PROPOSED PLAN for the Former Waikane Training Area Military Munitions Response Program

U.S. Army Corps of Engineers – Honolulu District June 2013

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PUBLIC MEETING:
Wednesday, June 19, 2013
7:00 pm – 9:00 pm

LOCATION:
Waiahole Elementary School Cafeteria
48-215 Waiahole Valley Road
Waiahole, Hawaii

PUBLIC COMMENT PERIOD:
June 19, 2013 - July 19, 2013

FOR MORE INFORMATION VISIT:
U.S. Army Corps of Engineers – Honolulu District

www.poh.usace.army.mil/Missions/Environmental/FUDS/Waikane.aspx

1.0 INTRODUCTION

This **Proposed Plan*** is presented by the U.S. Army Corps of Engineers (USACE)† to facilitate public involvement to review and comment in the remedy selection process for the former Waikane Training Area (WTA) - a **Formerly Used Defense Site (FUDS)** located in the Waikane Valley in the District of Koolaupoko on the windward side of the island of Oahu, Hawaii (Figure 1). USACE is the lead agency for investigating, reporting, making decisions, and taking remedial actions at the former WTA. This Proposed Plan presents preliminary recommendations concerning how to best address **munitions and explosives of concern (MEC)** at this site. Included in this Proposed Plan are the various alternatives that were evaluated along with the preferred alternative recommended by USACE.

USACE requests comments from the public on this Proposed Plan. USACE may consult with the State of Hawaii, Department of Health (HDOH) and landowners to modify any of the alternatives, including the preferred alternative, based on public comments. After public comments have been considered, the **Decision Document** will present the final decision for the former WTA. A summary describing how public comments were addressed will be included in the Decision Document.

In 2011, USACE conducted a **Remedial Investigation (RI)** at the former WTA in Waikane Valley to determine the nature and extent of MEC and **munitions constituents (MC)** contamination in order to adequately characterize the area for the purpose of developing and evaluating effective remedial alternatives. The former WTA is divided into three **Munitions Response Sites (MRSs).** These MRSs are the Southeastern Region MRS, Southern Impact Region MRS, and Western/Mountainous Region MRS. The MRS boundaries are based on MEC hazards and land use.

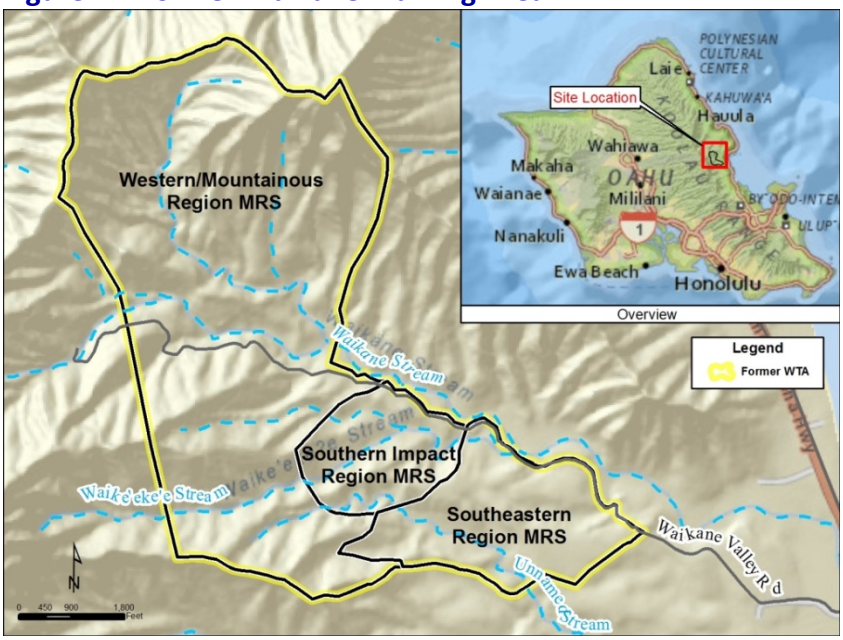
* The **bolded** terms found throughout this Proposed Plan are defined in the Glossary found at the back of this document.
† A list of acronyms and abbreviations used in this document is presented following the Glossary at the back of this document.

Due to potentially complete MEC exposure pathways, the RI report recommended a **Feasibility Study (FS)** be performed for all three identified MRSs (ZAPATA, 2013). The purpose of the FS is to provide the project decision makers with the necessary data to develop, screen and evaluate a range of potential remedial alternatives, and select a remedy to manage the MEC hazard risks to human health and the environment.

The former Waikane Training Area includes three sites:

- **Southeastern Region MRS**
- **Southern Impact Region MRS**
- **Western/Mountainous Region MRS**

Figure 1 – Former Waikane Training Area



This Proposed Plan highlights key information contained in the RI Report and the FS Report. Both the RI and FS Reports are part of the **Administrative Record** and the reader should refer to the Administrative Record for more information regarding the preferred alternatives.

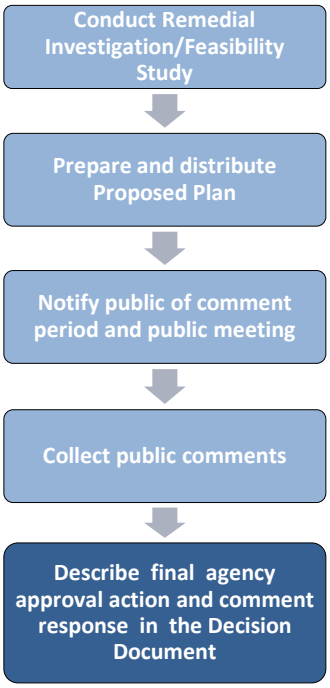
This Proposed Plan is part of United State Army Corps of Engineers (USACE) Community Relations Program. The PP is a requirement of Section 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),** and 300.430(f)(2) of the National Contingency Plan (NCP) and follows the requirements from Engineer Regulation 200-3-1, FUDS Program Policy (USACE, 2004) and the United States Environmental Protection Agency (USEPA) guidance *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents, EPA 540-R-98-031* (USEPA, 1999).

The Public is encouraged to comment on this Proposed Plan

PUBLIC INVOLVEMENT

Public comments on the Proposed Plan will be accepted during a 30-day public review and comment period from June 19, 2013 through July 19, 2013. In addition, a public meeting will be held at the onset of the public review and comment period on June 19, 2013 to explain this Proposed Plan. The USACE, in coordination with HDOH and landowners, will consider public comments received during the public meeting and comment period and will make a final decision concerning future action to be taken at the project site. USACE responses to public comments on this Proposed Plan will be contained in the "Responsiveness Summary" section of the Decision Document. The current schedule calls for completion of the Decision Document by September 2013.

