY, AND THE BERMED AREA	ADMIN RECORD INFO REPOSITORY	UXO 000003 UXO 000009 UXO 000010 NAVFAC - SOUTHWEST
AR_N60036_002207 CHAD-3213-0050-0009.A1 REPORT N62473-07-D-3213 50	08-15-2011 11-03-2011 5090.3.A. DO 0050	CHADUX TT, JOINT VENTURE BRAC PMO WEST	AMENDMENT 1 TO THE FINAL EXPLOSIVE SAFETY SUBMISSION FOR EAGLE'S NEST EXPLOSIVE ORDNANCE DISPOSAL SITE, FORMER INLAND BURN/RAILROAD SIDINGS EXCAVATIONS SITE, NORTHERN RAILROAD REVETMENT B, GUAM WAY, AND THE BERMED AREA (CD COPY ENCLOSED)	ADMIN RECORD INFO REPOSITORY SENSITIVE	UXO 000003 UXO 000009 UXO 000010 NAVFAC - SOUTHWEST

Total Estimated Record Page Count: 2,672

Total Records: 12

(([RECORD NUMBER]=2206 Or [RECORD NUMBER]=2207 Or [RECORD NUMBER]=2024 Or [RECORD NUMBER]=2053 Or [RECORD NUMBER]=2054 Or [RECORD NUMBER]=2201 Or [RECORD NUMBER]=2165 Or [RECORD NUMBER]=1985 Or [RECORD NUMBER]=1986 Or [RECORD NUMBER]=2170 Or [RECORD NUMBER]=2023 Or [RECORD NUMBER]=2024 Or [RECORD NUMBER]=2053 Or [RECORD NUMBER]=2054 Or [RECORD NUMBER]=2201 Or [RECORD NUMBER]=2165 Or [RECORD NUMBER]=2200)) AND [UIC NUMBER]='N60036'

**APPENDIX D
RESPONSES TO REGULATORY AGENCY COMMENTS ON THE DRAFT ACTION
MEMORANDUM**

**RESPONSE TO REGULATORY AGENCY COMMENTS ON
DRAFT ACTION MEMORANDUM FOR TIME-CRITICAL REMOVAL ACTION
(TCRA) AT GUAM WAY AREA OF POTENTIAL INTEREST,
FORMER NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD,
CONCORD, CALIFORNIA**

This document presents the U.S. Department of the Navy (Navy) responses to comments from staff from the U.S. Environmental Protection Agency (EPA); and the Regional Water Quality Control Board (Water Board), on the Draft Action Memorandum for Time-Critical Removal Action at Guam Way Area of Potential Interest, Former Naval Weapons Station Seal Beach Detachment Concord, Concord, California, dated July 13, 2012. The comments addressed below were received from the EPA on August 20, 2012 and the Water Board on August 15, 2012.

RESPONSES TO EPA COMMENTS

GENERAL COMMENTS

1. **Comment:** Purpose: The TCRA states that lead concentrations in soil may pose unacceptable risks to humans and that the removal action will address lead in soils; however, it is not clear why the removal action is being limited to lead. Section II.A.3 (page 6) states that soil samples were only tested for lead, TPH, SVOCs and explosives. Based on the conceptual site model that Guam Way is an “undeveloped disposal area” that was potentially used for “storage, disposal or burning,” the presence of combustion byproducts such as PAHs and dioxins/furans should be discussed and considered for investigation and remediation.

Response: The removal action is not being limited to lead. Based on the data collected during SI field work, lead is the only chemical that has been identified as a COC. However, this is from a limited sampling program that did not fully characterize the site. Samples collected during the TCRA will be analyzed for a wide range of analytes specified in the Removal Action Work Plan (RAWP). PAHs are included in the SVOC analyses (8270C) that will be performed. If there is sufficient evidence of burning analyses for dioxin/furans will be considered.

SPECIFIC COMMENTS

1. **Comment:** Section I, Purpose, page 1: The middle of the first paragraph refers to “soils containing lead that may pose an unacceptable risk to human health” and “soils containing elevated concentrations of motor oil and lead” not being suitable for use as backfill. It is not clear if these are two distinct categories of soil or if there is overlap between the

categories. Please clarify what is meant by this statement and which soils will be suitable for use as backfill.

