US Army Corps
of Engineers®
Jacksonville District

TIME CRITICAL REMOVAL ACTION
ACTION MEMORANDUM

for

Cayo del Agua,
Culebra, Puerto Rico,
Munitions Response Site 02
Formerly Used Defense Site
Project Number I02PR006802

June 2016

EXECUTIVE SUMMARY

ES.1 It has been determined that a Time Critical Removal Action (TCRA) is required for Cayo del Agua, located within Munitions Response Site (MRS) 02 of the Culebra, Puerto Rico Formerly Used Defense Site (FUDS), Project Number I02PR006802.

ES.2 Based on available historic information, it was determined that Culebra was utilized as a coaling and communications station, for aerial bombing, maneuvers, naval gun and artillery firing, and amphibious training by the U.S. Marine Corps and the U.S. Navy during various periods between 1903 and 1975. The former usage for Cayo del Agua was for aerial bombing and rocket firing. The U.S. Navy and U.S. Marines conducted fleet maneuvers and Fleet Landing Exercises (FLEX) between 1923 and 1975. MK80s series general purpose HE and practice bombs, 2.75-inch rockets, MK 76 practice bombs, a 76mm projectile, and evidence of aircraft flares have been located on Cayo del Agua. Other suspected munitions used in Cayo del Agua include MK 25 and MK 45 flares and 20mm projectiles. In November 2015, U.S. Army Corps of Engineers (USACE) contractors identified more than 60 intact MK 76 practice bombs (most of them with cartridges) on the cayo. Parts of 2.75-inch rocket motors were observed on the cayo, and since no practice warheads were observed the rocket motor parts were assumed to be from high explosive rockets. Cayo del Agua is part of the Culebra National Wildlife Refuge (NWR), which protects important habitats for migratory shorebirds and nesting seabirds. U.S. Fish and Wildlife Service (FWS) personnel and volunteers access the cayo on a recurring basis in order to conduct wildlife censuses. Cayo del Agua is easily accessible by boat or kayak and there are no barrier to prevent trespassers. Additionally, Cayo del Agua is accessed by local shellfish harvesters. FWS personnel, recreational users, and shellfish harvesters could trigger an unintentional detonation of a munition item. In addition to the more than 60 practice bombs and rocket motors documented by USACE's Remedial Investigation (RI) contractor, the potential presence of large, high explosive, ordnance items in close proximity to heavily used public beaches (e.g. Tamarindo, Cayo Luis Peña beach) poses a significant imminent risk to public health, safety, and the environment. If no action is taken, future risk to receptors is considered to be the same as the current risk, provided site usage does not change. Not implementing a removal action may lead to potential injury to persons and property should an unexploded ordnance (UXO) be accidentally detonated. However, USACE proposes to conduct a TCRA in order to significantly reduce the imminent threat to public health and safety at the site.

ES.3 The selected response actions to be performed under this TCRA include surface and subsurface removal of UXO at Cayo del Agua. The TCRA will include conducting identification (visual and geophysics), confirmation, surface and subsurface removal, and disposal of recovered munitions. The primary objective of the TCRA at Cayo del Agua is to mitigate and minimize the threat posed by the potential proximity of munitions to shellfish harvesters, FWS personnel, and recreational users/boaters whose activities may potentially trigger an unintentional detonation of a munitions item.

ES.4 Based on the potential presence of UXO at this location and the risk to the public, a TCRA is necessary to reduce the risk at Cayo del Agua. There is a significant probability that military munitions will continue to be exposed at this FUDS property that pose a safety hazard to individuals if not addressed through a response action. The Jacksonville District (SAJ), the U.S. Army Engineering and Support Center, Huntsville (USAESCH), and the Environmental and Munitions Center of Expertise (EMCX) concurred that this situation meets the criteria for a TCRA. The cost of this TCRA, to include contractor, SAJ, and USAESCH costs, is estimated at $700,000 US Dollars.

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1 LOCATION AND DESCRIPTION OF SITE

1.1 CAYO DEL AGUA, MUNITIONS RESPONSE SITE (MRS) 02, CULEBRA, PUERTO RICO, FUDS PROJECT NUMBER I02PR006802

1.1.1 Culebra is located about 17 miles east of the main island of Puerto Rico (Figure 1). The Culebra property, consisting of Culebra Island and surrounding cayos, was acquired via land transfers, purchases, donations and leases, and was utilized as a coaling and communications station, for aerial bombing, maneuvers, naval gun and artillery firing, and amphibious training by the U.S. Marine Corps and the U.S. Navy during various periods between 1903 and 1975.

