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U S EPA REGION IV COMMENTS TO EXTENDED SITE INVESTIGATION WORK PLAN FOR
UXOS 1, 2 AND 4 ROCKET RANGE SUBAREA WITH TRANSMITTAL MCRD PARRIS ISLAND

SC

4/6/2012

U S EPA REGION IV



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

April 6, 2012

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Naval Air Station, JAX
Navy Facilities Engineering SE
Installation Restoration, SC IPT
Attn: Mr. Charles Cook
PO Box 30
North Ajax Street, Bldg 135
Jacksonville, FL 32212-0030

AND

Commanding General
Marine Corps Recruit Depot
Natural Resources & Environmental Affairs Office
Attn: Ms. Lisa Donohoe
PO Box 5028
Parris Island, SC 29905-9001

Dear Mr. Cook and Ms. Donohoe:

The U.S. Environmental Protection Agency (EPA) has completed its review of the Extended Site Investigation Work Plan (ESI WP) for UXOs 1, 2, and 4 Rocket Range Subarea, Marine Corps Recruit Depot (MCRD), Parris Island, South Carolina (February 2012). The resulting comments are attached. EPA expects to discuss Navy responses to the attached comments before the document is revised. EPA is available for consultation during this process. Please feel free to call with any questions you may have regarding these comments. I can be reached at 404-562-9969.

Sincerely,

A handwritten signature in cursive script that reads "Lila Llamas".

Lila Llamas
Senior RPM
Federal Facilities Branch
Superfund Division

Attachment

cc: Meredith Amick, SCDHEC
Peggy Churchill, TtNus

**EPA COMMENTS ON THE
DRAFT WORK PLAN FOR MUNITIONS RESPONSE PROGRAM
EXPANDED SITE INSPECTION AT
UXO 1, UXO 2, AND ROCKET RANGE UXO 4 SUBAREA
FEBRUARY 2012
MARINE CORPS RECRUIT DEPOT
PARRIS ISLAND, SOUTH CAROLINA**

GENERAL COMMENTS:

1. The Draft Work Plan for Munitions Response Program Expanded Site Inspection at UXO 1, UXO 2, and Rocket Range UXO 4 Subarea dated February 2012 (ESI WP) is inconsistent with the identification of the goals of the study. In many places the ESI WP states that a remedial investigation (RI) report will be prepared that addresses all eight Unexploded Ordnance (UXO) sites. However, other sections of the ESI WP state that UXO 2 and UXO 4 will be addressed in the RI report (Executive Summary), while Section 3.1, Identify the Goal of the Study, indicates only UXO 2 will be addressed in the RI report. Ensure consistency throughout the ESI WP to clearly communicate that the data obtained during the expanded site inspection (ESI) for UXO 1, UXO 2, and UXO 4 will be evaluated in the RI report. Proceeding to an RI is necessary for all UXO sites if at least Land Use Controls will be required. For example, if no MEC or MC is found at UXO 1, no further investigation may be necessary, however, the UXO site will need to be addressed in the RI report explaining why LUCs may be necessary to notify future users or land owners that the site may have been used as a grenade range.
2. Specific comments below call for omission of certain areas of surface surveys, additional subsurface surveys, additional groundwater samples, etc. This is a reminder to please ensure that these changes are reflected throughout the document as appropriate.
3. Based on recent reports of escalating reptile populations on MCRD, it seems reptiles would be mentioned in receptor discussions. EPA recognizes the ecological receptors mentioned in the text may be more sensitive species, however, the mention of reptiles as a potential higher trophic species may be worthwhile. (They haven't eaten a human yet, have they?)
4. Since UXO 2 and UXO 4 Rocket Subarea have potential impacts in the marsh, please ensure Natural Resource Trustees are provided an opportunity to participate in review and comment.

SPECIFIC COMMENTS:

5. **Executive Summary** – Please modify the last sentence of the first partial paragraph on page 10 to read "... and the field investigations for UXOs 1, 2, and the Rocket Range Subarea of 4 are being conducted under this Expanded SI."

Also, please modify first sentence of the next to last paragraph on page 10 to read "...buried at the firing lines, to delineate the extent of potential MC contamination in the area of the concrete target foundations, and to determine if projectiles and associated MC is present in the area where the bullets would have landed, and if so, to delineate the extent of contamination there as well."