Response: The subject sentence was meant to convey that soil with unacceptable levels of contaminants will not be used as backfill. Lead and motor oil were identified in soil at Guam Way during the SI and that is why they were called out in that sentence. This sentence has been removed from the first paragraph of Section I. A clearer explanation of the planned methods for determining whether soil can be used as backfill is found in the third full paragraph on Page 2 of the Action Memorandum (AM).

2. **Comment:** **Section I, Purpose, pages 1-2: The second paragraph of this section states that excavation of the “third trench” was stopped in 2010 upon the discovery of MPPEH. Please indicate that the “third trench” is Trench GMT1 so as not to confuse it with Trench GMT3.**

Response: The text has been revised to indicate that excavation of Trench GMT1 was stopped.

3. **Comment:** **Sections I and III.B, Purpose and Threats to Public Health or Welfare, pages 2 and 12, Figure 4 and Table 4: The description throughout the Action Memo of the SLHHA that was conducted during the SI which indicated lead in soil poses unacceptable risks was based on incorrect screening levels that do not comply with EPA guidance. As described in the Action Memo, background levels were added to the DTSC CHHSLs to derive the respective residential and industrial cleanup goals of 113 mg/kg and 353 mg/kg. According to EPA guidance relating to the role of background, when background levels are below action levels, the action levels, not the sum of action levels plus background, should be used. In the case of Guam Way, the residential and industrial action levels for soil lead should be the DTSC CHHSLs of 80 mg/kg and 320 mg/kg, respectively. Please revise the cleanup goals and re-evaluate the extent of excavations for lead and any other COCs that used this approach to levels of background contamination. Furthermore, the approach described in the TCRA is inconsistent with the approach described in Section 5.5.5 of the Draft Site Inspection Report for Guam Way (dated July 25, 2012).**

Response: The DTSC’s Office of Environmental Health Hazard Assessment (OEHHA) California Human Health Screening Levels (CHHSL) model gives levels that are based on the amount of lead in the soil that would lead to an incremental increase in blood lead levels of 1 microgram per deciliter ($\mu\text{g}/\text{dL}$). Thus, the Navy has used the residential lead goal of 113 mg/kg, which is the background value for lead (33 mg/kg) plus the residential OEHHA CHHSL (80 mg/kg). Likewise, the industrial goal for

lead of 353 mg/kg reflects the OEHHA CHHSL (320 mg/kg) combined with the background value.

This represents a potential disagreement in how this TCRA is performed as well as future assessment of risks at FIB/RSE. Based on this, the Navy will confer with agencies when a decision on using backfill will be made that involves a lead concentration between the CHHSL (80 mg/kg) and the action level (113 mg/kg).

The lead levels shown in the Draft Site Inspection (SI) Report for Areas of Potential Interest, including Guam Way, shows the residential and industrial CHHSL values of 80 mg/kg and 320 mg/kg without the added background level of 33 mg/kg. These CHHSL values were used in the SI report as a conservative screening level for comparison with the maximum detected concentration of lead to determine whether a remedial investigation (RI) is necessary for the site. In the case of Guam Way, the maximum detected concentration exceeded the conservative CHHSL screening value. However, because a TCRA was planned for the Guam Way area, the selected removal action level was determined by the Navy as noted in the above paragraph in this response.

4. **Comment:** **Sections I and II.A.4, Purpose and Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant, pages 2 and 8:** The third paragraph on page 2 and the last paragraph on page 8 contain statements about “Soils that do not contain unacceptable levels of contaminants” and soils above “residential regional screening levels.” Please clarify what is meant by “unacceptable levels” and “regional screening levels.” The EPA Regional Screening Levels, the RSLs, are not always equal to other screening levels such as the DTSC’s CHHSLs which are described in other areas of the Action Memo as being the basis for determining risks. In the case of lead in soil, for example, these values significantly differ.

Response: The last sentence of the third paragraph on Page 2 has been revised as follows: “...chemical constituents remain above *the* residential regional screening levels (RSL) or background concentrations for metals (whichever is greater), or health-based removal action goal for lead, the Navy will consult with the agencies....”

The second to last sentence of the last paragraph on Page 8 has been revised as follows: “...soils exceeding the residential RSLs or background concentrations for metals (whichever is greater), or health-based removal action goal for lead, have been removed.”