1.1.2 An Inventory Project Report (INPR) was signed on 24 December 1991, establishing the Culebra Island site as a FUDS, with designated Property No. I02PR0068. The Findings and Determination of Eligibility (FDE) concluded that "the site, except for 87.5 acres still under control of the Navy, has been determined to be formerly used by the Department of Defense. It is therefore eligible for the Defense Environmental Restoration Program (DERP)." A Revised INPR was completed in June 2005. The Revised INPR further clarified the military use of the Island of Culebra and delineated the original munitions response site (MRS) into 13 MRSs (Site 02 through Site 14) and an Installation Restoration Program (IRP) site (Site 00).

1.1.3 Based on historical research and U.S. Army Corps of Engineers (USACE) Site Inspections, the Culebra property has been prioritized for remedial investigation for munitions and explosives of concern (MEC) and munitions debris (MD), with the exception of the area on Culebra Island designated as the Northwest Peninsula (NWP), which has special restrictions. The Remedial Investigation (RI) report including Cayo del Agua has not yet been finalized, and additional work was conducted in 2015.

1.1.4 Cayo del Agua, also named Water Key or Agua Cay, is a small key lying approximately 2,400 feet west of Cayo Luis Peña (Figure 2). It is approximately 450 feet in diameter with a rocky beach and a mix of level areas and rough rocks. Cayo del Agua is part of Culebra MRS 02 (Figure 3). The cayo is part of the Culebra National Wildlife Refuge (NWR), which protects important habitats for migratory shorebirds and nesting seabirds. The NWR is currently owned and managed by the Fish and Wildlife Service (FWS).

1.1.5 The former usage for Cayo del Agua was for aerial bombing and rocket firing. The U.S. Navy and U.S. Marines conducted fleet maneuvers and Fleet Landing Exercises (FLEX) between 1923 and 1975. During these exercises the surrounding keys were heavily bombarded with high explosive (HE) bombs, projectiles, and rockets, as well as illumination and practice rounds. Training continued through the 1950s and 1960s, and in the early 1960s aerial bombardment was expanded to most of the cays on the east and west side of Culebra. In 1969, Cayo del Agua was used as an aircraft bombing and rocket firing target within the Culebra Complex used for the Vietnam training. In 1970, the U.S. Navy discontinued use of all the targets on the eastern side as well as Cayo del Agua. By 1 January 1972 the U.S. Navy relocated the target at Cayo del Agua to Cayo Lobo (Cross Cay). Ordnance operations on the entire Culebra Complex were terminated 1 October 1975.

2 DESCRIPTION OF HAZARDS

2.1 Munitions and Explosives of Concern (MEC) have been documented in Cayo del Agua. Munitions include MK80s series general purpose HE and practice bombs and 2.75-inch rockets. In addition, during the Archive Search Report (ASR) site visit (USACE, 2004), the Engineering Evaluation/Cost Analysis (EE/CA) (Environmental Science and Engineering, Inc. [ESE], 1997), and the Site Inspection (SI) (Parsons, 2007), MK 76 practice bombs, a 76mm projectile, and evidence of aircraft flares were located on the cayo. Local residents provided a report indicating a 12 to 16 inch diameter munition in the water off of Cayo del Agua during the ASR interviews (USACE, 2004). Other suspected munitions used in Cayo del Agua are: MK 25 and MK 45 flares and 20mm projectiles. In November 2015, USACE was informed by one of its contractors conducting terrestrial RI fieldwork on Culebra that a significant amount of potential munitions items were observed at Cayo del Agua. It was reported that more than 60 intact MK 76 practice bombs (most of them with cartridges) were observed along the track investigated and numerous others were spotted in the rocks along the beach. It was also noted that parts of 2.75-inch rocket motors were observed on the cayo, and since no practice warheads were observed the rocket motor parts were assumed to be from high explosive rockets.