Figure 2
Decision Document Process



The flow chart shown in Figure 2 summarizes the steps in the development and approval process of the project Decision Document. The FUDS Charter designated the Army as the Executive Agent on behalf of the Department of Defense (DoD) charged with meeting applicable environmental restoration requirements at FUDS, regardless of which DoD component previously owned or used the property. The Secretary of the Army further delegated to USACE the program management and execution responsibility for FUDS.

2.0 PROJECT SITE BACKGROUND

The former WTA is a portion of the former Waikane Valley Training Area (WVTA), which consisted of approximately 1,061 acres that were used from 1942 to 1976 by the DoD as a training and artillery impact area. Live fire at the WVTA reportedly ceased in the early 1960s, but numerous types of munitions have since been recovered from the site, including 37mm and 75mm High Explosive (HE) rounds, 60mm HE mortars, M28 High Explosive Anti-Tank (HEAT) grenades, 2.36-inch and 3.5-inch HEAT rockets, M9A1 AT rifle grenades, 3.5-inch practice rockets, and M29 practice rifle grenades. The former WTA covers approximately 933 acres of the WVTA and is the property that was evaluated during the RI. The remainder of the WVTA is currently owned by the U.S. Marine Corps (USMC) and is therefore not an eligible property under the Defense Environmental Restoration Program-Formerly Used Defense Sites (DERP-FUDS) program.

Ohulehule Forest Conservancy, LLC, private landowners, and The City & County of Honolulu are the current Landowners

Properties within the three MRSs in the former WTA are owned by several entities; The City and County of Honolulu, Ohulehule Forest Conservancy, LLC, and private landowners. Current and anticipated future land use patterns are included in Table 1.

Table 1

Waikane MRS	Current Land Use	Anticipated Future Land Use
Southeastern Region MRS	**Residential, Agricultural, Recreational** One residential parcel, Light agricultural, Unauthorized recreational activities include hunting, motocross, and ATV riding.	**Residential, Agricultural, Recreational** Residential, agricultural (taro and cacao farming) and recreational (unauthorized hunting and motocross/ATV). The City and County of Honolulu plans to establish the Waikane Valley Nature Park on approximately 40 acres of the site.
Southern Impact Region MRS	**Recreational** Unauthorized recreational activities including hunting, motocross, and ATV riding.	**Agricultural and Recreational** Agricultural (taro and cacao farming), and recreational (unauthorized hunting and motocross/ATV).
Western/ Mountainous Region MRS	**Recreational** Unauthorized recreational activities including hunting, motocross, and ATV riding.	**Agricultural and Recreational** Agricultural (forest restoration and taro farming) and recreational (unauthorized hunting and motocross/ATV).

Overall Remedial Action Objective
Manage MEC exposure risk through a combination of removal/remediation, administrative controls, and/or public education; thereby rendering the site as safe as reasonably possible to humans and the environment and conducive to the anticipated future land use.

A Non-Time Critical Removal Action (NTCRA) Action Memorandum was developed upon finalization of the Engineering Evaluation/Cost Analysis (EE/CA) Report in 2008 (ZAPATA, 2008). Clearance to depth of detection was the recommended alternative for approximately 14.9 acres in the Southern Impact Region MRS and 26.2 acres in the Southeastern Region MRS encompassing areas where MEC and relatively high munitions debris (MD) concentrations were found. It was determined during the EE/CA that a removal action was not required for the Western/Mountainous Region MRS.

A NTCRA was conducted in 2011 and occurred in 7.3 acres (AOC #1) of the Southern Impact Region MRS, 32.6 acres (AOC #2) of

The NTCRA recovered 42 MEC items from the Southeastern Region MRS and no MEC items from the Southern Impact Region MRS.

the Southeastern Region MRS, and 0.5 acres of unimproved road surface area spanning the two MRSs; the results were presented the Site Specific (Removal Action) Final Report (Environet Inc., 2012).

PREVIOUS PUBLIC INVOLVEMENT

In an effort to keep the public informed, eight Restoration Advisory Board (RAB) meetings and site visits relating to RI activities and Feasibility Study within the former WTA were conducted. RAB meetings and site visits were announced through notices in the local newspaper. Information was conveyed to the public via presentations, a project web site, and the information repositories. Public input was obtained through RAB meetings that included community involvement and requests for public comments.

3.0 PROJECT SITE CHARACTERISTICS

The majority of the Waikane Valley area consists of terrain that limits access/development due to steep gulches, canyons, rocky outcrops, and mountains rising over 2,090 feet above sea level. Access is very limited in the Western/Mountainous region MRS portion of the former WTA boundary. In the Southern Impact Region MRS and Southeastern Region MRS, site access is limited by dense vegetation, steep terrain and a gated access road; however, indications of unauthorized site use and visitors have been observed. Most of the site is covered with mature vegetation including the densely-forested coastal plain and thick grasses and shrubs in the higher elevations. The Waikane Soil Series consists of well-drained, fine and moderately fine textured soils on uplands, fans, and terraces. The Waikane-Waikeekee Stream system is the primary stream network passing through the three MRSs. The Waikane and Waikeekee Streams combine and drain into Kaneohe/Koolau Bay. The area is well drained, generally to the east, with no wetlands except along the creek banks near the stream outlets. A number of culturally significant sites exist within the former WTA. There are single family homes, industrial or warehouse areas, and a park within two miles of the site.

NATURE AND EXTENT OF CONTAMINATION

Munitions and Explosive of Concern

During the RI, no MEC and only very limited MD, other than that related to small arms ammunition, was recovered within accessible areas of the Western/Mountainous Region MRS. There is limited physical evidence of MEC, and accessible areas within this MRS do not appear to have been affected by concentrated munitions use. Although the potential presence of a receptor exists and there is a possibility of receptor interaction with a MEC hazard, a complete MEC exposure pathway is considered unlikely in the accessible areas of the Western/Mountainous Region MRS. Exposure to potential explosive hazards in non-accessible areas is unknown due to the accessibility limitations generated by extreme topography. Active investigation/remedy measures are not practical throughout the MRS. As such, the possibility that an isolated explosive hazard exists within the MRS cannot be completely dismissed.