5. **Comment:** Sections I and II.A.4, Purpose and Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant, pages 2 and 8 and Figure 2: The fourth paragraph on page 2 and the last paragraph on page 8 contain statements about the “excavated area” and “excavation boundaries” when referring to Figure 2. Clarify if the area bound in orange and labeled “Approximate Extent of Waste” is the same as the excavation area/boundaries.

Response: The actual extent of excavation is currently unknown. The area bounded in orange is the assumed extent of waste and debris that is buried at the site. So, that would be the minimum excavation area required to remove the buried waste material. Therefore, the orange line represents the initial excavation limit, but the actual excavation area will depend on how far excavations have to go to remove MPPEH and soil with contaminant concentrations too high for backfill.

6. **Comment:** Section I, Purpose, page 3: The third bullet on the page relating to long-term effectiveness and permanence states that Section V.A.2 discusses residual risk at the site. Section V.A.2 does not appear to include a discussion of residual risk at the site. Revise this bullet and Section V.A.2 accordingly.

Response: The second sentence of Section V.A.2 has been revised as follows: “After completion of the TCRA, it is anticipated there will be no unacceptable risks to human health or the environment from soil at Guam Way.” No revision has been made to Section I based on this comment.

7. **Comment:** Section I, Purpose, page 3: The bullet relating to cost states that annual operation and maintenance costs are included in the TCRA. This appears to conflict with text in Section V.B which states that “Post-removal site control costs are not anticipated.” Please reconcile these statements.

Response: Evaluation of operation costs is required by the NCP and they were considered but it was determined that operation costs would not be required. The text after “capital cost” in the first sentence of the Cost bullet has been deleted and a new sentence has been added after the first sentence: “Annual operation and maintenance costs are not applicable to this TCRA.”

8. **Comment:** Section II.A.3, Site Characteristics, page 6 and Figure 4: The fourth paragraph describes the results of soil samples taken during the SI and notes that three samples exceeded CHHSLs; however, the notations and information for sample GMT1B do not accurately reflect the discussion. The 530 mg/kg result for this sample should be

shown in bold font in the Point ID table and denoted with a red dot. Also, the RAG for this sample is shown to be 750 mg/kg, rather than the 113 mg/kg used for the other samples. Please correct the figure and note that the correct RAG is 80 mg/kg as explained in Specific Comment 3 above.

Response: The health-based removal action goal for residential use for lead is 113 mg/kg which is applicable to soil from 0 to 10 feet below ground surface (bgs). For soils deeper than 10 feet bgs, the Navy is using the removal action goal of 750 mg/kg (Water Board 2008) for the protection of groundwater. Soil sample 040GMSS002 was collected at location GMT1B from 11 to 11.5 feet bgs. The concentration of lead detected at GMT1B was 530 mg/kg, which is less than the removal action goal of 750 mg/kg.

The fourth sentence of the fourth paragraph on Page 6 has been revised as follows: “Concentrations in ~~three~~ two of the samples (GMT2C; and GMT3A) collected from 5 to 6 feet bgs exceeded the background level of 33 mg/kg (Tetra Tech 2007) and the residential removal action goal of 113 mg/kg (Table 4) and industrial DTSC CHHSLs of 80 and 320 mg/kg (DTSC 2009) at concentrations of 442, 530, and 1,420 mg/kg.”

For consistency with the revised text for Page 6 noted above in this response, text in the last paragraph on Page 11 in Section III.B has been revised as follows: “Lead was detected in the subsurface soil less at ~~three~~ two locations (GMT1B, GMT2C, and GMT3A) shallower than 10 feet bgs exceeding the residential removal action goal of 113 mg/kg and industrial DTSC CHHSLs of 80 and 320 mg/kg with concentrations of 442, 530, and 1,420 mg/kg (Figure 4).”

9. **Comment:** **Section II.A.3, Site Characteristics, page 7, Figure 4 and Table 3: The first paragraph describes groundwater sampling results and states that they are summarized in Table 3 and shown on Figure 4. Figure 4 shows only 3 of the 4 groundwater monitoring wells and Table 3 does not appear to include any data from GMGW003 or GMGW004. Please revise Figure 4 and Table 3 to fully reflect all groundwater data.**

Response: Groundwater samples were collected from three locations at Guam Way; the fourth sample was a duplicate. The first sentence in the first full paragraph on page 7 has been revised to make this clearer. “Groundwater samples from three locations were collected at Guam Way from 2-inch temporary wells...” Table 3 only includes data of detected analytes. Since no analytes were detected in well GMGW003 it is not on the table.

