



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

March 1, 2005

Mr. Jerry Dunaway
Southwest Division,
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92101-8517.

RE: Draft Removal Action Work Plan, Non-Time-Critical Removal Action for the Fenced Scrapyard Area of the Defense Reutilization and Marketing Office (DRMO) Site, Former Mare Island Naval Shipyard, Vallejo, California, December 10, 2004

Dear Mr. Dunaway:

EPA has reviewed your draft Removal Action Work Plan for the DRMO yard. We offer the following comments.

GENERAL COMMENTS

1. The Quality Assurance/Quality Control (QA/QC) procedures provided in the Work Plan are presented in various sections in the document. In addition, there is a Construction Quality Plan in Volume II of the Work Plan. While a significant amount of information concerning the QA/QC process is provided by these entries, some of the details of the QA/QC process appear to be missing. For example, the pass/fail criteria for the QA/QC evaluation of the intrusive investigation of a grid is not provided. There is a statement that any grid where the seeded item(s) located therein is/are not found constitutes a failure of the grid. However, no information as to what percentage of the completed grids will be reinvestigated by quality assurance or quality control personnel is presented, nor is it indicated as to what percentage of the surface area of each reinvestigated grid will be geophysically surveyed and any resulting anomalies intrusively investigated. It is stated in Section 2.3.3 (Tests and Inspections) of the Construction Quality Plan that, "Acceptance criteria for MEC and MPPEH will be: no MEC or MPPEH found in samples." However, this does not specify what the samples consist of, nor does it indicate what action will be required due to rejection of the sample.

Chapter 7 (Nonconformance and Corrective Action) of the Construction Quality Plan states that all nonconforming conditions will be documented in a Nonconformance Report (NCR). Section 7.4 (Review, Evaluation, and Disposition of Nonconforming Conditions) of that chapter states that, "Upon receipt of an NCR, CCI will review the nonconforming

condition and document the recommended disposition on the form. The recommended disposition may be 'Use as it is,' 'Repair,' 'Rework,' or 'Reject as Scrap.'" Further analysis of this section indicates that the terms used therein are more applicable to QA/QC of production processes than to QA/QC of Munitions and Explosives of Concern/Material Potentially Presenting an Explosive Hazard (MEC/MPPEH) investigation and removal. An example of this is the statement in bullet three where it is noted that "If 'Reject/Scrap' is recommended, the item must be controlled until it can be removed from the work area or site." It is obvious that this does not apply to a grid that has failed QA/QC inspection. Although there is a Chapter 8 (Field Operations Quality Control), it provides only generalities with respect to the program and does not provide the pass/fail criteria by which quality will be measured. No discussion of the criteria of the Navy QA process or where it may be found is provided in the Work Plan.

Please expand those portions of the document that address the QA/QC aspects of the project to include the following:

- The details of the grid QA/QC process, to include the sampling process, the percentage of grids that will be sampled, the sample size to be taken in the selected grids, the pass/fail (acceptance) criteria for a grid, and the required corrective measures for a grid which fails.
 - Describe the actions to be taken if a MEC-like item (an object geophysically or physically similar to those used to simulate MEC during the Instrument Verification Proveout [IVP]) is discovered during the QA/QC of a grid.
 - Identify any changes to the QA/QC process (increased sampled grids percentage or increased area of sampled grids reinvestigated) proposed as a result of QA/QC grid failures.
2. The Work Plan mentions the siting and possible use of a "DEMIL Controlled Detonation Chamber (CDC)." However, no basis or specific criteria for deciding whether or not the CDC will be used, nor who will be involved in that decision, is provided in the Work Plan. Please include a discussion of the use of the CDC, including the reasons for any decision to employ it. Include in this discussion the process by which this decision will be made and the organizational entities (i.e., Navy, contractors/subcontractors, regulatory agencies, etc.) that will be involved in the decision process.
 3. The Work Plan and attached documents contain a number of lists entitled " Acronyms and Abbreviations." One is found on pages vii through xiii of the basic Work Plan. Others are found on pages iii and iv of Appendix A, pages iii and iv of Appendix B, pages v through vii of the project Draft Health and Safety Plan, pages ix through xi of the project Draft Sampling and Analysis Plan, pages v through vii of the project Draft Construction Quality Plan, pages v and vi of the project Draft Environmental Protection Plan, and pages vii and viii of the project Draft Construction Storm Water Pollution Prevention Plan. An examination of the individual lists has noted that some of the acronyms have definitions which differ on some of the lists. Examples of acronyms which have more than one definition or slight differences in the definitions on two or more of the lists include cal.,