MEC items recovered included: Hand Grenades, HE, MKII; 2.36-inch HEAT Rockets M6A1; 50mm HE Japanese Knee Mortar, Type 89; 2-inch Smoke Mortar M3; Grenade, Hand, Smoke AN-M8; 76mm HE Projectile M42A1; Simulator, Projectile, Air Burst, M27A1B1; and Simulator, Flash, Artillery, M110.

Based on the results of the NTCRA and RI, which recovered no MEC items or identified areas of concentrated munitions use (other than small arms ammunition), it is considered unlikely that MEC will be encountered within the Southern Impact Region MRS. However, the possibility that an isolated explosive hazard exists within the MRS cannot be completely dismissed.

Within the Southeastern Region MRS, MEC were located in close proximity (less than 25 feet) to the perimeter of the NTCRA area (AOC #2). The EE/CA, NTCRA and RI identified MD including remnants of various munitions including projectiles (i.e., 37mm and 75mm); mortars (60mm and 81mm HE); 3.5-inch rockets; hand grenades; rifle grenades; trip flares; expended fuzes; hundreds of pieces of unidentifiable munitions fragmentation, and small arms ammunition to a maximum depth of 2-ft bgs. The highest MD density was observed southwest of AOC #2 within the Southeastern Region MRS near the former WTA boundary.

The MEC found within the Southeastern Region MRS are suspected to be associated with a potential impact area. It is suspected that MEC found outside of this area during previous investigations may have resulted from misfire or were abandoned during training events. Figure 3 shows the

distribution of MEC recovered during the EE/CA, NTCRA and relative MD density.

Potential for adverse risks to human health or ecological receptors from exposure to MC in soil and sediment is considered negligible at the former WTA.

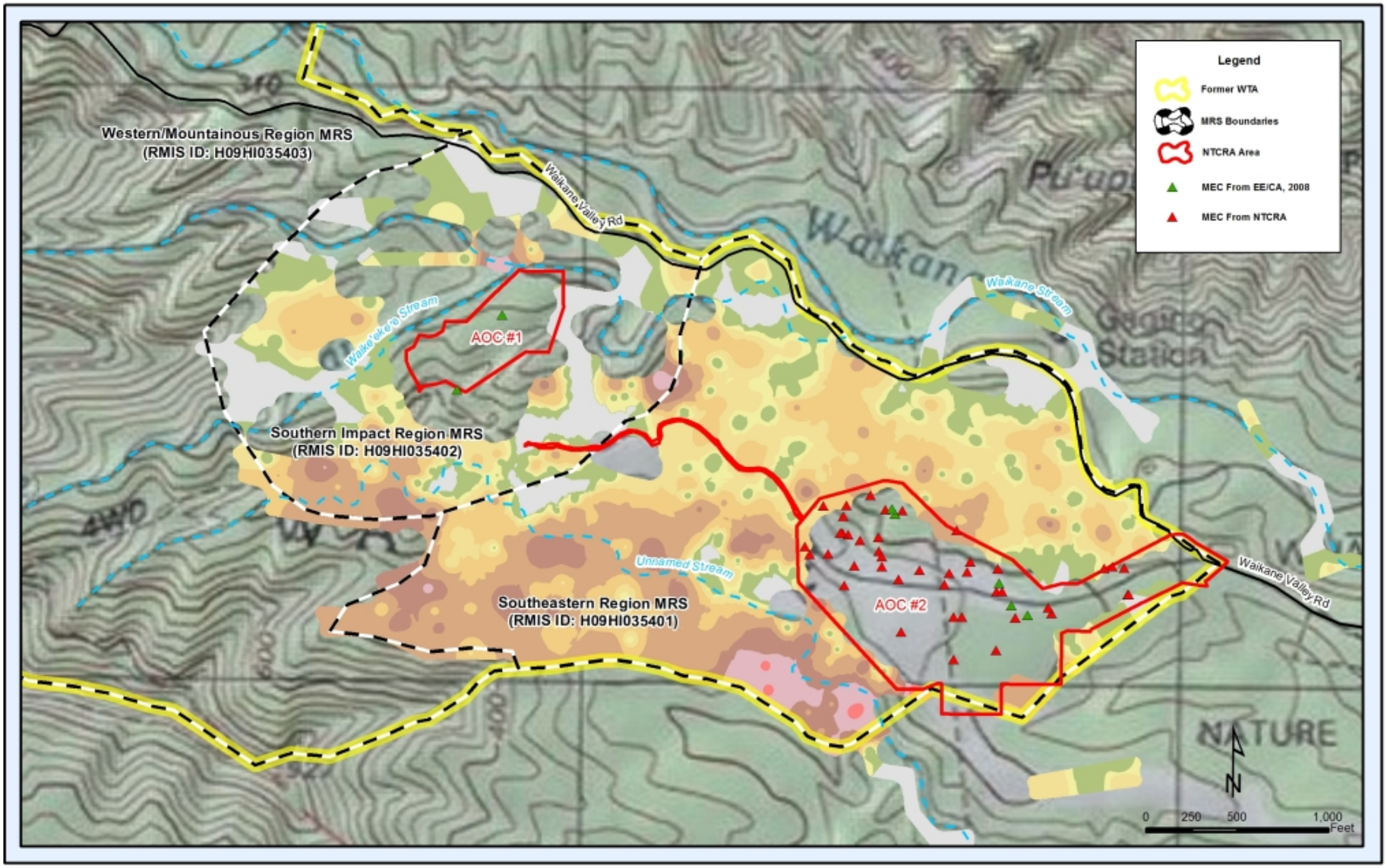
Munitions Constituents

To complete the characterization of MC at the former WTA, soil and sediment samples were collected at or near locations where MEC and/or MD were recovered. Soil samples were collected using incremental (less than 2-inches bgs) and discrete (approximately 12-inches bgs) methods. No extensive MC sampling had been previously conducted at the former WTA.

Lead concentrations above the HDOH Environmental Action Level (EAL) were detected in two discrete subsurface soil samples collected from the Southeastern Region MRS: The highest lead concentration was measured at a sample location within AOC #2.

The HDOH requested that confirmation samples be collected where the highest lead concentration was detected. Samples were collected subsequent to the RI. The confirmation subsurface soil sample lead concentrations were below the HDOH EAL. The risk assessment concluded that the potential for adverse risks to human health or ecological receptors from exposure to MC in these media is considered negligible at the former WTA. As such, no further action is recommended for MC.