10. **Comment:** Sections II.A.4 and III.B, Purpose and Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant and Threats to Public Health or Welfare, pages 8 and 11: The last paragraph on page 8 and the first paragraph following the bullets on page 11 limit the TCRA to objects larger than 20 mm. Please explain the basis for setting a size threshold of munitions greater than 20 mm. Fuses and other munitions-related components are often smaller than 20 mm. Also, explain how items smaller than 20 mm will be handled if encountered during the TCRA.

Please also reconcile these statements with the text in the second paragraph on page 2 which states that “all munitions-related items” will be removed during the TCRA.

Response: The basis for removing items equal to or larger than a 20-millimeter projectile is because smaller items do not present significant explosive hazard. The 20-millimeter size was used to establish a minimum standard for design of the necessary screening equipment, but any munitions-related item that is discovered will be removed from the site regardless of size.

The text in the second paragraph has been revised to read “all *discovered* munitions-related items” will be removed during the TCRA.

11. **Comment:** Section III.B, Threats to Public Health or Welfare, page 12: The third bullet on the page indicates that the excavation will be considered complete after one 12-inch lift is found to be free of debris and MPPEH. Please explain why a second 12-inch lift will not be taken, as with the FIB/RSE TCRA, to confirm that all MPPEH has been removed.

Response: A second 12-inch lift will be taken at Guam Way to confirm all MPPEH has been removed. The third bullet has been revised to state: “After one 12-inch lift of soil is found to be free of MPPEH, remove another 12-inch lift to confirm all MPPEH has been removed.”

12. **Comment:** Section III.B, Threats to Public Health or Welfare, page 12: The last three bullets in the list indicate that the cleanup goals will be used to define an area-weighted average, rather than as a not-to-exceed level, for the site. Given the planned future residential reuse scenario for the site, a confirmation sample greater than 3 times the risk-based removal goal or three confirmation samples greater than 1.5 times the risk-based removal goal might not be representative of site conditions. Confirmation samples of this sort could suggest a hot-spot that would require a hot-spot evaluation and the implementation of institutional

controls at the site. Please justify why the removal goals are not being used as not-to-exceed numbers for evaluating confirmation samples.

Response: Attainment criteria have been developed in accordance with EPA (1989) to evaluate whether the removal action successfully reduces soil concentrations of lead to below risk-based removal goals. EPA (1989) addresses tiered approaches that are appropriate for evaluating removal actions based on the attainment of multiple decision criteria. The first criterion, based on the average concentration, is intended to satisfy the risk assessment goal that the average exposure is below the risk-based removal goal. The second and third criteria are provided to ensure that, if present, elevated concentrations will be left in place at only a small number of individual locations. The second criterion, in particular, ensures that no extreme concentrations (that is, exceeding an individual cleanup goal by a factor of three times) will be left in place. All three attainment criteria must be achieved to conclude the cleanup was successful and no further action is warranted. If the 95UCL is not greater than the removal goal, no additional investigation or human health risk assessment will be necessary to address soil at the site.

RESPONSES TO WATER BOARD COMMENTS

GENERAL COMMENTS

- 1. Comment:** **Purpose: As stated in this section, the purpose of the TCRA is to remove material potentially presenting an explosive hazard (MPPEH) intermingled with buried debris. Excavated soils containing elevated concentrations of motor oil and lead will also be removed from the site. The Navy intends to remove all debris, comingled MPPEH, and contaminated soil as part of this TCRA, which is anticipated to be the final response action for soil at Guam Way. Water Board staff understand that other media of concern, i.e., groundwater and soil gas, will be addressed in a separate Remedial Investigation. Staff will review and comment on those investigations when that Remedial Investigation documentation is available.**

Response: Comment noted.

- 2. Comment:** **Figure 2: Please clarify on this figure whether the area labeled “Approximate Extent of Waste” is the excavation boundary. Please also clarify in the text how the extent of waste was estimated. For example, was it estimated based on trench logs and the site topography? This figure indicates that MPPEH and cultural debris items were found at Potholes #3 and #1, respectively, which are located outside the “approximate extent of waste”. Please explain this**

apparent discrepancy and why the “approximate extent of waste” (and the excavation boundary if not the same) is expected to fully encompass the extent of buried waste. Also, it would be helpful to include topographic contours on this figure.