6. **Section 1, Communication Pathways** – PLEASE modify your model SAPs or SAP templates to reflect these changes. Similar comments have been made multiple times and should not be necessary each time a SAP is drafted. Please modify the table to reflect the following:
- a. Changes in field tasks or scope of work should be discussed with the PI Team. Depending on the nature of the change, it may require regulatory approval.
 - b. Work Plan Amendments require regulatory approval.
 - c. Field work schedule changes should be communicated to EPA with sufficient notice to allow for adjustments in oversight activities by EPA. This should be at least a two week notice for significant changes.
 - d. EPA should be notified of Stop Work commands if the schedule may be impacted.

7. **Section 2.2.1, Site Setting and Background, Page 18 of 97 – UXO1**

The text in the continued paragraph at the top of Page 18 of 97 states “However, in evaluating the information obtained during his interview, it is important to note that the only explosives contained in a practice hand grenade are the live grenade fuze. It is almost equal in strength to a blasting cap and when inside a practice grenade, would have little or no blast effect or fragmentation.” This statement is partially incorrect. The practice hand grenades used in 1943 and during World War II (WWII) would have been the Mark II practice grenade. After WWII, the M21 series of practice hand grenades was introduced. These had the same external appearance as the Mark II, but one that was drilled but left unthreaded replaced the threaded hole in the bottom of the Mark II. The M21 served through the Vietnam War. The Mark II practice grenades used the M10 series of igniting type fuzes and the M21 used the M10 and M205 series igniting type fuzes. These fuzes did not detonate. They ignited a small charge of black powder in the body of the grenade, which gave a report and propelled the cork stopper in the base of the grenade outward releasing a cloud of smoke. Revise the Section 2.2.1 to reflect that the fuze in the practice grenades was an igniting (not a detonating) fuze and a small black powder charge present in these grenades.

8. **Section 2.2.3.1, Potential or Known Sources of MEC, Page 21 of 97 – UXO1**

Section 2.2.3.1 states “No MEC or MPPEH are expected to be present on the ground surface at the presumed location of this site because, during training operations, any grenades that did function would have been disposed due to the potential hazards to ongoing training activities and nearby residents.” This sentence appears to be inaccurate and appears that this is referring to grenades that failed to function as designed and not to those that functioned. If the grenades functioned as designed, they would not need to be disposed. Also, experience has shown that almost all hand grenade ranges have residual munitions and explosives of concern (MEC) in spite of the requirement to clear all dud grenades as they occur. Review Section 2.2.3.1 and revise as appropriate.

9. **Section 2.2.3.2, Potential or Known Sources of MC, Page 21 of 97 – UXO1**

The last sentence of Section 2.2.3.2 states “If practice grenades were used, the grenade body would be empty without any explosive filler; therefore, metals would be the only concern.” As

previously stated, the practice grenades contained a black powder spotting charge which would be present in any practice grenades that did not function as designed (i.e., they would not necessarily be empty unless they functioned). It should also be noted that the Mark II fragmentation grenades of early production contained "E. C. Blank Fire Propellant" as a filler instead of the flaked trinitrotoluene present in those manufactured later in WWII. E. C. Blank Fire Propellant's main constituents are nitrocellulose (80%), barium nitrate (8%), potassium nitrate (8%), and starch (3%). The E. C. Blank Fire Propellant is not analyzed for by EPA 8330B. Revise Section 2.2.3.2 to describe how the two listed fillers for the fragmentation grenade will be sampled if the investigation determines that fragmentation grenades were employed on site.

10. Section 2.3.3.1, Potential or Known Sources of MC, Page 23 of 97 – UXO 2

The text indicates the maximum extent of the firing range for UXO 2, as depicted in Figure 2-7, is actually much larger than is indicated on Figure 2-6 showing the Range Boundary. Please modify Figure 2-6 to show the proper range boundaries as indicated based on the text and Figure 2-7. Also, other Figures used in other reports which are still draft and in future reports showing the location of the UXO 2 boundary should be modified.

It is now apparent that UXO2 is not only overlain by Sites 13C and Site 4, but also intersects UXOs 5 and 6, as well as the active grenade range. Please discuss how the overlap of sites will be addressed in the CERCLA process and in the management of MMRP sites (i.e. the list and descriptions of ranges in the ASR, etc.).