Figure 3 - MEC/MD Density



4.0 SCOPE AND ROLE OF RESPONSE ACTION

The Response Action's role is to limit the potential for receptors to encounter or interact with potential MEC.

A response action is used to prevent or minimize the potential interaction with MEC so that it does not cause substantial danger to present or future public health or welfare or the environment. The response action for each MRS incorporates the landowners and public interest to manage risk and protect the individuals from potential residual MEC hazards. Removal actions are part of the preferred response action proposed for the Southeastern Region MRS and Southern Impact Region MRS. Removal actions are used to permanently reduce the toxicity, mobility and volume of hazardous materials. Land use controls (LUCs) are proposed for each MRS. LUCs may include physical, legal, or administrative mechanism that restricts the use of, or limits access to, contaminated property to prevent or reduce risks to human health and the environment.

5.0 SUMMARY OF PROJECT SITE RISKS

A qualitative MEC HA was conducted for the Southeastern Region MRS and Southern Impact region MRS to evaluate explosive hazard level conditions.

Site risks were evaluated in terms of an exposure model that consists of a source of contamination, a receptor, and interaction at the exposure point or exposure pathways. Within this model, the sources would consist of MEC in the environment.

A qualitative MEC Hazard Assessment (HA) was conducted using information from investigations completed at the Site to provide a baseline assessment of response alternatives. Previous investigations have revealed that the Southeastern Region and Southern Impact Region MRSs contained MEC items initiating a NTCRA in portions of these two MRSs (AOC #1 and AOC #2, Figure 3). A MEC HA was prepared for the Southeastern Region MRS and Southern Impact Region MRS with baseline conditions representing current conditions (i.e., post NTCRA). No MEC and only very limited MD, other than that related to small arms ammunition, has been found within accessible areas of the Western/Mountainous Region MRS. A qualitative MEC HA was not conducted for the Western/Mountainous Region MRS since there is limited physical evidence of MEC and accessible areas within this MRS do not appear to have been affected by concentrated munitions use. Exposure to potential explosive hazards in non-accessible areas is considered unlikely due to the limitations of the

extreme topography which limits accessibility throughout the MRS.

The MEC HA considers the following factors:

• Presence and nature of MEC sources,

• Site characteristics that affect potential pathways between the MEC source and human receptors, and

• Types of activities that may result in exposure.

Considering the current site conditions (i.e., post NTCRA) as the baseline, the MEC HA results potential for explosive hazard conditions is considered "low" for current and reasonably anticipated future land uses at each of the MRSs at the former WTA. Results of the Hazard Assessment are discussed in detail within the RI Report (ZAPATA, 2012a), which are available on the project website and in the Administrative Record. Previously recovered MEC locations, MD density and future land-use activities were also used to assess response alternatives. In areas with a higher relative MD density, a receptor (human) may have a greater chance of encountering MEC.

HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENTS

No further action is proposed for MC.

During the RI, a risk assessment was conducted to determine the human health and ecological risks associated with potential MC exposure at each of the MRSs. Based on the MC analytical results, the risk assessments concluded that the potential for adverse risks to human health or ecological receptors from exposure to MC is negligible at the former WTA.

No further action is proposed for MC at each of the MRSs.

POTENTIALLY EXPOSED POPULATION

Human

The receptors associated with the former WTA are people including adults and children. The residents living within the borders of the site, workers associated with construction, recreational users (hunters, hikers, etc.), and visitors.

In general, MEC must be disturbed to present an explosive hazard.

POTENTIAL MEC EXPOSURE PATHWAYS

MEC has been found on the ground surface and in the subsurface. Residents and recreational users could interact with surface MEC, whereas MEC in the subsurface is more likely to be encountered by residents and workers while digging (e.g., agriculture and construction, etc.). Receptors will carry the potential of being exposed to MEC according to the nature of their work/activity, ranging from contact with surface MEC, to those in contact with MEC in the subsurface.

It is important to note that exposure to MEC does not mean that an incident or accident will occur. A person would have to disturb the item (e.g., apply heat, friction or shock to the item) to be exposed to actual explosive hazards.

CONCLUDING STATEMENT

It is the USACE's current judgment that the Preferred Alternatives identified in this Proposed Plan, or one of the other active measures considered, herein, are necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

6.0 REMEDIAL ACTION OBJECTIVES

The overall Remedial Action Objective (RAO) is to manage MEC exposure risk through a combination of removal/remediation, administrative controls, and/or public education; thereby rendering the site as safe as reasonably possible to humans and the environment and conducive to the anticipated future land use. The RAO defines the measure for success of the adopted remedial action. The technical details associated with detection, recovery, and disposal of MEC are specified during the future remedial design phase.

Southeastern Region MRS - Reduce potential explosive safety hazards by preventing interaction between receptors and intact MEC on the surface and in the subsurface (to a depth of 2-ft below ground surface [bgs]) for recreational, agricultural, and residential activities within areas of the MRS where intrusive activity is anticipated. In addition, reduce potential explosive safety hazards by informing landowners of the potential hazard and educating them with regard to proper safety and reporting

procedures in the event that MEC is encountered, especially in those areas where intrusive activity is not anticipated.

Southern Impact Region MRS - Reduce potential explosive safety hazards by preventing interaction between receptors and intact MEC on the surface and in the subsurface (to a depth of 2-ft bgs) for recreational, agricultural, and residential activities within areas of the MRS where intrusive activity is anticipated. In addition, reduce potential explosive safety hazards by informing landowners of the potential hazard and educating them with regard to proper safety and reporting procedures in the event that MEC is encountered, especially in those areas where intrusive activity is not anticipated.

Western/Mountainous Region MRS - Reduce potential explosive safety hazards by informing landowners of the potential hazard and educating them with regard to proper safety and reporting procedures in the event that MEC is encountered.

7.0 SUMMARY OF REMEDIAL ALTERNATIVES

A description of each of the four alternatives developed for consideration during the FS is presented below. The preferred alternative for each MRS is presented in Section 9.0, herein.

All remedial alternatives include 5-year periodic reviews to ensure response action remains effective in accordance with current and future land use.

Alternative 1 - No Action: No further action is conducted under this alternative. Evaluation of this alternative is required and used as a baseline for comparison with the other alternatives. No cost is associated with this alternative, since there would be no action. In the event that MEC is discovered in the future within an MRS where Alternative 1 is proposed, it would prompt action by USACE to determine an appropriate response alternative. The estimated cost for this alternative is $0.