CD, CSO, DDT, PRG, RAC, TtEMI, and UXOQCS. In addition, the definition of the term "BC" as used in the Work Plan is not biological-chemical as listed. It is used in the Work Plan to describe the type fire extinguishers required for explosives magazines and explosives transportation vehicles. The correct definition is found in NAVSEA OP 5 (Ammunition and Explosives Ashore-Safety regulations for Handling, Storing, Production, Renovation and Shipping), Section 4-3.6.2, and BC represents the two classes of fires which the required fire extinguishers are used to extinguish. Also, it is unclear why the acronym "MD" has a "+" sign added to it in the list on page x of the Work Plan.

Please review each of the acronym lists noted above and revise them as necessary to make the definitions of each one that appears on multiple lists congruous. Also, please correct the definition of the term "BC" as noted, and either remove the "+" sign from the acronym "MD" in the list on page x of the Work Plan or provide an explanation or footnote stating why it is present.

SPECIFIC COMMENTS

- 1. Section 1.2 Site Location and History, Page 1-4:** The size of the fenced area provided in this section is "...approximately 4.6 acres..." However, different sizes for this same area are provided in other portions of the document (e.g., 4.5 acres on page 1-2 of both Appendix A and Appendix B). Please review all of the listings of the size of the fenced area and make them consistent throughout the document.
- 2. Section 1.3 Site History, Page 1-7:** The next-to-last paragraph of this section on page 1-7 states that, "The Munition with the Greatest Fragmentation Distance (MGFD) expected to be encountered is the MK2 40-millimeter (40mm) gun-fired projectile. This was the largest item recovered from the FSA during previous investigations (see Table 1-1)." Examination of the referenced table shows that no separate 40mm projectile is listed thereon. There is one "40mm cannon round" that is listed as a live munitions item, but the term "round" is used to describe it instead of the term "projectile." It appears that a nomenclature disparity exists between the cited narrative and Table 1-1, both in this section of the Work Plan and where the same table appears on page 1-2 of Appendix A and Appendix B. While no Navy definition has been located which specifically identifies the difference between the terms "projectile" and "round," the U.S. Army Corps of Engineers Documents referenced on page 10-2 of the work plan default to AR 310-25 (Dictionary of United States Army Terms) for the definitions listed therein. The definition of the term "round" found in that dictionary is as follows:

"round
See round of ammunition.

round of ammunition (A)
A round of ammunition comprises all the components necessary to fire the weapon once. In general, these components are primer, propellant, container or holder for propellant (cartridge case or bag), and projectile—with fuze and booster if necessary—for the proper functioning of the projectile."

As is noted in the definition, a "round" includes the projectile as a subelement. It is recommended that, to ensure understanding by all who read this work plan, the term "round" should be used only when describing a projectile with all of the associated items necessary to propel the projectile downrange. The term "projectile" should be used to describe that portion of the complete round which is fired downrange. It would improve the technical clarity of the Work Plan if this protocol were implemented throughout. Please revise the cited section and any other sections necessary to implement this protocol throughout the work plan.

