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April 14, 2010

U.S. Navy BRAC PMO SE
ATTN: Mark Davidson
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Subject: NAVFAC CLEAN III Program
Contract N62470-02-D-3052, CTO-172
Piñeros Island, Naval Activity Puerto Rico

Dear Mr. Davidson:

We are pleased to submit the *Final Work Plan to Conduct Phase I RCRA Facility Investigation, Addendum No. 1—Terrestrial Intrusive Investigation* for the referenced munitions response site. Copies of this document are being sent to other recipients as indicated on the attached distribution list.

If you have any questions regarding this submittal, please contact me at 404-474-7640 or at tom.roth@ch2m.com.

Sincerely,

CH2M HILL

A handwritten signature in black ink that reads "Thomas M. Roth". The signature is written in a cursive style with a large initial "T" and "R".

Thomas M. Roth
Senior Project Manager

cc: Mr. Tim Gordon, USEPA
Mr. Carl Soderberg, USEPA
Ms. Gloria Toro, EQB
Ms. Wilmarie Rivera, EQB
Mr. Felix Lopez, USFWS
Mr. Anthony Scacifero, TechLaw, Inc.
Mr. Mark Kimes, Michael Baker Jr., Inc.
Mr. Pedro Ruiz, Naval Activity Puerto Rico
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Response to Comments
Addendum No 1 – Terrestrial Intrusive Investigation Work Plan to Conduct Phase I
RCRA Facility Investigation, April 2010
Pineros Island
Naval Activity Puerto Rico

PREPARED FOR: Mr. Mark Davidson, BRAC PMO SE
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PREPARED BY: CH2M HILL

DATE: April 5, 2010

Introduction

The purpose of this document is to address comments on Work Plan Addendum No. 1, dated January 2010, pertaining to the Terrestrial Intrusive Investigation planned for Pineros Island. This document is intended to also serve as an addendum/supplement to the Addendum No. 1. Comments were provided by the USEPA and their consultant TechLaw, Inc., NAVFAC, PREQB, and USFWS. The responses to comments are provided in bold.

TechLaw, Inc. Comments (dated February 19, 2010)

General Comments

1. The Work Plan Addendum contains the Field Investigation Plan (Section 3) and the Explosives Management Plan (Section 6). These plans are both based on the Explosives Safety Submission Phase I RCRA Facility Investigation (ESS). The ESS has evaluated the military ordnance used in training activities on the island to determine the most hazardous explosive item for the Phase I Intrusive Investigation. This item is titled the Munition with the Greatest Fragmentation Distance (MGFD); with the M67 fragmentation grenade chosen and used as the basis for the Exclusion Zone (EZ) distances.

With the proposed electromagnetically map and dig ("EM-and-Dig") technique, and the clearing of the 169 selected anomalies listed in Table 1-1, an unknown amount of MEC may not be properly addressed using the proposed limitation of intrusive MEC work to a depth of two feet and an 8-millivolt (mV) anomaly detection threshold on the EM61-MK2. This mV selection was most likely chosen to reacquire the M67 fragmentation

grenade. As a result, other smaller potential MEC listed in the ESS Section 3.1 could be overlooked in this phase of RCRA investigation.

Review the listed portions of the Work Plan Addendum and revise them as necessary to ensure that the characterization goals of the investigation will be met by the selected 8 mV and two foot detection criteria.

Response – Although all anomalies exceeding the 8 mV threshold will continue to be investigated, a representative portion of anomalies registering between 3 mV and 8 mV will also be investigated to provide information on whether smaller MEC is present in the investigation areas.

The types of munitions reportedly used at the site do not penetrate very far into the ground surface; therefore, MEC is not anticipated below the top few inches of soil. Two feet was selected as an appropriate depth that would allow the recovery of most, if not all, anomaly sources.

The upcoming field work is an investigation to determine the nature of subsurface MEC, and may not represent the final action to be conducted. The results of this investigation will meet the characterization goals of the investigation and will be used to evaluate the need for future responses at the site.

TechLaw Evaluation of Response: The response is sufficient as written, provided that the “representative portion of anomalies registering between 3 mV and 8 mV” investigated is a statistically representative sample and the results support the 8 mV threshold selection.

Revised Response - The threshold has been lowered to 3 mV, a level just above background “noise”.

2. The Work Plan Addendum does not contain laboratory specific information (e.g., laboratory standard operating procedures (SOPs), quality control (QC) samples, reporting limits, method detection limits, QC measurement criteria). Revise the Work Plan Addendum to include laboratory specific data and/or refer to corresponding sections in the Final Work Plan to Conduct Phase I RCRA Facility Investigation Pinero and Cabeza de Perro Islands, Naval Activity Puerto Rico, dated May 2006 (RFI Work Plan).