Alternative 2 - Land Use Controls: LUCs are physical, legal, or administrative mechanisms that restrict the use of or limits access to real property to prevent or reduce risks to human health, safety and the environment. LUCs will include community MEC educational awareness program and fact sheets attached to construction permits. This alternative has no source reduction of potential MEC. Educational awareness can be effective at influencing people's behavior to reduce interaction with potential MEC.

Five-year reviews will also be conducted to re-evaluate if the response action continues to minimize explosives safety risks and continue to be protective of human health, safety, and the environment. More frequent formal reviews (more often than five years) may be needed if substantial land use changes are identified or RAOs are not being met.

The estimated net present worth cost for this alternative over 30 years is approximately $747,170 for each MRS.

Limitations in detection technology and accessibility will prohibit 100% coverage in all areas of the site; it is possible that some munitions may be undetected.

Alternative 3 - Surface MEC Removal and Implementation of Land Use Controls: This alternative includes a visual inspection, aided by hand-held instruments, and removal of potential MEC exposed at ground surface. Brush clearance would be required in many areas prior to the removal. Personnel would traverse accessible areas (less than 30 degrees slope) within an expanded area around the previous NTCRA area in the Southeastern Region MRS (AOC #2, Figure 4); in focused areas within the Southern Impact Region MRS and Southeastern Region MRS; and in the area within the Southeastern Region MRS where the highest relative MD density was identified. MEC that is identified or suspected would be removed and disposed of using approved/safe procedures. Accessibility to areas within each MRS will be dependent upon vegetation/terrain, landowner cooperation, and granting of right of entry. Surface Clearance can reduce risk where MEC is likely to be present on the surface, specifically, for receptors whose land use activities primarily involve surface use (i.e., hunting, hiking, etc.). Risks associated with subsurface MEC may remain. Alternative 3 is considered appropriate in areas where MEC items are present on the surface.

LUCs and five-year reviews would be implemented as described in Alternative 2.

The estimated net present worth cost for this alternative over 30 years ranges from $2,688,060 for the Southeastern Region MRS to $1,764,790 for the Southern Impact Region MRS.

Alternative 4 - Surface and Subsurface MEC Removal and Implementation of Land Use Controls: This alternative includes removal of MEC from the surface and in the subsurface from an expanded area around the previous Removal Action area in the

Southeastern Region MRS (AOC #2, Figure 4); in focused areas within the Southern Impact Region MRS and Southeastern Region MRS, where projected future land use activities include intrusive activities; and in the area within the Southeastern Region MRS where the highest relative MD density was identified. MEC removal would be conducted to identify and remove MEC. Hand-held analog geophysical instruments would be used over the accessible portions of the proposed removal areas, and anomalies would be identified for intrusive excavation. If MEC is encountered, the item would be disposed of using approved/safe procedures. Extensive brush clearance would likely be required in many areas prior to the removal action. The MEC removal would not be conducted under any existing paved surfaces, streams, and structures. Accessibility to areas within the MRS will be dependent upon vegetation/terrain, landowner cooperation, and granting of right of entry. MEC will be removed within the depth of detection capabilities of the instrumentation, each anomaly would be pursued to a maximum depth of 24-inches.

The completion of the MEC removal would significantly reduce MEC hazards; however, due to limitations in detection technology and because 100% coverage will not be possible in all areas of the site, it is possible that some munitions may be undetected. To reduce risk associated with potential residual munitions, LUCs would be implemented as described in Alternative 2. Alternative 4 is considered appropriate in areas where MEC items are present on the surface and in the subsurface.

LUCs and five-year reviews would be implemented as described in Alternative 2.

The estimated net present worth cost for this alternative over 30 years ranges from $3,844,710 for the Southeastern Region MRS to $1,820,050 for the Southern Impact Region MRS.

Alternative 5 – Subsurface Removal to Support Unlimited Use: This alternative includes a response action that allows unlimited use. This alternative involves a combination of surface and subsurface MEC removal to a depth which allows for unlimited use and no LUCs. This alternative is not technically feasible, does not comply with ARARs and is cost prohibitive compared to the other alternatives. Therefore, Alternative 5 was eliminated

from further evaluation during the initial screening of the alternatives during the FS.

8.0 EVALUATION OF ALTERNATIVES

Nine criteria are used to evaluate response alternatives in order to select a remedy.

Remedial alternatives were developed during the FS in accordance with the NCP, 40 CFR 300.430(e). The NCP nine criteria were used to evaluate the different remedial alternatives individually and against each other in order to select a Preferred Alternative for each MRS. The nine criteria are presented in Table 2 and fall into three groups: threshold criteria, primary balancing criteria, and modifying criteria. The detailed screening of alternatives can be found in the FS Report. A description and purpose of the three groups follow:

The nine criteria fall into three groups: threshold criteria, primary balancing criteria, and modifying criteria.

- *Threshold criteria* are requirements that each alternative must meet in order to be eligible for selection.
- *Primary balancing criteria* are used to weigh major trade-offs among alternatives.
- *Modifying criteria* are considered to the extent that information is available, but cannot be fully evaluated until after public comment is received on this Proposed Plan. In the final balancing of tradeoffs among proposed alternatives, modifying criteria are of equal importance as the balancing criteria.

Table 2

EVALUATION CRITERIA FOR REMEDIAL ALTERNATIVES		
Criteria	Threshold	1. Overall Protectiveness of Human Health and the Environment determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.
		2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the remediation or hazardous substances involved, or whether a waiver is justified.
	Primary Balancing	3. Long-Term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.
		4. Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
		5. Short-Term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
		6. Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
		7. Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
	Modifying	8. State/Support Agency Acceptance considers whether the State agrees with the analyses and recommendations, as described in the FS and Proposed Plan.
		9. Community Acceptance considers whether the local community agrees with the analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

Threshold Criteria

1. Overall Protection to Human Health and the Environment

This evaluation criterion assesses the protectiveness of an alternative and its ability to meet the RAOs. It assesses if an alternative reduces the public's potential exposure to MEC, thereby reducing potential injury or death, and protects the environment. When evaluating this criterion, the presence of MEC at the site, and current and anticipated future land uses is taken into consideration. Each alternative was also evaluated in terms of whether it would reduce the amount of MEC within the MRSs. Alternative 1 does not offer protection to human health or the environment since no action is associated with this alternative. Alternative 2 is protective and relies on behavior modification of individuals when accessing the MRSs as to the appropriate action in the event that MEC is encountered (i.e., do not handle suspected item and contact authorities). Alternative 3 provides protection by removing MEC if it remains on the surface at an MRS. Alternative 4 provides protection by removing surface and subsurface MEC throughout the heaviest

concentrated areas of MEC/MD presence within the MRSs. Alternatives 3 and 4 have potential for accidental detonation as part of the investigative or removal process.

