

# **ACTION MEMORANDUM**

## **Beaches on Isla Culebrita and Flamenco Beach on Culebra Island Culebra Island, Puerto Rico**

**DERP-FUDS Property #I02PR0068**



Prepared for  
**U.S. Army Corps of Engineers  
Jacksonville District**

**August 2006**

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## ACTION MEMORANDUM

### FOREWORD

This Action Memorandum presents the selected response action for approximately 21 acres of Culebra. The U.S. Army Corps of Engineers (USACE) is the lead agency under the Defense Environmental Restoration Program (DERP) at the former Culebra Island Naval Facility Formerly Used Defense Site (FUDS), and has developed this Action Memorandum consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document will be incorporated into the larger Administrative Record file for former Culebra island Naval Facility. This document, presenting a selected remedy with a initial capital cost estimate of \$450,158, is approved by the undersigned, pursuant to Memorandum, DAIM-ZA, September 9, 2003, Subject: Policies for Staffing and Approving Decision Documents (DDs), and to Engineer Regulation 200-3-1, Formerly Used Defense Sites (FUDS) Program Policy.

APPROVED:

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Date

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## **1.0 INTRODUCTION**

An Engineering Evaluation/Cost Analysis (EE/CA) was conducted for areas within Culebra Island Archipelago, Puerto Rico. The Culebra Island Navy Facility is a Defense Environmental Restoration Program/Formerly Used Defense Site. (DERP/FUDS, #I02PR0068). The EE/CA addressed approximately 21.5 acres on the beaches of Isla Culebrita and Flamenco Beach on Culebra Island. The objectives of the EE/CA were to evaluate the presence of munitions and explosives of concern (MEC) that may exist within the areas, evaluate the potential risks to human health and environment due to the presence of MEC, and to recommend the most technically feasible and cost-effective approach for reducing the risk of exposure to MEC items. The EE/CA provides information in support of a Non-Time Critical Removal Action (NTCRA). The format and information provided in this document are consistent with the guidelines set forth in ER 200-3-1, 10 May 04. The ER states that an Action Memorandum for a NTCRA is based on information contained in the EE/CA Report and consideration of public comments and community concerns.

## **2.0 STATEMENT OF BASIS AND PURPOSE**

2.1 The purpose of this Action Memorandum is to present the selected munition response action for the areas addressed by the EE/CA. The basis for the selection was in accordance with the DERP FUDS and relevant U.S. Army regulations and guidance for MEC programs and consistent with CERCLA. Based on the results of the completed EE/CA, the most appropriate alternative was selected for the areas. As a result of the comprehensive evaluation of alternatives, Clearance to Depth of Detection was selected as the most appropriate response action for the area. This selection will provide a high level of public safety protection by removing both the surface and subsurface MEC. By removing both surface and subsurface MEC, it will provide a high reduction in residual MEC risk. It will provide a permanent long-term solution since it will result in permanent removal of MEC; it is technically and administratively achievable because it addresses both surface and subsurface MEC. The regulators and stakeholders agree with this alternative.

2.2 The Final EE/CA Report described the potential response alternatives that were evaluated for the areas and presented the recommended munitions response alternative. The draft EE/CA was published for 30 days for public comments. Two Availability Meetings were held on 9 August 2006. A meeting was held in the morning at the city Hall Municipal Assembly Room; an afternoon meeting was held at the Fish and Wildlife Service office. The attendees were interested in the coordination and arrangements. No specific comments were made by attendees which required revision to the EE/CA.

2.3 Previous Site Investigation. A detailed archives search was conducted in 1994, and the Archive Search Report (ASR) was completed in February 1995. A Time Critical Removal Action (TCRA) was conducted at the campground area of Flamenco Beach in 1995. Eleven (11) unexploded ordnance (UXO) items were removed and disposed of. The eleven items were located on the surface or at shallow depths. An EE/CA for the Former Culebra Island Naval Facility began in 1995 and was completed in March 1997. An Action Memorandum was approved by the USACE-Jacksonville District on 15 December 1997. A removal action for areas designated in the Action Memorandum is ongoing. In June 2004, the Department of the Army (DoA) directed the USACE to re-investigate the information available concerning the military's use of Culebra. The Supplemental ASR was completed in September 2005. This response action is a result of the Supplemental ASR.

### **3.0 PROJECT JUSTIFICATION**

3.1 Project Location. Culebra Island is located approximately 20 miles east of the Island of Puerto Rico. The investigation area includes the authorized beach areas of Isla Culebrita and authorized area in Flamenco Beach that were affected by the military maneuvers from 1903 through 1975. Appendix A shows the location of Culebra Island (including Flamenco Beach), Isla Culebrita and surrounding cays, referred to as the Culebra Island Archipelago. The project involves approximately 21.5 acres.

To assist in evaluating the alternatives that could be implemented, the sites were subdivided into seven (7) areas (A through E, the Fish and Wildlife Service (FWS) identified area, and Area F). The following summarizes the location of the areas.