3. **Section 2.7.2 Clearance of Surface MEC and MPPEH, Pages 2-20 and 2-21:** The first paragraph of this section notes that, "If MEC or MPPEH are discovered on the surface, mechanical equipment will not be used in the vicinity of the MEC/MPPEH until the items are inspected and are removed or rendered harmless by onsite treatment such as BIP." However, the first sentence in the next paragraph reads that, "MEC or MPPEH identified on the ground surface (or partially exposed) during the visual survey will be removed and properly disposed of." It is unclear exactly what is proposed by these two sentences, which seem to be in conflict with respect to the removal/treatment process. Will blow(n) in place (BIP) be accomplished on MEC/MPPEH which is discovered during the visual survey? If so, please so state in this section. If not, please revise the section to explain how MEC/MPPEH which are discovered during the visual survey and cannot be moved will be processed.

4. **Section 2.9.3.1 Determination of Whether to Transport MEC and MPPEH, Pages 2-22 and 2-23:** This section states that, "Movement of a MEC or MPPEH item will only be performed when a UXO Technician III can make a positive identification that the item is unfuzed and is safe to move, and can have this verified by at least one other UXO Technician III or Field Team Leader prior to movement." A similar statement is found in the third paragraph of Section 4.4.1 (page 4-4). This statement would seem to indicate that no fuzed ordnance will be moved. If this is the intent of this statement, please so indicate by including a statement that no fuzed ordnance will be considered safe to move.

It is also stated here that, "Movement of a MEC or MPPEH item by hand will be authorized only after positive identification and a determination by the UXO Technician and the UXOQCS or the SUXOS that the item is unarmed and safe to be moved." This seems to conflict with the previously cited statement which requires two Unexploded Ordnance (UXO) Technician III qualified personnel (Field Team Leaders are UXO Technician IIIs), and not the SUXOS or the UXOQCS. If the qualifier "by hand" is what requires the Senior UXO Supervisor (SUXOS) or the UXO Quality Control Specialist (UXOQCS) approval, please indicate the method of movement (other than by hand) to be used in the first cited statement. Also, if fuzed items are not to be moved, it then follows that only unfuzed items may be moved. Since the vast majority of ordnance items requires a fuze to be attached for arming to occur (rocket motors and certain other propellant actuated devices and pyrotechnics excepted), how can an unfuzed projectile be other than unarmed as noted in the second cited sentence?

Please review the cited concerns and expand and/or revise Section 2.9.3.1 to resolve the

issues noted.

5. **Section 2.9.7 Demolition Operations Using the Controlled Detonation Chamber, Page 2-27:** The second paragraph of this section indicates that, "The CDC (if used) will be placed in the designated demolition area for disposal of recovered MEC and MPPEH accumulated and stored in Magazine A180." A review of Figure 2-1 shows the location of the CDC to be labeled "Magazines Area." There is no area shown on Figure 2-1 which is labeled as a "demolition area." Please revise Figure 2-1 and/or Section 2.9.7 to consistently state where the CDC will be located. Also, please review Section 2.9.5, Section 2.9.6, and Section 2.9.8 to ensure that the terminology used in these two sections is consistent with any revisions to Section 2.9.7 and Figure 2-1.
6. **Footnote 1, page 2-28:** This footnote references "...DoD, 2004, 6055.9-STD, Rewrite Version, Revision 4." It should be noted that DoD 6055.9-STD, October 5, 2004 has been formally released, and the previously used rewrite versions have been replaced by this formally released and signed version. It is stated in the release letter for this version of DoD 6055.9-STD that, "This Standard is effective immediately and is mandatory for use by all DoD Components." As a result, this version should replace all cited references in the Work Plan and attached documents, with the exception of historical documents published before this revision. Please make this correction throughout the Work Plan and attached documents as appropriate.
7. **Table 2-4 Determining Sizes of Exclusion Zones, Page 2-40:** In this table, the line labeled "Temporary Storage of MEC and MPPEH in Magazine A180," the parenthetical statement reads, "(max. 1,000 lb NEW)." This seems to conflict with Table 2-1 of Appendix A (pages 2-2 and 2-3), and Table 7-1 of Appendix B (page 7-5), where the parenthetical statement reads "(Max. 100 lb NEW)." However, Attachment 3 to Appendix B (Site Approval Change Request for Magazine A-180, Mare Island, Vallejo, California) lists the maximum net explosives weight (NEW) for the magazine as 1,000 pounds. Please review the cited tables and documents and correct them as necessary. Also, please ensure that the maximum NEW is correctly listed at any additional places where it is recorded in the Work Plan and attached documents.
8. **Section 3.4.3 MEC and MPPEH Handling During Excavation, Page 3-11:** The first bullet of this section reads, "MEC and MPPEH that do not represent a hazard..." This statement, as written, appears to present a paradox. MEC and MPPEH, by their very definition, always present some level of hazard. If MPPEH is determined to be non-hazardous, it normally is classed as munitions debris (MD). Please review the cited statement and revise it as necessary to remove the contradiction that currently exists.
9. **Section 3.4.4 Geophysical Sampling of Excavation Bottoms, Page 3-12:** This section has three subsections numbered 3.4.4.1 through 3.4.4.3. Each subsection describes a potential scenario as to how to proceed after the removal of the initial eighteen inches of soil and the subsequent geophysical survey of the bottoms. The scenarios vary depending on the density of anomalies and the MEC/MPPEH content and depth. No statement is provided in the Work Plan identifying the organizations that will be involved in the decision as to which scenario will be implemented. Please include a discussion of the process by which