3 CURRENT LAND USE ACTIVITIES AND RISK OF EXPOSURE

3.1 Cayo del Agua is part of the NWR, which protects important habitats for migratory shorebirds and nesting seabirds. FWS personnel and volunteers access the cayo on a recurring basis in order to conduct wildlife censuses. Cayo del Agua is easily accessible by boat or kayak and there are no barrier to prevent trespassers. Tourists rent kayaks from nearby Tamarindo Beach and are often observed kayaking to cayos, including Luis Peña and del Agua. Additionally, Cayo del Agua is accessed by local shellfish harvesters, who park their boats at the cayo and walk through the shallow water to gather shellfish. FWS personnel, recreational users, and shellfish harvesters could trigger an unintentional detonation of a munition item.

3.2 In addition to the more than 60 practice bombs and rocket motors documented by USACE's RI contractor, the potential presence of large, high explosive, ordnance items in close proximity to heavily used public beaches (e.g. Tamarindo, Cayo Luis Peña beach) poses a significant imminent risk to public health, safety, and the environment. If no action is taken, future risk to receptors is considered to be the same as the current risk, provided site usage does not change. Not implementing a removal action may lead to potential injury to persons and property should an unexploded ordnance (UXO) be accidentally detonated. However, USACE proposes to conduct a TCRA in order to significantly reduce the imminent threat to public health and safety at the site.

4 PREVIOUS ACTIONS TO ADDRESS HAZARD

4.1 During the ASR site visit (USACE, 2004), the EE/CA (ESE, 1997), and the SI (Parsons, 2007), MK 76 practice bombs, a 76mm projectile, and evidence of aircraft flares were located. Local residents provided a report indicating a 12 to 16 inch diameter munition in the water off of Cayo del Agua during the ASR interviews (USACE, 2004).

4.2 In November 2015, USACE was informed by one of its contractors conducting terrestrial RI fieldwork on Culebra that a significant amount of potential munitions items were observed at

Cayo del Agua. It was reported that more than 60 intact MK 76 practice bombs (most of them with cartridges) were observed along the track investigated and numerous others were spotted in the rocks along the beach. It was also noted that parts of 2.75-inch rocket motors were observed on the cayo, and since no practice warheads were observed the rocket motor parts were assumed to be from high explosive rockets.

4.3 No removal actions have been conducted on Cayo del Agua to address the potential UXO hazard.

5 ENDANGERMENT DETERMINATION

5.1 The USACE Project Delivery Team conducted an endangerment determination for Cayo del Agua. The cayo was analyzed for accessibility, type of ordnance, potential energy input by receptors and effectiveness of existing controls. It has been demonstrated that military munitions exist at this FUDS property that pose a potential safety hazard to individuals if not addressed through the response action described in this Action Memorandum.

5.2 A TCRA is justified in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) removal factors and site specific conditions as cited in 40 CFR 300.415 (b) as follows: there exists an actual or potential exposure to nearby human populations from hazardous substances in the form of explosive ordnance whose presence is documented by USACE's contractor; weather conditions, especially severe weather conditions such as tropical storms or hurricanes may cause migration (e.g. uncover) or release of hazardous substances; there exists the threat of explosion; and there are no other appropriate Federal or State response mechanisms to respond to the potential release.

6 PROPOSED ACTION

6.1 The primary objective of the TCRA at the land potion (low tide line towards shore) at Cayo del Agua is to mitigate and minimize the threat posed by the proximity of ordnance items to shellfish harvesters, FWS personnel, and recreational users/boaters whose activities may potentially trigger an unintentional detonation of a munitions item. Based on the USACE contractor report, it is anticipated that over 60 munitions items will be encountered.

6.2 The TCRA will include conducting identification (visual and geophysics), confirmation, surface and subsurface removal, and disposal of recovered munitions. The successful performance standards of the removal will consist of the Government finding no MEC or Material Potentially Presenting an Explosive Hazard (MPPEH) (excluding small arms ammunition, i.e., .50 cal and smaller), and no MD or Range Related Debris (RRD) equivalent to, or greater than 37mm in diameter or width on the surface of the munitions response site. Additionally, there shall be no subsurface finding of MEC or MPPEH shallower than 8x the item's diameter and no signal equivalent to, or greater than anomaly selection criteria without an acceptable explanation. All anomalies in the subsurface shall be resolved, regardless of if water is encountered.

6.3 SAJ, USAESCH, and the EMCX have determined that this situation meets the criteria for a TCRA since there is a significant possibility that military munitions exist at the specified areas of this FUDS property that pose an imminent hazard to individuals if not addressed through the

Response Action described in this Action Memorandum. The cost of this TCRA, to include contractor, SAJ and USAESCH costs, is estimated at $700,000 US Dollars.