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- Island Culebrita – There are five (5) areas in the beach that are considered under this EE/CA. These areas (Area A – 1.69 acres; Area B - .28 acres; Area C - .50 acres; Area D – 1.24 acres; and Area E - .87 acres) are shown in Appendix A. The five areas total approximately 4.58 acres.
  - FWS Identified Area – Approximately five (5) acres will be identified adjacent to Areas A-E in order for FWS’ biologists and other staff to access the threatened/endangered turtles’ habitat that is under on-going study.
  - Flamenco Beach – Designated as Area F with approximately 11.83 acres.

The cumulative area for beach Areas A-E, area identified by FWS, and Area F is approximately 21.41 acres.

3.2 Site History. The Former Culebra Island Naval Facility was primarily used by U.S. Navy and U.S Marines for training activities. In 1901, President Theodore Roosevelt, at the request of the Department of Navy, issued an Executive Order placing Culebra under the jurisdiction and control of the Navy. In 1902, the Marine advanced base battalion first deployed to Culebra to exercise their new capabilities. From 1903 to 1975, the Culebra Island Archipelago was used as an impact range for aerial bombs and rockets, missiles, mortars and naval projectiles. The U.S. Government and the Commonwealth of Puerto Rico negotiated an agreement requiring the U.S. Navy to terminate permanently a portion of its operations at the Culebra Complex. Training use was terminated at Culebra on 30 September 1975.

3.3 MEC Items Found on Site. UXO found in the previous investigations have been training items of minimal penetration, found at or near the ground surface. Table 3-1 summarizes the UXO items and the depth at which each item was found. Based on the findings of the previous investigations, it is anticipated that any MEC items in this area will be found on or near the surface.

Table 3-1

**Summary of UXO Found**

Item Description (number found)	Depth, inches <sup>1</sup> maximum
Areas A – E <sup>2</sup>	
UXO Items:	
20mm HEI (16 items)	4
75mm HE	
Area F	
UXO Items:	
20 mm HEI	
5 inch NGF (1 item)	8
37mm HE (1 item)	5
3 inch rocket warhead (1 item)	4
Illuminating candles (5 items)	4

<sup>1</sup> "0" inches means item was at surface.

<sup>2</sup> In the Supplemental ASR, Isla Culebrita was found to be within the firing fan of a 75mm range.

#### 4.0 ALTERNATIVES CONSIDERED

A NTCRA was initiated to address the public safety risks associated with residual MEC within the 21 acres at Culebra. Several response action alternatives were considered for the areas. The alternatives considered were:

- No DoD Action Indicated (NDAI);
- Institutional Controls (ICs);
- Surface Clearance of MEC
- Clearance of MEC to Depth.

## 5.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

An EE/CA has been performed and was included in the Administrative Record for this project. Copies of this document are available at the project repository in the Municipality of Culebra, Puerto Rico for the public to review. This repository contains project information for the public to review and stay informed on the investigation and surface removal action within the authorized beach areas of Isla Culebrita and authorized area at Flamenco Beach. During the public involvement meetings project related information is provided to the public. The public has been encouraged to visit the repository and examine the record on file or to contact USACE staff for additional information, if needed. Additional copies of the EE/CA are available at the USACE Antilles Office. During the public comment period a public meeting was held to inform the public of the contents and provide an opportunity to comment on any aspect of the project. The Draft Final EE/CA was made available to public review initially for a 30-day period on July 26, 2006 and a meeting was held to introduce it to the public.

## 6.0 REGULATOR COORDINATION SUMMARY

The local authorities, PREQB, USFWS, Puerto Rico Department of Natural and Environmental Resources (PRDNER), and the National Oceanic and Atmospheric Administration (NOAA-Fisheries Southeast Regional Office) have cooperated with the USACE during the preparation of this EE/CA. The Municipality of Culebra has assisted the USACE by coordinating the public involvement meeting, and distributing project fact sheets to inform the public of MEC hazards and solicit input on the risk reduction alternatives

The regulatory agencies, PREQB, Municipality of Culebra were provided copies of the draft EE/CA. Copies of this document were available for public inspection in several locations in the Municipality of Culebra and San Juan Puerto Rico (USACE Antilles Office). USACE will solicit from PREQB, local regulatory agencies and the Municipality of Culebra input on the identification of applicable or relevant and appropriate requirements (ARARs).

## **7.0 SELECTION CRITERIA**

The selection criteria used to evaluate the four response action alternatives consist of the effectiveness in reducing the public safety risks, the implementability of the alternative, and the cost of implementing the alternative. The effectiveness criterion involved consideration of four criteria; protection of public safety and the environment, compliance with ARARs, long term effectiveness, and short term effectiveness. The implementability criterion involved consideration of six criteria; technical feasibility, administrative feasibility, availability of services and materials, property owner acceptance, local agency acceptance, and community acceptance. These criteria are discussed further in Section 6.4 of the EE/CA Report and available in the project Administrative Record.