this decision will be made and the organizational entities (i.e., Navy, contractors/subcontractors, regulatory agencies, etc.) that will be involved in the decision process.

- 10. Table 5-1 Types of Seeded Items and Planned Burial Depths, Page 5-9:** In this table, twelve ordnance items (or materials designed to simulate ordnance items) and their burial depths are listed. Each of the items listed is either a 20mm or a 40mm "round." However, as was noted in Specific Comment 2 above, the next-to-last paragraph of Section 1.3 Site History on page 1-7 states that, "The Munition with the Greatest Fragmentation Distance (MGFD) expected to be encountered is the MK2 40-millimeter (40mm) gun-fired projectile. This was the largest item recovered from the FSA during previous investigations (see Table 1-1)." If only complete rounds (or items simulating complete rounds) are buried, they may not adequately represent the cited projectile due to their mass and length. Please review the proposed list of seeded items and ensure that the MK2 40mm gun-fired projectile is correctly represented in the list of proposed seeded items as the projectile is potentially hazardous and will be more difficult to locate using geophysical survey methods than a complete round. If this is a "rounds" versus "projectile" terminology issue, please correct the cited portions of the Work Plan as necessary.

In addition, a review of Table 6-2 on page 6-4 of Appendix B (Instrument Verification Prove-Out - Types of Seeded Items and Planned Burial Depths) lists sixteen proposed items instead of the twelve proposed in Table 5-1 of the Work Plan. Table 6-2 also refers to items 11 through 16 as "40mm round" instead of as "40mm cannon round" as was used in Table 5-1 of the Work Plan. Please investigate these discrepancies and revise the listed tables as necessary, or provide an acceptable explanation for the differences.

- 11. Section 6.18.2 Corrective Measures, Page 6-8 and 6-9:** It is stated here that, "However, the following are the basic corrective measures to be followed in association with DGM surveying:

- Replacement of sensors if they fail to meet instrument check requirements
- Resurvey of grids if seeded items are not identified
- Re-excavation of targets if it is determined that the excavated targets are not associated with the initial target anomaly"

No mention is made of any failure due to QA/QC-related discovery of MEC/MPPEH or items resembling MEC/MPPEH in a grid. This appears to confirm the concerns expressed in General Comment 1 above concerning the lack of QA/QC re-survey of completed grids to ensure that the removal action has been completed in accordance with the Work Plan and the Statement/Scope of Work. Please revise the cited section to include any corrective measures resulting from QA/QC inspections of completed grids which result in nonconformance issues.