2. Compliance with Applicable or Relevant and Appropriate Requirements

This evaluation criterion serves to assess whether each alternative meets all the potential federal and state Applicable or Relevant and Appropriate Requirements (ARARs) as identified in the RI phase. Based on the results of the RI, threats from concentrations of MC to human health or ecological receptors at the three MRSs within former WTA are considered negligible. As such, ARARs for MC are not applicable. Alternatives 1, 2, 3 and 4 can be executed in a manner to meet applicable ARARs identified at the former WTA. ARARs include the Endangered Species Act of 1973, 16 U.S.C. §1536(a)(2) and substantive portions of 40 CFR 264, Subpart X (as necessary to facilitate consolidated disposal of MEC during the remedial action).

Primary Balancing Criteria

3. Long-Term effectiveness and Permanence

This evaluation criterion addresses the effectiveness of an alternative in terms of the risk remaining at the site after the response objectives have been met. Long-term management should be implemented post remedial action to ensure the effectiveness, especially with respect to any changes in land use. Alternative 4 was determined to provide the best long-term effectiveness and permanence based on the ability to significantly reduce the risk due to possible MEC. Alternative 3 removes MEC from the surface and relies on educational awareness for long-term effectiveness. Although Alternative 2 can deter inappropriate interaction with MEC, it cannot prevent it. All alternatives except Alternative 1 require five-year reviews to verify that the remedies remain effective.

The third through seventh criteria represent the "Balancing," or primary criteria upon which the analysis is based.

4. Reduction of Toxicity, Mobility or Volume

Alternatives 1 and 2 offer no reduction in toxicity, mobility, or volume of contaminants and are assigned the lowest ranking. However, implementation of Alternative 2 is assumed to reduce receptor hours by encouraging individuals to spend less time within the MRSs through education. Alternative 3 provides some reduction of risk to MEC remaining on the surface, assuming any can still be found within the MRSs. Alternative 4 provides the greatest reduction of toxicity, mobility, or volume

as a result of subsurface MEC removal. Implementation of Alternative 4 would remove the source (MEC) to the depth compatible with land use or actual known depths of the ordnance (less than 2-ft bgs.).

Alternative 4 (and to a much lesser extent Alternative 3) rely upon removal actions to decrease the MEC source hazard and reduce the likelihood of interaction. However, none of these alternatives will completely remove all of the MEC at the site; Alternatives 1 and 2 provide no reduction of MEC source.

5. Short-Term Effectiveness

Alternatives 3 and 4 are determined to have the greatest risk and least short-term effectiveness due to the risk to workers conducting removal. Due to the increased likelihood of MEC detonation during implementation of Alternatives 3 and 4, trained UXO-technicians must perform the work. Alternatives 1 and 2 present no short-term impacts or adverse impacts on workers and the community.

6. Implementability

Alternative 1 and Alternative 2 were determined to be the easiest to implement. Alternative 1 is both technically and administratively feasible, and no services or materials are necessary for implementation. Alternative 2 is also both technically and administratively feasible, with fact sheets and website readily available. Alternative 3 removes MEC from the surface and relies on educational awareness for long-term effectiveness. Alternatives 3 and 4 are both technically and administratively feasible but require specialized personnel and equipment to implement. Alternatives 3 and 4 also require the development of detailed work plans.

7. Cost

The cost criterion evaluates the financial cost to implement the alternative. The cost criterion includes direct, indirect, and long-term operation and maintenance costs. Direct costs are those costs associated with the implementation of the alternative. Indirect costs are those costs associated with administration, oversight, and contingencies. These costs were adapted from costs associated with similar activities conducted at former WTA and cost estimates prepared for other sites. The actual costs will depend on true labor rates, actual site conditions, final project scope, and other variable factors. The

alternative with the lowest cost to implement would be Alternative 1, which requires no action; therefore, no costs are incurred. Alternative 2 requires relatively low costs compared to Alternatives 3 and 4, which are the most costly to implement. Overall, costs are MRS-specific and range from $0 (Alternative 1) to over $6.4 million (Alternative 4) for the three MRSs combined. Obtaining future funding for these focused removal actions may be difficult due to the higher costs. The MEC Subsurface and Surface Removal (Alternative 4) is proposed for an expanded area around the previous Removal Action area in the Southeastern Region MRS (Figure 3); in focused areas within the Southern Impact Region MRS and Southeastern Region MRS, where projected future land use activities include intrusive activities; and in the area within the Southeastern Region MRS where the highest relative MD density was identified.

Modifying Criteria

8. State Acceptance

The USACE and HDOH support the preferred alternatives in this Proposed Plan.

9. Community Acceptance

The community acceptance of the preferred alternatives will be evaluated and assessed after the public comment period ends and will be described in the decision document for each MRS.

9.0 PREFERRED ALTERNATIVE

Southeastern Region MRS

The Preferred Alternative for the Southeastern Region MRS is Alternative 4 – Surface and Subsurface MEC Removal and Implementation of Land Use Controls.

The Preferred Alternative for the Southeastern Region MRS is Alternative 4 - Surface and Subsurface MEC Removal and Implementation of LUCs. Although a previous NTCRA was conducted in a portion of the MRS, MEC was recovered in close proximity to the removal boundary. As such, a focused removal action in an expanded area around the previous NTCRA area in the Southeastern Region MRS (Figure 3); in focused areas within the Southeastern Region MRS, where projected future land use activities include intrusive activities (agricultural); and in the area within the where the highest relative MD density were identified, are proposed for MEC removal under this Alternative. This alternative will provide surface/subsurface clearance (to depth of 2-ft bgs) to further reduce the risk of potential future MEC encounters within approximately 36.0 acres of the MRS.