## **8.0 DESCRIPTION OF SELECTED ALTERNATIVE**

### **Alternative 4 – Clearance to Depth of Detection**

Alternative 4 includes the surface and subsurface clearance of MEC items to Depth of Detection. The depth of clearance is based on depth of MEC findings, type of ordnance found, associated maximum penetration depth and land use. This alternative includes the intrusive investigation of surface and subsurface metallic anomalies identified during the anomaly detection survey to determine their exact nature. During the intrusive investigation, each selected anomaly is excavated until the source of the instrument reading is identified. This alternative contributes to the final remedy by removing MEC from the beaches. The result of this action will be inserted into the Site Investigation for the final remedy of the site.

The overall estimated cost to implement the selected alternative is \$450,158.

Based on the estimated costs presented in this Action Memorandum, the appropriate approval level for this project is the geographic military district commander.



## **9.0 TRADE OFF ANALYSIS**

The alternative recommended is the best alternative for each area, as documented in the EE/CA Report.

## **10.0 EXPECTED CHANGE IN SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

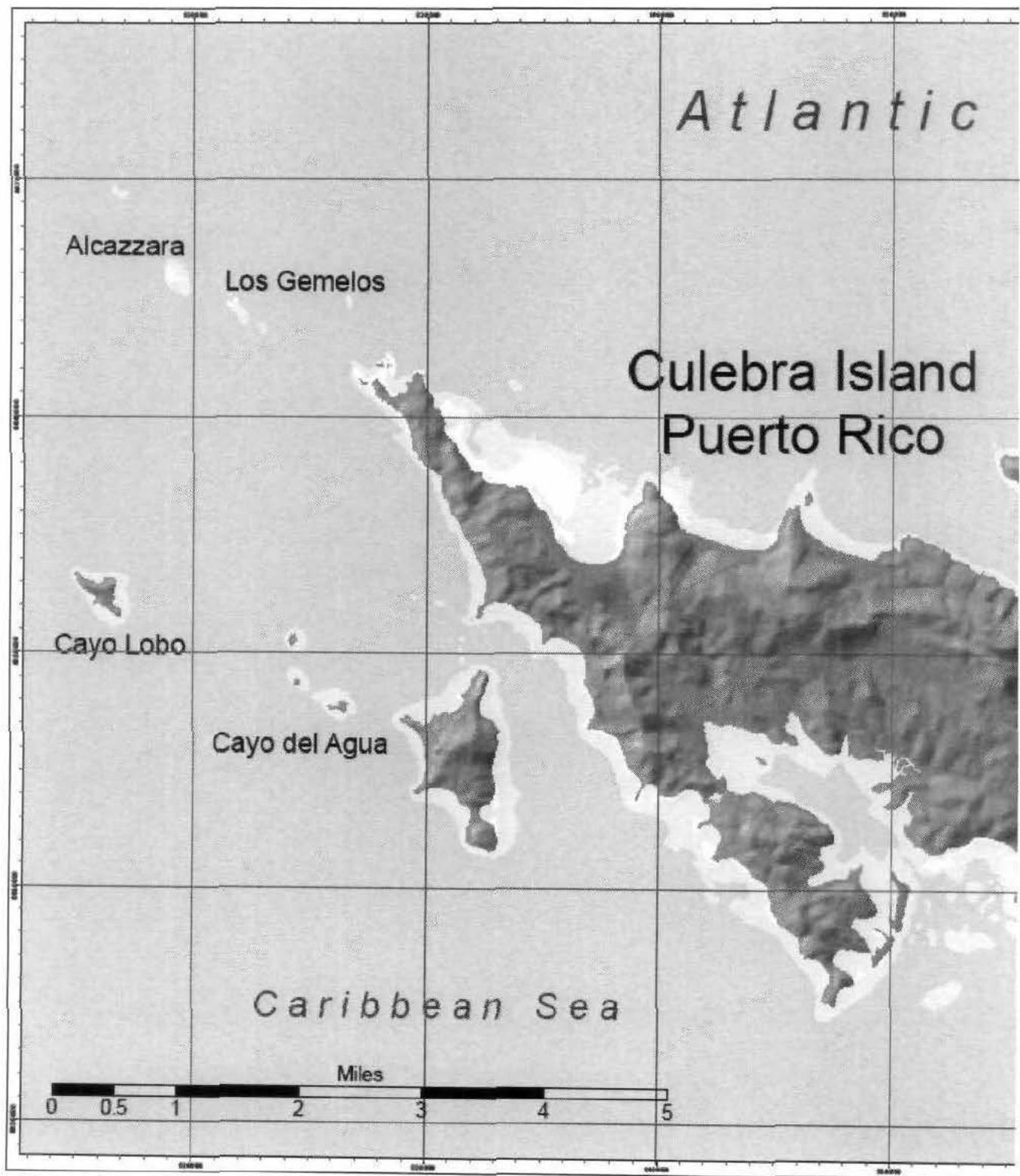
If the actions outlined in this EE/CA Action Memorandum are delayed or not taken at Culebra, the potential exists of continued and substantial endangerment to public health, welfare, and environment. The potential endangerment is the explosive hazard which exists on the beach to the public and to US Fish and Wildlife personnel performing their turtle responsibilities.