7 AUTHORIZING SIGNATURE

This Action Memorandum presents the selected response action at Cayo del Agua, Culebra, Puerto Rico. The DOD is the lead agency at FUDS, and the Army is the Executive Agency on behalf of the DOD. The Army has delegated project management and execution responsibility for FUDS to the U.S. Army Corps of Engineers under DERP at Culebra, and USACE has developed this Action Memorandum consistent with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, and the NCP. This action memorandum will be incorporated into the larger Administrative Record file for Culebra, which will be available for public view.

This document, presenting a selected remedy with a present worth cost estimate of $700,000, is approved by the undersigned, pursuant to Memorandum, DAIM-ZA, September 9, 2003, subject: Policies for Staffing and Approving Decision Documents, and to Engineer Regulation 200-3-1, FUDS Program Policy.

APPROVED:

JASON A. KIRK, P.E.
Colonel, EN
Commanding

7 JUNE 2016
Date

FIGURES

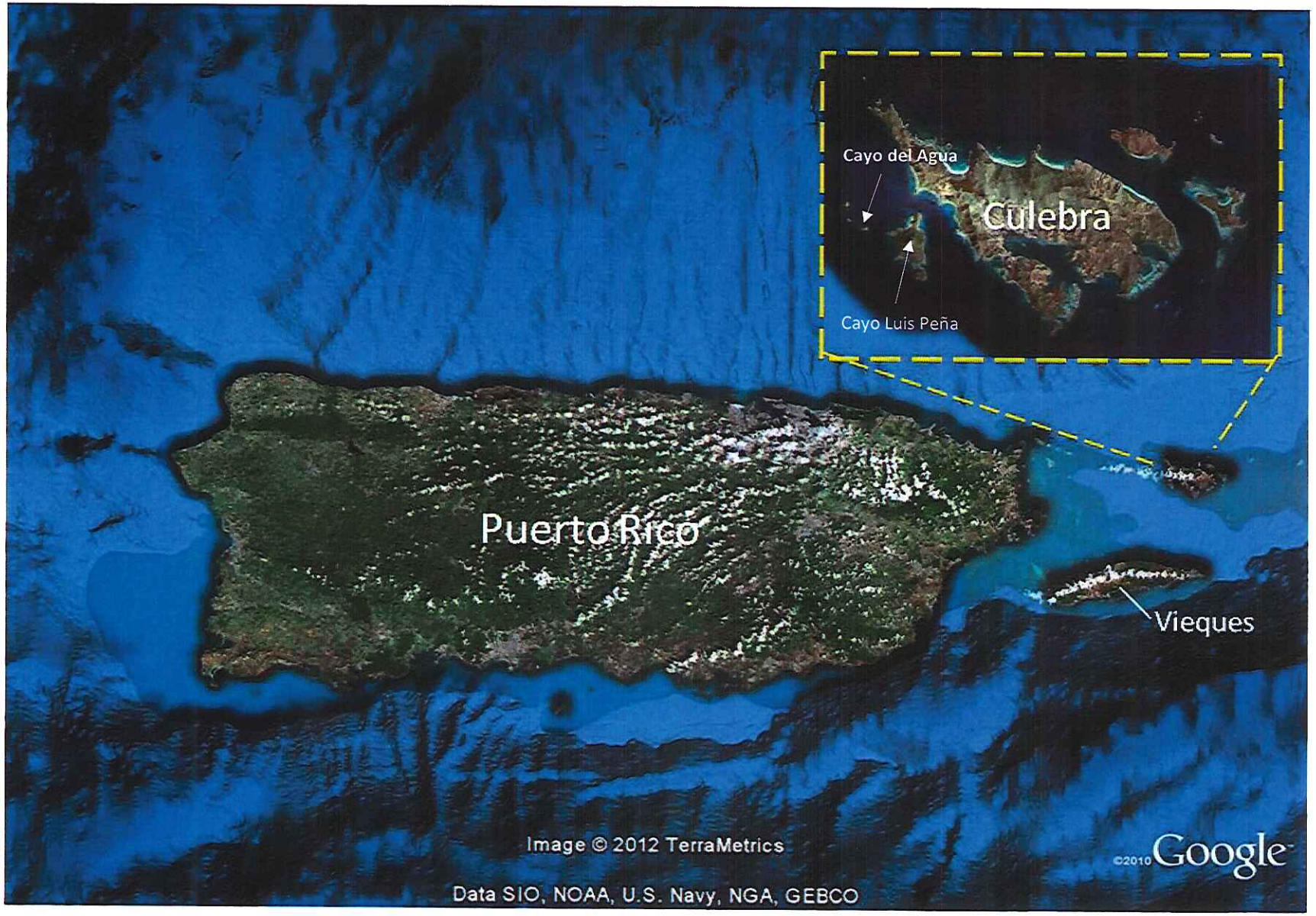

Figure 1. Location Map of Culebra.

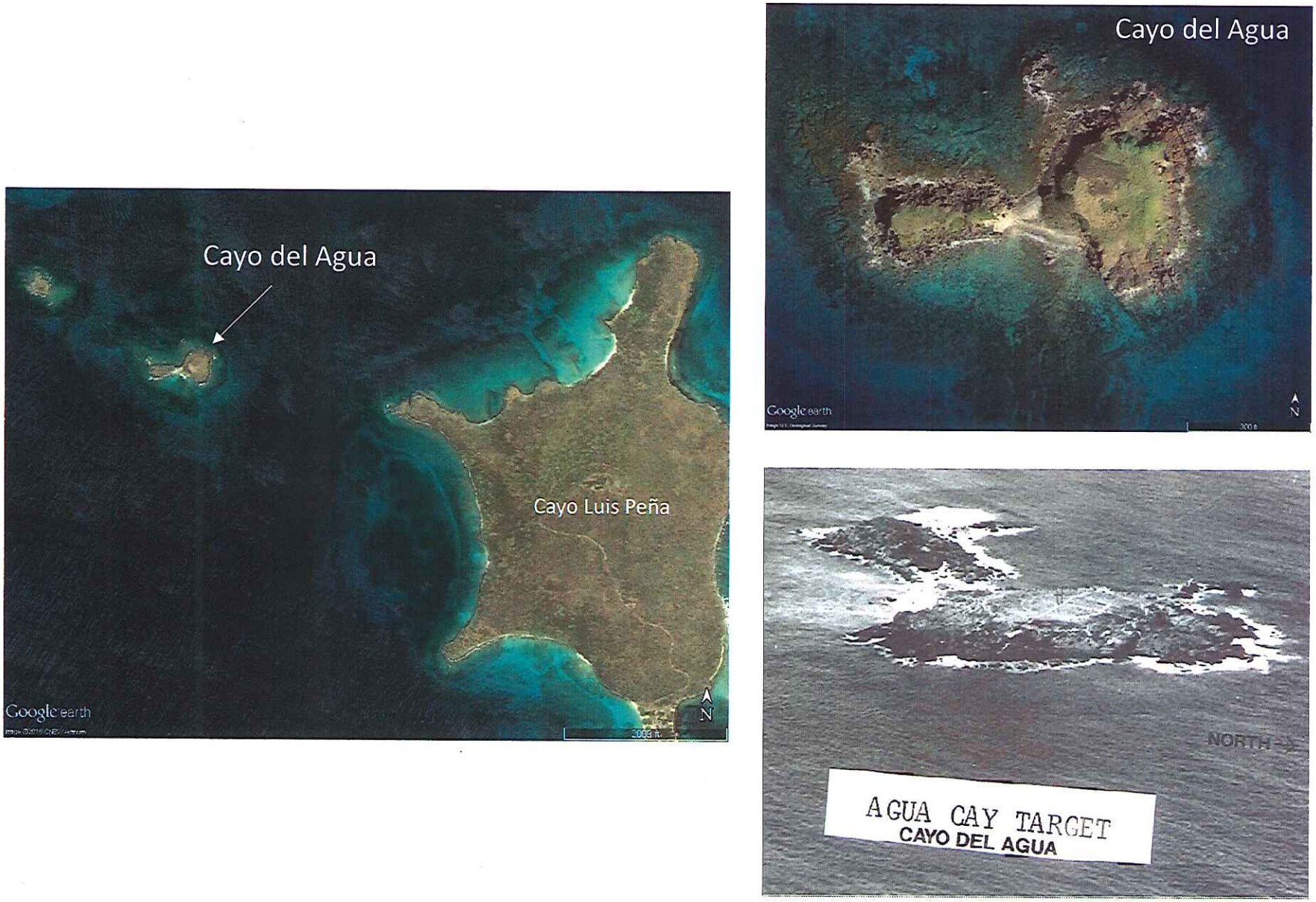

Figure 2. Cayo del Agua location.