Response - Laboratory Analytical Quality Control was addressed in Section 4.3 of the Final RFI Work Plan, 2006. During this mobilization and phase of work, soil samples will be taken only from locations where controlled detonations are conducted to screen for residual MC left behind from demolition operations. CH2M HILL is currently procuring the subcontract analytical laboratory and will provide their SOPs and QC measurement criteria when received from the lab.

3. The Work Plan Addendum does not specify what the action levels are for explosives, Target Analyte List (TAL) metals, and perchlorate in soil samples. Therefore, it cannot

be determined if the laboratory reporting limits will be sufficient to detect the compounds and metals at or below the action levels. Revise the Work Plan Addendum to provide the concentrations for each of the compounds and metals that will be used to establish whether there is a presence of residual MEC in the soil.

Response – The objective of the soil samples taken during this phase of work is to verify that BIP actions did not leave any residual MC in the soil. Presence of residual MC is not anticipated and lab data will be compared to the background samples taken in 2006 to determine whether action is needed.

TechLaw Evaluation of Response: The response partially addresses the comment. However, if laboratory data will be compared to background samples from 2006, ensure that the background sample data is provided in the Work Plan Addendum to ensure that the laboratory reporting limits will be sufficient to detect levels above background concentrations for individual constituents.

Revised Response – A table has been added to Appendix C to provide the concentration ranges detected during the 2006 sampling event, and the QLs for analytes that were not detected. This table also provides the laboratory-specific quantitation and detection limits for the current sampling event.

TechLaw, Inc. Specific Comments

1. **Acronyms and Abbreviations, Page vi:** The Acronym ESQD should be redefined as “Explosives Safety Quantity Distance,” as per DoD 6055.09-STD (Department of Defense Ammunition and Explosives Safety Standards). Revise the document accordingly.

Response – The definition of this acronym has been corrected.

2. **Section 3.2.1, “EM and Dig” Using EM61-MK2, Page 3-2:** The “EM-and-Dig” process using EM61-MK2 appears to be the correct equipment and technique for the ordnance items listed in the historical finding of the Phase I work plan. Target selection of 8mV on the EM61-MK2 (explained in paragraph 4) appears to be an appropriate amplitude level for the M67 fragmentation grenade and larger items at a two-foot below ground surface (bgs) depth. However, it may leave some smaller MEC items such as blasting caps and pyrotechnic signals undetected. In addition, this section also states that as part of the QC process, blind QC seeds (1"x4" pipes) will be buried in areas to be investigated. No statement is made as to the corrective action required if the EM & Dig team does not detect and remove the blind QC seeds. Revise this section to clarify how blind QC seeds are to be used for QC purposes and the related failure criteria. In the alternative, provide a reference to where this information may be found in the work plan supplemented by this draft addendum.

Response – The QC Plan, Section 4.4.4 outlines the corrective action process for the event of a discrepancy or DQO failure discovered during QC activities, to include the following steps: (1) deficiencies or nonconforming items are identified and a corrective action request (CAR) is issued; (2) an investigation is performed to determine the root and contributing causes; (3) corrective actions are taken based on

those root and contributing causes; and (4) follow-up is performed by the UXO Quality Control Officer (UXOQCO) to ensure that the corrective actions have both short-term and long-term effectiveness.

Also, explain how the presence of MEC smaller than the M67 fragmentation grenade will not be overlooked using the noted criteria.

Response – See response to General Comment No. 1, above.

TechLaw Evaluation of Response: The response is insufficient as written, as it does not fully explain the use of the blind seeds and does not specifically state that the non-detect of a blind QC seed will result in a QC failure and require rework of the affected portion of the investigation. The response should be rewritten and the Work Plan Addendum revised to correct this omission.

Revised Response – Section 3.2.1 has been revised to address correct actions and re-investigations in the event that a blind QC seed is not detected.

3. **Section 3.2.2, Manual Excavation of Anomalies, Page 3-4:** The last paragraph of this section states that, “the maximum depth of intrusive investigation will be 2 feet based on the types of munitions used.” It is unclear as to why this should be the basis for determining the depth of clearance for this investigation. It is also unclear why no action will be taken if anomalies are found deeper than 2 feet (as the assumption cannot be justifiably made that these anomalies do not represent MEC). Abandoning anomalies without resolution normally requires a land use control for excavations below the specified clearance depth. Revise the Work Plan Addendum to clarify the basis for abandoning anomalies without resolution at the 2-foot depth.