## **11.0 RESIDUAL RISK**

Residual risk that may remain at the site will be managed through Institutional Controls, such as signs and public education. The Army will perform a recurring review every 5-years after the implementation of the selected munitions response actions. This effort will be performed to determine if the munitions response action continues to be protective of human health, safety, and the environment

## **12.0 RESPONSIVENESS SUMMARY**

A responsiveness summary is provided in Appendix A in the form of comments received and the resolution of the comments.





**Comments Received on the  
Culebra Draft Engineering Evaluation/Cost Analysis**

A. EPA.

**Comment:**

In the Executive Summary, Paragraph ES-8.0, page ES-2, as well as in Section 9.0, Recommended Risk Reduction Alternative, page 9-1, of the main body of the Draft EE/CA, it is stated that Alternative 4 was selected as the recommended removal action alternative. Alternative 4 includes a complete removal of MEC from the surface of the five identified beaches and a subsurface removal of MEC to the depths of one meter. EPA believes that an alternative should be considered of providing the removal of MEC to the detection depth thereof, instead of stopping removal at a predetermined depth of one meter as is the case with Alternative 4.

Experience has shown that over 90 percent of the MEC found on most military ranges (excluding burial pits) is located on the surface or in the first two feet below the ground surface (bgs). However, it is also true that a certain percentage of the MEC is discovered at depths exceeding two feet bgs. It is thought that the hazard reduction resulting from the additional effort required to remove this remaining detected MEC (below two feet deep) is well worth the time and expense. This is particularly thought to be true where the locations concerned are/will be subjected to human activity and potential intrusive use, as is the case with many of the beaches on Culebra.

As the beaches are subject to erosion/beach building events caused by the elements, it would also appear to be prudent to remove all selected anomalies to detection depth instead of stopping at a predetermined depth of one meter. In particular, beach erosion and the resulting shifting of MEC can make today's five-foot deep anomaly tomorrow's surface MEC. It would be unfortunate if an incident involving this MEC occurred after an erosion event, particularly if it happened between the erosion event and the subsequent inspection of the beach.

DoD 6055.9-STD (DoD Ammunition and Explosives Safety Standards, October 5, 2004) states in Section C1.2 that, "Consistent with operational requirements, it is DoD policy to: ... Provide the maximum possible protection to both personnel and property from the damaging effects of potential accidents involving AE." It does not appear that knowingly abandoning unresolved anomalies that may represent MEC, particularly on beaches that will be subject to human activity, is in strict compliance with the noted reference.

Please review the criteria employed to select the Removal Alternative in light of the above noted concerns. Add another alternative to the EE/CA or modify the selected Alternative 4 to include removal of MEC at detection depth or provide EPA with a detailed explanation as to why this should not be done as requested.

**Response:** Accepted.

B. UXO Pro, Inc.

1. **Comment:** The comments below are made to provide the US Army Corps of Engineers with EQB's technical position on various issues regarding this document. None of the following comments are considered to be critical technical issues. While it is recommended that USACE acknowledge these comments, none of the following comments require that revisions be made to the EE/CA document.

**Response:** No response required.

2. **Comment:** The summary of MEC hazards does not include the large rocket or missile that was found in the rocks near Flamenco Beach. This MEC has the capability to penetrate deeper than many of the other MEC listed in this section.

**Response:** This will be researched and included in the document.

3. **Comment:** Several places in the EE/CA reference performing brush clearance and, in the case of this section, "extensive brush clearance" to perform the geophysical surveys. However, it should be noted that the proposed work will be performed in beach areas and the amount of brush clearance required will be minimal to none.

**Response:** Accepted.

4. **Comment:** An additional protective measure that should be considered a potentially applicable Institutional Control is the implementation of a coordinated MEC Emergency Response Plan for Culebra. EQB has developed a draft MEC Emergency Response Plan and requests the assistance of the USACE in implementing the plan. The plan requires some degree of training for local first responders (how to photograph potential MEC, who to contact, what protective action to take, etc.) and coordination with all agencies involved, including the USACE, is necessary for the plan to be effective.

**Response:** This is a valid comment. However, a MEC Emergency Response Plan this is not an Institutional Control. The EE/CA is not the place to address this topic. An emergency response plan is prepared for military responds. If the RAB addresses the concept, USACE will support the effort in any way it can to put it into place.

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5. **Comment:** It is recommended that DGM surveys be used to perform the remedial action because the DGM data will allow any anomalies deeper than 1-meter to at least be identified for avoidance in the future.

**Response:** It is the current plan to perform DGM of the entire area and develop a process to select anomalies. The development of this process will be a collaborative effort between the contractor and USACE. The process will be delivered to the product delivery team before it is implemented.

6. **Comment:** Again, implementation of a coordinated MEC Emergency Response Plan should also be considered for managing residual risk on Culebra following implementation of the selected remedy.