- 12. Appendix A, Section 2.2.5 Controlled Detonation Chamber Operating Area, Page 2-7:** The text recorded here does not list or explain the 1,000 foot distance shown in Table 2-4

(Explosives Safety Quantity-Distance Criteria) found on page 2-10. No indication of this 1,000 foot distance is found on Figure 2-2 (Magazines and Detonation Chamber-Explosives Siting Plan). Please provide the requested explanation as appropriate and modify any of the listed documents as necessary.

13. **Appendix A, Section 2.2.7 Explosives Storage Magazines, Page 2-8:** The fifth paragraph of this section notes that, "The maximum NEW to be stored in the magazine is 50 lb, and the maximum total NEW to be stored in the magazine is 70 lb." Please expand this section to explain what is intended by this sentence, since it is difficult to understand the explosives limits of the magazine as the sentence is currently written.

14. **Appendix A, Attachment 1 Site Approval Documentation for the Ordnance Treatment Facility (Range 2):** The documentation provided includes a document from the Chief of Naval Operations (CNO) dated 1Dec 00; Subject: Mare Island Ordnance Disposal Range Waiver Request. This waiver requests that the explosives limit of the range be raised to 76 pounds based on a demolition event. It is unclear as to why this event waiver is included in the documentation.

According to Sections 1-6.1 through 1-6.4 of NAVSEA OP 5 (Ammunition and Explosives Ashore-Safety Regulations for Handling, Storing, Production, Renovation and Shipping), waivers are normally issued for two years and require review for extension by CNO N411 every two years. As this waiver is over four years old and has no documented extension/renewal attached, it has expired and is of no effect. Please provide documentation renewing/extending this waiver if same exists. Also, please explain the purpose for including it in the attachment.

15. **Appendix B, Attachment 1 Engineering Controls, Section 3.1 ESQD Arcs Without Engineering Controls, Page 2:** The first sentence in this section states that, "A hazardous fragmentation safety distance (i.e., Inhabited Building Distance [IBD]) of 236 feet for the MK2 40mm projectile was determined by calculating fragmentation and blast overpressure distances associated with a 0.50-pound NEW, as listed in Table 7-9 in OP 5 Volume 1 (NAVSEA, 2003)." However, Sheet 1 of Attachment 1 shows a 600 foot IBD and a 291 foot "Explosive Safety Quantity-Distance (ESQD)" arc on Sheet 1 (DRMO Site Boundaries and Restricted Areas). No explanation for the 600 and 291 foot distances is provided in Attachment 1, and they vary from the distances found elsewhere in the Work Plan. Please explain these distances and the reason for their presence on Sheet 1.

16. **Appendix C, Section 4.1.1.1 Group 1a Scrap Metal/Range Residue, Page 4:** This section contains a statement concerning munitions fragments which refers to them as "shrapnel." While this is correct according to most dictionaries, it causes some confusion when referring to technical issues involving munitions, since shrapnel is a particular type of obsolete projectile used in the early 20th century and considered obsolete today. To avoid confusion on the part of readers, please refrain from using the term "shrapnel" to refer to munitions fragments, unless the fragments originated from a shrapnel munition.

17. **Appendix C, Section 5.2.2 Category V, Subsection h.1 BDU-50 Practice Bomb, Page 11:** In part (a) of this subsection, it is stated that. "If the EOD/UXO personnel cannot verify

both fuze wells, or absence thereof, it must be op-opened remotely by detonation." Please define what is meant by the term "op-opened."

Thank you for the opportunity to review this report. If you have any questions, please call me at (415) 972-3150.

Sincerely,

A handwritten signature in cursive script, appearing to read "Carolyn d'Almeida", with a horizontal line extending to the right.

Carolyn d'Almeida
Remedial Project Manager

cc: Gary Riley, RWQCB
Chip Gribble, DTSC
Henry Chui, DTSC