Response – See response to General Comment No. 1, above.

4. **Section 3.3, Procedures for Reporting and Disposition of MEC and MPPEH, Page 3-5:** Paragraph 1 of this section states that, “All MEC found will be flagged as MEC and demilitarized by blow in place (BIP) procedures at the end of the field event.” While it is understood that this procedure increases the individual safety of the UXO personnel, BIP procedures are generally used for Unexploded Ordnance (UXO), which is usually the most hazardous category of MEC items. Discarded military munitions (DMM) and munitions constituents (MC) present in concentrations high enough to pose an explosive hazard (the MC component of the term MEC) are usually not BIP unless their condition requires this action. If MEC items are deemed acceptable to move by the Senior UXO Supervisor (SUXOS), those MEC items could be consolidated in a more controlled area for detonation/demilitarization, requiring less use of donor explosives and presenting less stress on the environment (note, this finding is repeated in section 6.2). Review the cited section and revise the procedures noted therein in accordance with the preceding comments.

Response – Blow-in-place is a preferred approach from a safety standpoint. Although movement and consolidation of MEC is allowed in some instances based on unique

circumstances, it was decided that BIP would be used at this site. BIP is also the procedure provided in the DDESB-approved ESS.

5. **Table 3-1, Exclusion Zone Parameters, Page 3-5:** This table notes that the maximum fragmentation distance for the M67 hand grenade detonated with a one-pound donor charge is 464 feet. The M67 contains 6.5 ounces of composition B explosives, thus adding twice the donor explosive (one-pound) to the MEC item being destroyed. The BIP procedure can be accomplished more effectively, and with less MC and environmental stress generated, using a 40-grain (or similar) perforator. Revise the table and other affected sections of the Work Plan Addendum to reflect this change, or provide an explanation for the necessity for the use of the one-pound donor charge to destroy a half-pound munition.

Response - The table reflects the maximum allowable net explosive weight prescribed under the DDESB-approved Explosives Safety Submission. The actual types and volumes of explosives to be used for each demo shot will be determined by the SUXOS in consultation with the UXOSO, and may not be the maximum allowable NEW.

TechLaw Evaluation of Response: The response is acceptable as written, provided that a footnote is added to the cited table that reflects that the one-pound donor charge is the maximum allowed per the Explosives Safety Submission.

Revised Response - The footnote has been revised to indicate that the 1-lb donor charge is the maximum allowed and the actual donor charge may be less.

6. **Section 3.4.2, Inspection, Certification and Verification, Page 3-8:** The fifth paragraph of the section states "MPPEH that cannot be certified and verified as 'Safe' will be categorized as 3X and will remain at the MRS collection point until treated or demilitarized by BIP procedures." This process is correct though the BIP terminology is misused. The BIP procedure is applied to very sensitive UXO items too hazardous to move where the material potentially presenting an explosive hazard (MPPEH) described in this section have already been moved to a collection point.

This section also ignores the changes to terminology involving MPPEH items that have been inspected and found to either be safe or to present a confirmed explosive hazard. The two terms to be used in this instance are defined in DoD 6055.09-STD as follows:

- **Material Documented as Safe (MDAS):** MPPEH that has been assessed and documented as not presenting an explosive hazard and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH.
- **Material Documented as an Explosive Hazard (MDEH):** MPPEH that cannot be documented as MDAS, that has been assessed and documented as to the maximum explosive hazards the material is known or suspected to present, and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH.

As is noted in the two definitions, once the MPPEH has been inspected, certified, and placed in a chain of custody, it is no longer MPPEH. So the term "MPPEH-Safe (5X)" contradicts itself.

Revise the Work Plan Addendum to reflect the difference in MEC that will be BIP and MPPEH that will be consolidated into the MPPEH-Safe (5X) container awaiting demilitarization and/or destruction. Also, revise the other terminology referring to MPPEH that has undergone inspection, certification, and has been placed in a chain of custody to reflect the appropriate terminology. In addition, identify the title of the individual listed in this section (Page 3-9) as "UXOQC."

Response – The sections in the WP Addendum referencing "demilitarization by BIP procedures" will be changed to say, "demilitarization by controlled detonation procedures". The work plan addendum was written to be consistent with the DDESB-approved ESS, which was prepared before the terminology was revised. The decision was made to use the terminology in the ESS to avoid possible confusion due to discrepancies between the two documents.

TechLaw Evaluation of Response: The response is acceptable as written with respect to the terminology issues. However, it does not address the definition of the "UXOQC" acronym. The response and the Work Plan Addendum should be revised to address this portion of the comment.