**Response:** This is a valid comment. However, a MEC Emergency Response is not an Institutional Control. The EE/CA is not the place to address this topic. An emergency response plan is prepared for military responds. If the RAB addresses the concept, USACE will support the effort in any way it can to put it into place.

#### C. Fish and Wildlife Service:

1. **Comment:** As stated in the meeting, since the potential is low to encounter MEC below one meter, we should have the clearance criteria as clearance to depth rather than a fixed depth of one meter. All indications show that the majority of the items will be shallow, but we do not want to leave the occasional deep item. So I would just change the term "clearance to one meter" and replace it with "clearance to depth".

**Response:** Accepted.

2. **Comment:** I sent Nelson a draft SOP for sea turtles. Once it's fleshed out send it back to us for review. That should complete the ARAR compliance. The SOPs can then help guide the development of the site specific workplan for the all future MEC work on beaches.

**Response:** Please provide a copy for our information.

3. **Comment:** I would eliminate the term "hand held" from section 6.2.2.1 and just use magnetometers, be they hand held or pulled. Using the term "hand held" immediately limits your options.

**Response:** The text will be revised to "analog".

4. **Comment:** On Culebrita, there is a series of sand beaches between Beach A and Beach B, along the southern portion, they are small and should be included.

**Response:** They were not identified by aerial photographs. Five acres has been included for areas yet to be identified.

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5. **Comment:** Only one part of Flamenco is being proposed to be cleared: the eastern part. I'm sure the public would want to know why the rest of the beach is not being cleared, especially since the area not to be cleared is the area within the existing public beach and camping area.

**Response:** A Time Critical Response Action was conducted on part of the beach prior to discovery of legislation in MILCON 74 (find exact reference). The legislation stated there would be no funds spent on the cleanup of the Northwest peninsula. Until Congress rescinds the legislation, we are not authorized to spend funds for that area.

#### D. USATCES

**COMMENT:** My comments on the Culebra EE/CA in regards to the Action Memorandum focus on the depth of clearance and are similar to the Project Manager's comments.

You can't really say you will be doing a clearance to 1 meter when you won't be able to detect the items that deep. Depth of detection is site specific and varies depending on local soil conditions. However, the items listed as being found in the EE/CA almost certainly can't be detected to 1 meter. Using the formula for quick estimation I figure the 20mm can be detected to around 9 inches. And since we know that Park Service personnel will be digging to 1 meter (looking for turtle eggs I believe) that's an issue that needs to be addressed.

Unless the soil is removed in lifts to the depth of detection for the smallest MEC item known to be present the beaches can't really be considered cleared to 1 meter. That however (removing sand) would be devastating to the environment, costly, and is probably unrealistic. So an alternative needs to be developed and addressed. Possibly educating the Park Service employees to the hazards involved in digging on the beach, issuing them Schonstadts, and teaching them anomaly avoidance. You could say clearance will be done to depth of detection or 1 meter. But that should be explained so stakeholders understand the inherent risk.

Also the EE/CA states the probability of finding MEC deeper than what was found during the EE/CA as low. I think that may not be accurate. However, because the EE/CA does not state how much area was sampled it is impossible to make an accurate assumption based on the sampling done. There very well may be MEC deeper that wasn't found because it was deeper than the depth of detection. The sampling done may have been insufficient to paint an accurate portrait of the areas. Without the overall sampling information in the EE/CA it's impossible to say. Intuitively thinking if small arms (up to .50 cal) can penetrate up to 12 inches of earth (the current army doctrine) then I would think that a 20mm can penetrate at least as deep. And although most of the planes probably fired at a shallow angle it is possibly some may have fired at a steeper angle. Some depth of penetration calculations may help here.



To reiterate, the issue of depth of clearance needs to be addressed and what will be done to protect the park service employees who will be digging on the beach and the general public as well.

**RESPONSE:** The calculations for the maximum penetration of MEC items are at muzzle velocity. The items fired at Culebra are impacting at terminal velocity which means their depth will be much shallower than the maximum penetration table indicates. None of the items are expected to be deeper than the depth at which they can be detected.

The beaches of Isla Culebrita and Flamenco Beach have not been subjected to site disruption due to development or sand replenishment. The one beach on isla Culebrita that is subject to fluctuating sand levels will be at the lowest level when the removal is scheduled. The items should be located at their approximate depth when fired at targets.

**ACTION MEMORANDUM**

**Beaches on Isla Culebrita and  
Flamenco Beach on Culebra Island  
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**DERP-FUDS Property #I02PR0068**



Prepared for  
**U.S. Army Corps of Engineers  
Jacksonville District**

**August 2006**



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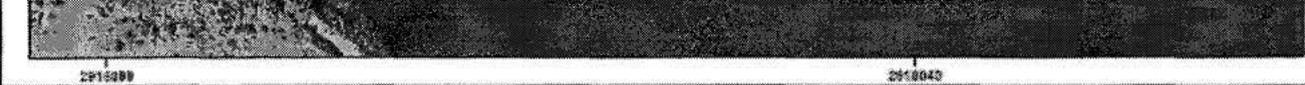
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UXO Items:	
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5 inch NGF (1 item)	8
37mm HE (1 item)	5
3 inch rocket warhead (1 item)	4
Illuminating candles (5 items)	4

<sup>1</sup> "0" inches means item was at surface.