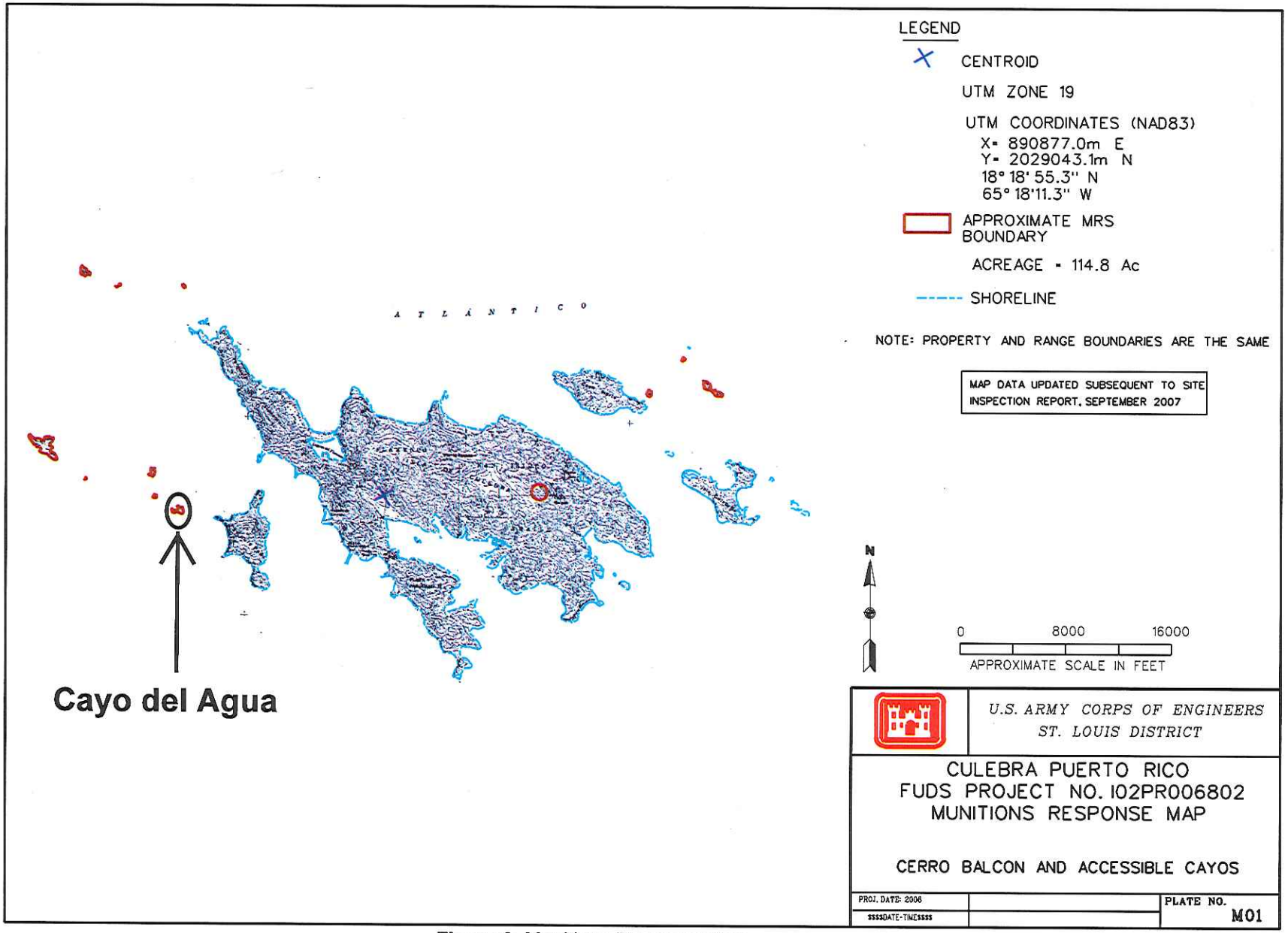

Figure 3. Munitions Response Map