Revised Response – The text has been revised to use the correct term "UXOQCS" This term is defined in the Acronyms and Abbreviations section and on first usage in Section 3.2.1.

7. **Section 3.7, Investigative-derived Waste Plan, Page 3-14:** This section does not include the procedures for decontaminating equipment used during sampling. Revise the section to include the procedures for decontaminating field equipment.

Response – All soil sampling equipment will be disposable and used once for each soil sampling location. Sampling equipment and material will then be disposed of as regular waste at the end of each day.

TechLaw Evaluation of Response: The response is acceptable. However, ensure that the response is included in the text of the Final Work Plan Addendum.

Revised Response – A discussion on sampling equipment has been added to Section 3.5.2, stating that sampling will be conducted with either pre-cleaned disposable equipment or with equipment that has been decontaminated prior to being brought on site. Decontamination procedures are provided for the second option.

8. **Section 4.2.1, Project Team Members, Page 4-1 through 4-2:** Several project team members and subcontractors are listed as to be determined (TBD). Ensure that all project team members and subcontractors are included in the final Work Plan Addendum.

Response - Project team members and subcontractors have been add to the final Work Plan Addendum.

9. **Section 4.4.5, Records Generated, Page 4-11:** This section does not specify how long records will be kept. Revise the section to specify how long project records and documents will be kept.

Response - Section will be revised to reflect Navy and CH2M HILL document retention policies.

10. **Section 4.4.7, Personnel Qualifications and Training, Page 4-13:** The subsection entitled "All UXO Personnel" reads as follows:

All MEC personnel will comply with the training requirements specified by the Program QC Manager. UXO personnel assigned to the position of UXO Technician I, UXO Technician II, or Corporate MR Safety & QC Officer will be graduates of one of the following schools or courses:

- U.S. Army Bomb Disposal School, Aberdeen Proving Ground, Maryland*
 - U.S. Naval EOD School, Indian Head, Maryland*
 - U.S. Naval EOD School, Eglin Air Force Base, Florida*
 - U.S. Department of Defense-certified equivalent course (UXO Technician I only)*
- EOD experience in National Guard or Reserve Units will be based on the actual documented time spent on active duty, not on the total time of service.*

The UXO Technician III, the SUXOS, the Unexploded Ordnance Quality Control Specialist (UXOQCS), and the Unexploded Ordnance Safety Officer (UXOSO) are not included in this listing. Revise the section to include the required qualifications of these individuals.

Response - Section will be revised to say that all UXO-qualified personnel should be graduates of one of the listed schools or courses.

TechLatv Evaluation of Response: The response is acceptable provided that it is noted in the Work Plan Addendum that UXO Technician I personnel are not UXO-Qualified.

Revised Response - The description of UXO Technician I personnel has been revised to state that they are not classified as UXO-qualified.

11. **Section 6.3, Blow-in-Place, Page 6-2:** The second paragraph of this section is the only part of the addendum that addresses engineering controls to protect the public from exposed MEC during the execution of demolition procedures. However, nothing is noted concerning protection of the public from exposed MEC prior to the conduct of demolition procedures. Revise the section to include the actions that will be taken to ensure public safety until that detonation. In the alternative, reference where this information is contained in the Work Plan Addendum.

Response – This section will be revised to discuss stationing of a guard boat at the island when MEC has been discovered and all UXO personnel are away from the island.

12. **Section 6.4, Collection Points, Page 6-2:** This section states that, “all MEC that is found during the course of the investigation at Piñeros Island will be blown in place. Therefore, no collection points for MEC are planned for this operation.” However, Section 3.4.2 states that MPPEH that has been moved to the “MPPEH-Safe (5X) container” (see Specific Comment 6) and subsequently re-evaluated and deemed hazardous to apparently be detonated on the container site (see Specific Comment 4). As any MPPEH that is re-evaluated and determined to contain an explosive hazard would also require re-classification to MEC, it appears that a consolidated demolition shot for disposal/demilitarization of this MEC will be required. It is also unclear as to where this MEC that has been removed from the “MPPEH-Safe (5X) container” will be destroyed. Review the cited sections and revise them as needed to eliminate any conflicting information.

Response – The WP Addendum will be edited to say that an appropriate area will be selected by the SUXOS and UXOSO near the MPPEH storage area to destroy MEC that may be removed from the MPPEH-Safe (5X) container.

PREQB Comments (dated February 4, 2010)

1. In Section 3.2, Page 3-2, does the reference to “these MRSs” in the last line refer to all MRSs or only 1,2, and 7 (the MRSs cited in the previous sentence)?

Response – “These MRSs” refers to all. The text will be updated to clarify.