<sup>2</sup> In the Supplemental ASR, Isla Culebrita was found to be within the firing fan of a 75mm range.

**4.0 ALTERNATIVES CONSIDERED**

A NTCRA was initiated to address the public safety risks associated with residual MEC within the 21 acres at Culebra. Several response action alternatives were considered for the areas. The alternatives considered were:

- No DoD Action Indicated (NDAI);
- Institutional Controls (ICs);
- Surface Clearance of MEC
- Clearance of MEC to Depth.

## 5.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

An EE/CA has been performed and was included in the Administrative Record for this project. Copies of this document are available at the project repository in the Municipality of Culebra, Puerto Rico for the public to review. This repository contains project information for the public to review and stay informed on the investigation and surface removal action within the authorized beach areas of Isla Culebrita and authorized area at Flamenco Beach. During the public involvement meetings project related information is provided to the public. The public has been encouraged to visit the repository and examine the record on file or to contact USACE staff for additional information, if needed. Additional copies of the EE/CA are available at the USACE Antilles Office. During the public comment period a public meeting was held to inform the public of the contents and provide an opportunity to comment on any aspect of the project. The Draft Final EE/CA was made available to public review initially for a 30-day period on July 26, 2006 and a meeting was held to introduce it to the public.

## 6.0 REGULATOR COORDINATION SUMMARY

The local authorities, PREQB, USFWS, Puerto Rico Department of Natural and Environmental Resources (PRDNER), and the National Oceanic and Atmospheric Administration (NOAA-Fisheries Southeast Regional Office) have cooperated with the USACE during the preparation of this EE/CA. The Municipality of Culebra has assisted the USACE by coordinating the public involvement meeting, and distributing project fact sheets to inform the public of MEC hazards and solicit input on the risk reduction alternatives

The regulatory agencies, PREQB, Municipality of Culebra were provided copies of the draft EE/CA. Copies of this document were available for public inspection in several locations in the Municipality of Culebra and San Juan Puerto Rico (USACE Antilles Office). USACE will solicit from PREQB, local regulatory agencies and the Municipality of Culebra input on the identification of applicable or relevant and appropriate requirements (ARARs).



## **7.0 SELECTION CRITERIA**

The selection criteria used to evaluate the four response action alternatives consist of the effectiveness in reducing the public safety risks, the implementability of the alternative, and the cost of implementing the alternative. The effectiveness criterion involved consideration of four criteria; protection of public safety and the environment, compliance with ARARs, long term effectiveness, and short term effectiveness. The implementability criterion involved consideration of six criteria; technical feasibility, administrative feasibility, availability of services and materials, property owner acceptance, local agency acceptance, and community acceptance. These criteria are discussed further in Section 6.4 of the EE/CA Report and available in the project Administrative Record.

## **8.0 DESCRIPTION OF SELECTED ALTERNATIVE**

### **Alternative 4 – Clearance to Depth of Detection**

Alternative 4 includes the surface and subsurface clearance of MEC items to Depth of Detection. The depth of clearance is based on depth of MEC findings, type of ordnance found, associated maximum penetration depth and land use. This alternative includes the intrusive investigation of surface and subsurface metallic anomalies identified during the anomaly detection survey to determine their exact nature. During the intrusive investigation, each selected anomaly is excavated until the source of the instrument reading is identified. This alternative contributes to the final remedy by removing MEC from the beaches. The result of this action will be inserted into the Site Investigation for the final remedy of the site.

The overall estimated cost to implement the selected alternative is \$450,158.

Based on the estimated costs presented in this Action Memorandum, the appropriate approval level for this project is the geographic military district commander.



## **9.0 TRADE OFF ANALYSIS**

The alternative recommended is the best alternative for each area, as documented in the EE/CA Report.