The proposed removal areas for the MRS considered for this alternative and the approximate acreage are shown on Figure 4. Much of the MRS is heavily vegetated and currently use is limited to unauthorized recreational activities including hunting, motocross, and ATV riding. Future land use includes restoring/preserving the native forest; re-establishing taro farming; growing cacao; and building a single-home residence for owner personal use. Residual MEC risk will be managed within the entire MRS, including the areas outside of the proposed focused removal action areas, using LUCs. Five-year reviews will be conducted to re-evaluate site conditions to ensure the selected remedy remain effective in controlling potential explosive hazards. The implementation cost for the alternative is the greatest of all of the Alternatives evaluated. Alternative 4 will reduce potential explosive hazards by preventing interaction between receptors and MEC on the surface and in the subsurface for current and anticipated land use activities based on best available information at this time. The estimated cost for implementing Alternative 4 at the Southeastern Region MRS is approximately $3,097,590 for the removal action and approximately $747,170 to administer LUCs over 30 years.

Southern Impact Region MRS

The Preferred Alternative for the Southern Impact Region MRS is Alternative 4 – Surface and Subsurface MEC Removal and Implementation of Land Use Controls.

The Preferred Alternative for the Southern Impact Region MRS is Alternative 4 - Surface and Subsurface MEC Removal and Implementation of LUCs. Although a previous NTCRA was conducted in a portion of the MRS, no MEC items were recovered during the removal action or during the RI. However, focused areas where projected future land use includes intrusive activities (agricultural) are proposed for MEC removal under this Alternative. This alternative will provide surface/subsurface clearance (to depth of 2-ft bgs) to further reduce the risk of potential future MEC encounters within approximately 1.98 acres of the MRS. The proposed removal areas for the MRS considered for this alternative and the approximate acreage are shown on Figure 4. Much of the MRS is heavily wooded and current land use is limited to unauthorized recreational activities including hunting, motocross, and ATV riding. Future land use includes restoring/preserving the native forest; re-establishing taro farming; growing cacao; and building a single-home residence for owner personal use. Residual MEC risk will be managed within the entire MRS, including the areas outside of the

proposed Removal Action areas, using LUCs. Five-year reviews would be conducted to re-evaluate site conditions to ensure the selected remedy remain effective in controlling potential explosive hazards. The implementation cost for the alternative is the greatest of all of the Alternatives evaluated. Alternative 4 will reduce potential explosive hazards by preventing interaction between receptors and MEC on the surface and in the subsurface for current and anticipated land use activities based on best available information at this time. The estimated cost for implementing Alternative 4 at the Southern Impact Region MRS is approximately $1,072,930 for the removal action and approximately $747,170 to administer LUCs over 30 years.

Western/Mountainous Region MRS

The Preferred Alternative for the Western/Mountainous Region MRS is Alternative 2 –Land Use Controls.

The Preferred Alternative for the Western/Mountainous Region MRS is Alternative 2 - Land Use Controls. Alternative 2, which includes Educational Awareness, is appropriate for this MRS due to extreme terrain it was not considered safe or practical to investigate most of the MRS. Due to this uncertainty there is potential for MEC to remain within the MRS. Therefore, LUCs will be implemented. Brochures and MEC awareness training will inform the public and site visitors about potential hazards (MEC) and will identify appropriate response procedures in the event that MEC is found. Five-year reviews will be conducted to re-evaluate site conditions to ensure the LUCs remain effective in controlling potential explosive hazards. The estimated cost for implementing Alternative 2 at the Western/Mountainous Region MRS is approximately $747,170 to administer LUCs over 30 years.

Summary Statement

Based on information currently available, the USACE believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The USACE expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b): 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element.

A public meeting will be held during the public review and comment period on June 19, 2013 to explain this Proposed Plan.

Written comments will be accepted from June 19, 2013 through July 19, 2013.

For more information about the Former Waikane Training Area please contact:

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or visit the website:
http://www.poh.usace.army.mil/Missions/Environmental/FUDS/Waikane.aspx

The preferred alternatives presented above are based on current information and could change in response to public comment or new information.

10.0 COMMUNITY PARTICIPATION

USACE provided information and solicited public input to the investigation and remediation of the three MRSs at former WTA through stakeholder and public meetings. Project related documents, such as the Remedial Investigation and Feasibility Study Reports, are available digitally on the project website and bound copies placed in the Information Repository:

Information Repository/Administrative Record
Kaneohe Public Library
45-829 Kamehameha Highway
Kaneohe, Hawaii 96744
Telephone: (808) 233-5676

The USACE is soliciting public review and comment on all the alternatives identified for the three MRSs. Public comments are considered before any action is selected and approved. A public meeting will take place on at 7:00pm on June 19, 2013, at the Waiahole Elementary School Cafeteria, 48-215 Waiahole Valley Road, Kaneohe, HI 96744. Representatives from the CEPOH and the HDOH will be present at the meeting to explain this Proposed Plan, listen to concerns raised, answer questions, and accept public comments.

Written comments will be accepted throughout a 30-day public comment period from June 19, 2013 through July 19, 2013. Please submit written comments to the CEPOH.