2. In Section 3.2.1 beginning on Page 3-2 it is assumed, but unstated in the WP, that the starting point for reacquiring each anomaly will be the previously recorded anomaly position. However, since GPS accuracy was degraded at several of the MRS and it is expected that anomalies on the beaches may have moved, how wide a search radius around the original anomaly location will be searched with the EM61? Will the search radius be the same for areas with good GPS accuracy, areas with deteriorated GPS accuracy, and beaches? Please state the search radius and why, considering the degraded accuracy of the GPS in some MRS and the possibility that anomalies moved at other MRS, the selected search radius is adequate to relocate the original anomaly.

Response – The EM and Dig technique described in Section 3.2.1 by definition does not include reacquisition of anomalies. The paragraph preceding 3.2.1 describes the rationale for not trying to reacquire anomalies identified in the previous DGM investigation.

3. Section 3.3.5 on Page 3.6 describes the data that will be collected for each anomaly. Adding to the list recording the mV signal of the anomalies(s) reacquired by the EM61 within the search radius at the anomaly location is recommended. This data can be compared to the original anomaly intensity from the previous DGM survey to help determine whether or not the target anomaly has been successfully reacquired. This may

be especially important in areas with degraded GPS accuracy and on beaches where anomalies may have moved.

Response - The mV signal of each anomaly will be added as a data point on the tracking sheets.

4. Section 3.4.2, Page 3-8, references "OP 5 Volume 1 (Chapter 13 - 15)". The reviewer's most current copy of this document is "Change 8" dated July 1, 2009 and this version does not contain a chapter 15 (it ends at chapter 14). Section 7 of the work plan references a 2007 version of "NAVSEA Ammunitions and Explosives Safety Ashore" which is not the most current version of OP 5. The purpose of this comment is intended to ensure that we all are using the up-to-date version of this document. Please identify the version of OP 5 being used by the contractor as the most current version and confirm that it has a chapter 15.

Response - The references will be revised to cite the current versions of guidance documents.

5. Section 4.4.1 on Page 4-5 describes the blind seeding program. But, implementation of the blind seeding program is not fully described. For example, since this project involves only excavating the locations of previously identified anomalies, the blind seeding program for this project requires placement of the blind seeds, recording their location and inserting this information into the dig sheet data so that this location is programmed for excavation by the dig team. Also, since fully searching the required search radius is so critical to the success of this project (see comment #2 above) it is recommended to place some of the blind seeds on the edge of the search radius for the anomaly location to check that the field teams are inspecting the entire search radius.

Response - The objective of this phase of work is to locate and intrusively investigate all anomalies within the seven MRSs irrespective of the DGM data collected in 2006. The QC seeds will be placed each day in the area of investigation. They will be intrusively investigated and removal verified by the UXOQCS each day.

6. Appendix A contains the DGM report from the previous field investigation. All of the MRS appear to contain areas of concentrated anomalies that are identified by blue polygons. Please describe how these areas will be investigated.

Response - As stated in the previous responses, each MRS will be investigated using EM and Dig technique. This technique does not use the DGM data previously collected. Instead, all anomalies detected above the specified will be investigated to a maximum depth of two feet.

Follow-up to PREQB comment No. 6: EQB requests that the Navy provide an estimate of the size of each MRS that will be investigated using the "EM and dig" techniques. Are the areas that will be investigated the exact same areas that were previously investigated using DGM as shown in the Arm Group technical report (Appendix A to the work plan addendum)? Please clarify this issue.

Follow-up Response - Yes, the areas to be investigated are the same as those that were previously investigated using DGM. One exception to this may be the western land crabbing area (MRS-07), where the investigation will concentrate on areas that appear

to be in current use by island trespassers, rather than trying to duplicate the exact investigation transects previously investigated.

USFWS Comments (dated February 4, 2010)

1. The Service and the Navy are coordinating a Biological Assessment for this action. Section 6.2 of the Phase I RFI, states that no MEC will be considered safe to move, and that all MEC found will be blown-in-place. In order to minimize possible adverse effects to sea turtles, we believe that all sea turtle conservation measures outlined in the BA must be incorporated into the work plan language in Section 3.2.2, Manual Excavation of Anomalies and Section 6.3, Blow In Place.

Response -The BA will be inserted as an Appendix and referenced in the appropriate sections.

2. The Service agrees with the language in Section 3.1.2, Vegetation Removal, provided that appropriate supervision of the vegetation clearance crews is maintained.

Response - Noted

3. If the above recommendations are incorporated into the final work plan, we believe that impacts to the natural resources of Isla Piñeros would be minimal.

Response - Noted