Response: The “Approximate Extent of Waste” is not specifically the excavation boundary; the actual extent of excavation will be determined during the implementation of the TCRA. The area bounded in orange is the estimated (based on aerial photograph review, site topography and trench logs) extent of waste and debris that is buried at the site. Potholes #1 - #3 were dug to look at subsurface anomalies identified outside of the excavation area while installing the biological trapping fence. The cultural debris and MPPEH item found in Potholes #1 and #3, respectively, are individual anomalies segregated from the main body of waste disposal and will be investigated and removed in separate small excavations or potholes.

Topographic contours have been added to Figure 2.

3. Comment: Figure 3: In the legend, please provide a description of the green dashed polygon.

Response: It is assumed the reviewer intended to refer to Figure 4 rather than Figure 3. The green dashed polygon on Figure 4 was the original estimated site boundary when preparing the SI Work Plan. However, this no longer has any significant meaning and has been removed from the figure.

4. Comment: Proposed Action Description, p. 13-14: The third bullet in this section states that once excavation is certified clear of all MPPEH, confirmation samples will be collected from the sidewalls and bottom of excavation. The bullet further states that the confirmation samples will be analyzed for “VOCs, SVOCs, TPH, PAHs, explosives and metals to ensure that all soils containing lead above the removal action goal have been removed, and that identified chemicals of concern are not present on site that would prevent future unrestricted use.” This sentence, and the rest of this bullet item is confusing in that it discusses “other contaminants”, but seems to state that only soils (cleared of MPPEH) with lead above removal goals will be removed. Please clarify what the course of action will be in the event confirmation samples detect soils containing any of these contaminants (VOCs, SVOCs, TPH, PAHs, explosives and metals) at concentrations above residential RSLs. Such soil should not be used as backfill.

Response: The bullet referenced in this comment does not discuss the use of soil as backfill, it describes the process that will be used to determine if

additional excavation is needed to remove contaminated soil from Guam Way after MPPEH is removed. However, to confirm, excavated soil with concentrations exceeding the removal action level for lead, an RSL, or background level (if higher than the RSL) will not be used for backfill. If the Navy feels an exception to this is warranted, they will present the reasoning to regulatory agencies for their review.

The Navy will determine if additional excavation is needed to remove contaminated soil after removing all MPPEH and other anomalies by comparing concentrations of contaminants in confirmation samples to the removal action level for lead, RSLs, and background levels (if higher than the RSL). If concentrations do not exceed any of these levels, no additional excavation will be performed. If concentrations exceed any of these levels the Navy will make a decision about whether additional excavation is warranted. Although achieving NFA for soil at Guam Way is an objective of the TCRA, the Navy recognizes there are potential scenarios that may not allow for achieving this goal during the TCRA.

The first bullet on Page 14 has been revised as follows:

“After the excavation is clear of all MPPEH and anomalies based on visual inspections and digital geophysical mapping, collect confirmation samples from the sidewalls and bottom of the excavation. Analyze confirmation samples for VOCs, SVOCs (including PAHs), TPH, explosives and metals. If concentrations of contaminants in the confirmation samples do not exceed the removal action level for lead, an RSL, or background level (if higher than the RSL) then no additional excavation will be performed. If concentrations of contaminants in the confirmation samples exceed the removal action level for lead, an RSL, and/or background level (if higher than the RSL) then the Navy will evaluate if additional soil excavation is warranted.”

The second bullet on Page 14 has been deleted because the presence of lead will be established through confirmation sampling and this bullet does not describe a task.

The third bullet on Page 14 has been changed to the following:

“Once all soil removal is complete, backfill the excavation with clean soil. Any soil with concentrations that do not exceed the removal action level for lead, an applicable RSL, or background level (if higher than the RSL) will be considered clean. The Navy will confer with regulatory agencies if soil with a concentration exceeding these parameters is considered for backfill.”

REFERENCES

San Francisco Bay Regional Water Quality Control Board (Water Board). 2008. "Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater." Interim Final, November 2007. Revised May 2008.

U.S. Environmental Protection Agency (EPA). 1989. "Methods for Evaluating the Attainment of Cleanup Standards. Volume 1: Soils and Solid Media." EPA 230/02-89-042. Office of Policy, Planning and Evaluation. Washington, DC. February.