## **10.0 EXPECTED CHANGE IN SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

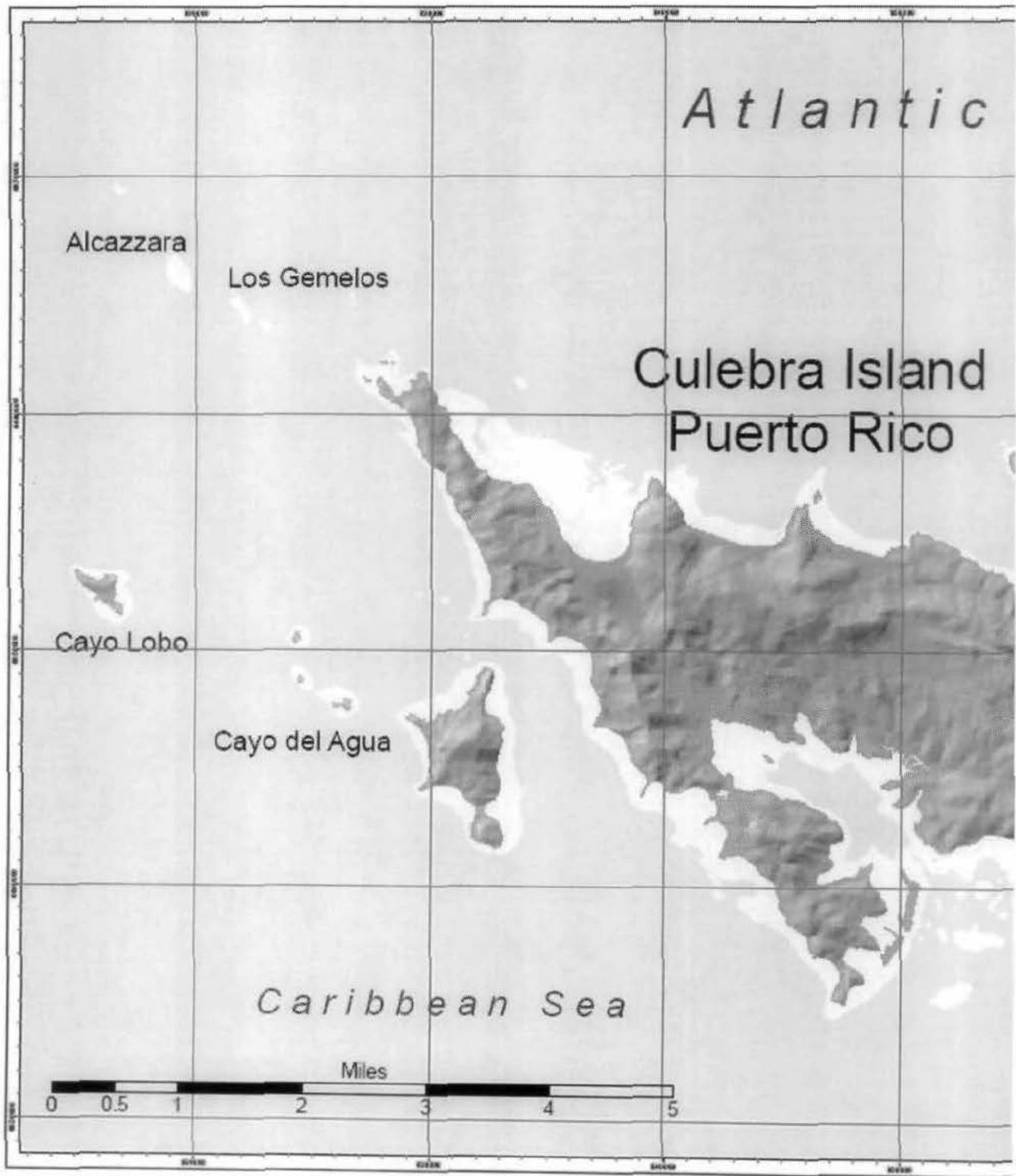
If the actions outlined in this EE/CA Action Memorandum are delayed or not taken at Culebra, the potential exists of continued and substantial endangerment to public health, welfare, and environment. The potential endangerment is the explosive hazard which exists on the beach to the public and to US Fish and Wildlife personnel performing their turtle responsibilities.

## **11.0 RESIDUAL RISK**

Residual risk that may remain at the site will be managed through Institutional Controls, such as signs and public education. The Army will perform a recurring review every 5-years after the implementation of the selected munitions response actions. This effort will be performed to determine if the munitions response action continues to be protective of human health, safety, and the environment

## **12.0 RESPONSIVENESS SUMMARY**

A responsiveness summary is provided in Appendix A in the form of comments received and the resolution of the comments.





**Comments Received on the  
Culebra Draft Engineering Evaluation/Cost Analysis**

A. EPA.

**Comment:**

In the Executive Summary, Paragraph ES-8.0, page ES-2, as well as in Section 9.0, Recommended Risk Reduction Alternative, page 9-1, of the main body of the Draft EE/CA, it is stated that Alternative 4 was selected as the recommended removal action alternative. Alternative 4 includes a complete removal of MEC from the surface of the five identified beaches and a subsurface removal of MEC to the depths of one meter. EPA believes that an alternative should be considered of providing the removal of MEC to the detection depth thereof, instead of stopping removal at a predetermined depth of one meter as is the case with Alternative 4.

Experience has shown that over 90 percent of the MEC found on most military ranges (excluding burial pits) is located on the surface or in the first two feet below the ground surface (bgs). However, it is also true that a certain percentage of the MEC is discovered at depths exceeding two feet bgs. It is thought that the hazard reduction resulting from the additional effort required to remove this remaining detected MEC (below two feet deep) is well worth the time and expense. This is particularly thought to be true where the locations concerned are/will be subjected to human activity and potential intrusive use, as is the case with many of the beaches on Culebra.