U.S. Army Corps of Engineers – Honolulu District

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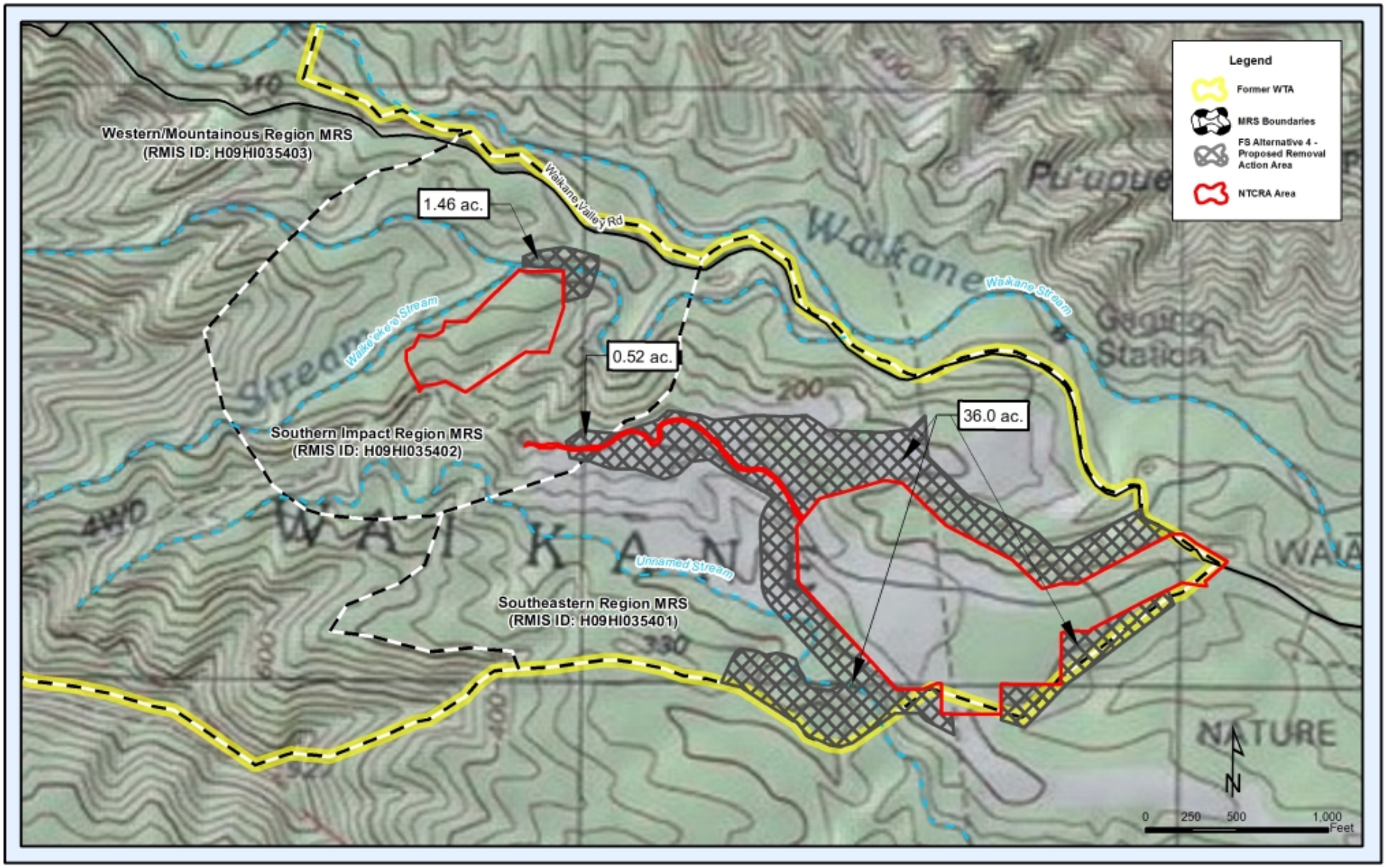
Recognize
Retreat
Report

RECOGNIZE
Military Items can be DANGEROUS.

RETREAT
DO NOT TOUCH IT!
Move away from the area.

REPORT
CALL 911

Figure 4 Proposed Alternative 4 – Surface/Subsurface Removal Action Areas



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ZAPATA, 2012a. Final Remedial Investigation Report for the Former Waikane Training Area, Kaneohe, Oahu, Hawaii. Prepared for the U.S. Army Engineering and Support Center, Huntsville, USACE, Honolulu District.

ZAPATA, 2013. Final Feasibility Study Report for the Former Waikane Training Area, Kaneohe, Oahu, Hawaii. Prepared for the U.S. Army Engineering and Support Center, Huntsville, USACE, Honolulu District.

GLOSSARY OF TERMS

Administrative Record – A compilation of all documents relied upon to select a remedial action pertaining to the investigation and remediation of the project site.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – Congress enacted CERCLA (42 USC § 9620 et seq.), commonly known as Superfund, on 11 December 1980. This law addresses the funding for, and remediation of abandoned or uncontrolled hazardous waste sites. This law also establishes criteria for the creation of key documents such as the Remedial Investigation, Feasibility Study, Proposed Plan, and Decision Document.

Decision Document – A document that is used to record the remedial response decisions after the lead agency has considered all comments from both the support agency and the public.

Feasibility Study (FS) – The study evaluates possible remedial alternatives using the information generated from the Remedial Investigation. The FS becomes the basis for selection of a remedy that effectively mitigates the threat posed by contaminants at the site.

Formerly Used Defense Site (FUDS) – Locations that were owned by, leased to, or otherwise possessed by the Department of Defense. The term does not include any operational range, operating storage or manufacturing facility, or facility that was used for or was permitted for the treatment or disposal of military munitions.

Land Use Controls (LUCs) – Physical, legal, or administrative mechanisms that restrict the use of, or limit access to, contaminated property to reduce risk to human health and the environment. Institutional controls (IC) are a subset of LUCs and may include education and outreach to minimize the impact if MEC is encountered.

Munitions Constituent (MC) – Any materials originating from unexploded ordnance (UXO), discarded military munitions (DMM), or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

Munitions and Explosives of Concern (MEC) – This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks means: (a) unexploded ordnance (UXO); (b) discarded military munitions (DMM); or (c) munitions constituents (MC) (explosives such as TNT, RDX present in high enough concentrations to pose an explosive hazard).

Munitions Response Site (MRS) – A discrete location within a defense site that is known to require a munitions response (investigation, removal action and/or remedial action).

Preferred Alternative – The alternative that, when compared to other potential alternatives, was determined to best meet the CERCLA evaluation criteria and is proposed for implementation at the site.

Proposed Plan – The plan that identifies the preferred remedial alternative for a site, and is made available to the public for comment.

Remedial Investigation (RI) – An investigation to determine the nature and extent of contamination, assess human health and environmental risks posed by the contaminants, and provide a basis for the development of response action alternatives.

ACRONYM LIST

ARARs	Applicable or Relevant and Appropriate Requirements
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EAL	Environmental Action Level
EE/CA	Engineering Evaluation/Cost Analysis
FS	Feasibility Study
ft	Feet
FUDS	Formerly Used Defense Site
HDOH	State of Hawaii, Department of Health
HE	High Explosive
HEAT	High Explosive Anti-Tank
IC	Institutional Control
LUC	Land Use Control
MC	Munitions Constituent
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MRS	Munitions Response Site
NCP	National Contingency Plan
NDAI	No Department of Defense Action Indicated
NTCRA	Non-Time Critical Removal Action
PP	Proposed Plan
RAO	Remedial Action Objective
RI	Remedial Investigation
ROE	Rights-of-Entry
SI	Site Inspection
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USMC	United States Marine Corps
UXO	Unexploded Ordnance
WTA	Waikane Training Area

COMMENT FORM

Your Name:

Your Address:

Your Phone Number:

Email Address:

Comments:

Please mail or email comments on this Proposed Plan to:
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If you have special needs or require this document in an alternate form,
please call Kevin Pien at (808) 835-5440.

Comments must be postmarked or submitted via e-mail by July 19, 2013.