As the beaches are subject to erosion/beach building events caused by the elements, it would also appear to be prudent to remove all selected anomalies to detection depth instead of stopping at a predetermined depth of one meter. In particular, beach erosion and the resulting shifting of MEC can make today's five-foot deep anomaly tomorrow's surface MEC. It would be unfortunate if an incident involving this MEC occurred after an erosion event, particularly if it happened between the erosion event and the subsequent inspection of the beach.

DoD 6055.9-STD (DoD Ammunition and Explosives Safety Standards, October 5, 2004) states in Section C1.2 that, "Consistent with operational requirements, it is DoD policy to: ... Provide the maximum possible protection to both personnel and property from the damaging effects of potential accidents involving AE." It does not appear that knowingly abandoning unresolved anomalies that may represent MEC, particularly on beaches that will be subject to human activity, is in strict compliance with the noted reference.

Please review the criteria employed to select the Removal Alternative in light of the above noted concerns. Add another alternative to the EE/CA or modify the selected

Alternative 4 to include removal of MEC at detection depth or provide EPA with a detailed explanation as to why this should not be done as requested.

**Response:** Accepted.

B. UXO Pro, Inc.

1. **Comment:** The comments below are made to provide the US Army Corps of Engineers with EQB's technical position on various issues regarding this document. None of the following comments are considered to be critical technical issues. While it is recommended that USACE acknowledge these comments, none of the following comments require that revisions be made to the EE/CA document.

**Response:** No response required.

2. **Comment:** The summary of MEC hazards does not include the large rocket or missile that was found in the rocks near Flamenco Beach. This MEC has the capability to penetrate deeper than many of the other MEC listed in this section.

**Response:** This will be researched and included in the document.

3. **Comment:** Several places in the EE/CA reference performing brush clearance and, in the case of this section, "extensive brush clearance" to perform the geophysical surveys. However, it should be noted that the proposed work will be performed in beach areas and the amount of brush clearance required will be minimal to none.

**Response:** Accepted.

4. **Comment:** An additional protective measure that should be considered a potentially applicable Institutional Control is the implementation of a coordinated MEC Emergency Response Plan for Culebra. EQB has developed a draft MEC Emergency Response Plan and requests the assistance of the USACE in implementing the plan. The plan requires some degree of training for local first responders (how to photograph potential MEC, who to contact, what protective action to take, etc.) and coordination with all agencies involved, including the USACE, is necessary for the plan to be effective.

**Response:** This is a valid comment. However, a MEC Emergency Response Plan this is not an Institutional Control. The EE/CA is not the place to address this topic. An emergency response plan is prepared for military responds. If the RAB addresses the concept, USACE will support the effort in any way it can to put it into place.



5. **Comment:** It is recommended that DGM surveys be used to perform the remedial action because the DGM data will allow any anomalies deeper than 1-meter to at least be identified for avoidance in the future.

**Response:** It is the current plan to perform DGM of the entire area and develop a process to select anomalies. The development of this process will be a collaborative effort between the contractor and USACE. The process will be delivered to the product delivery team before it is implemented.

6. **Comment:** Again, implementation of a coordinated MEC Emergency Response Plan should also be considered for managing residual risk on Culebra following implementation of the selected remedy.

**Response:** This is a valid comment. However, a MEC Emergency Response is not an Institutional Control. The EE/CA is not the place to address this topic. An emergency response plan is prepared for military responds. If the RAB addresses the concept, USACE will support the effort in any way it can to put it into place.

#### C. Fish and Wildlife Service:

1. **Comment:** As stated in the meeting, since the potential is low to encounter MEC below one meter, we should have the clearance criteria as clearance to depth rather than a fixed depth of one meter. All indications show that the majority of the items will be shallow, but we do not want to leave the occasional deep item. So I would just change the term "clearance to one meter" and replace it with "clearance to depth".

**Response:** Accepted.

2. **Comment:** I sent Nelson a draft SOP for sea turtles. Once it's fleshed out send it back to us for review. That should complete the ARAR compliance. The SOPs can then help guide the development of the site specific workplan for the all future MEC work on beaches.

**Response:** Please provide a copy for our information.

3. **Comment:** I would eliminate the term "hand held" from section 6.2.2.1 and just use magnetometers, be they hand held or pulled. Using the term "hand held" immediately limits your options.

**Response:** The text will be revised to "analog".

4. **Comment:** On Culebrita, there is a series of sand beaches between Beach A and Beach B, along the southern portion, they are small and should be included.



**Response:** They were not identified by aerial photographs. Five acres has been included for areas yet to be identified.

5. **Comment:** Only one part of Flamenco is being proposed to be cleared: the eastern part. I'm sure the public would want to know why the rest of the beach is not being cleared, especially since the area not to be cleared is the area within the existing public beach and camping area.

**Response:** A Time Critical Response Action was conducted on part of the beach prior to discovery of legislation in MILCON 74 (find exact reference). The legislation stated there would be no funds spent on the cleanup of the Northwest peninsula. Until Congress rescinds the legislation, we are not authorized to spend funds for that area.