11. Section 2.3.3.1, Potential or Known Sources of MC, Page 24 of 97 – UXO 2

The first partial paragraph indicates lead may be the primary COPC, however, EPA is concerned that the copper jacket may contribute contaminants first and perhaps more completely before lead begins to be released; therefore copper may be the primary COPC. EPA recognizes copper may not be as toxic in the environment, however, it may be a better chemical to indicate areas of concern wherein other contaminants which are associated with bullet decay may be co-located. Additionally, MCRD has reported copper impacted waterways in the area of the base. Please ensure the CSM and investigation accounts for this concern.

Additionally, please explain, as previously reported, which of the waterways around MCRD are copper impacted. Identify them on a figure so that relationship to ranges can be determined.

12. Section 2.4.1, Site Setting and Background, Page 25 of 97 – UXO 4 Subarea

The text does not mention when the range was in use. For historical perspective, and to provide context in time for MC degradation and migration potential, please provide the time period during which the range was active.

13. Section 2.4.3.4, MC Contaminant Pathways, Page 27 of 97 – UXO 4 Subarea

The text mentions that perchlorate is very soluble and therefore would not be present in the soil or sediment, but stops short of mentioning that it might be in the groundwater. Based on solubility of perchlorate, groundwater samples are necessary for UXO4 Rocket Subarea. Please modify the text to indicate the possibility of perchlorate in the groundwater and ensure that

groundwater sampling has been provided for in the remainder of the text sections throughout the document as necessary.

14. Section 3.2, Identify Information Inputs, Page 29 of 97 – Surface surveys

UXO1 - Please explain why the central target area, and what might be the highest area of potential receptor exposure, is not being investigated at UXO 1. Although EPA recognizes the area where houses are built has been disturbed, it has also been reported that experience shows grenades have been found in residential areas historically.

UXO 2 - Please explain the purpose of detector aided surface surveys down to 1 foot bgs at the portion of the firing lines located within the boundaries of the Site 13 bermed dredge spoils area in UXO 2. (Text here and Figure 5-2). EPA believes these portions of the survey area are inappropriate due to the presence of 5 feet of dredge spoils, unless it is believed the dredge spoils are from areas in which the bullets may have landed beyond the targets, however, this has not been reported in the text so far. Please modify the detector aided survey areas appropriately throughout the document.

15. Section 3.2, Identify Information Inputs, Page 30 of 97 – Subsurface surveys

Please explain why no subsurface geophysical surveys have been planned for the portion of the firing lines located within the boundaries of the Site 13 bermed dredge spoils area in UXO 2. EPA believes if caches of bullets were buried at the firing line those caches would now be covered by 5 feet of dredge spoils, making a subsurface investigation necessary, if anything. Also, if it is believed the dredge spoils are from areas in which the bullets may have landed beyond the targets, although this has not been reported in the text so far, a subsurface survey may be appropriate, not only along the firing lines, but also across Site 13C. If the caches of bullets and/or spent bullets would be too small to be detected down to 6 feet bgs, please explain so. And if this is the case, please explain how the portions of the firing lines located within the Site 13c boundary will be investigated. Please modify the subsurface discussion and the remainder of the document accordingly.

16. Section 3.2, Identify Information Inputs, Page 31 of 97 – Chemical Data

Please include groundwater sampling for propellants which are highly soluble at UXO 4 rocket subarea (perchlorate, etc.). Modify the remainder of the document as necessary.

Also, please include PALs for groundwater and modify document as appropriate.

17. Section 3.3, Define the Boundaries of the Study Area, Page 33 of 97

Section 3.3 presents the decision rules. Please note that these decision rules apply only to the portion of the sites being investigated. Where areas are not investigated, data gaps exist. Additionally, LAN Use Controls may be necessary for all UXO Sites regardless.

18. Section 3.3, Define the Boundaries of the Study Area, Page 33 of 97

Section 3.3 states that the horizontal boundary for the Rocket Range UXO 4 Subarea is depicted on Figure 2-8, Site Location, Rocket Range UXO 4 Subarea. Review of the figure indicates that

the study area boundaries are bounded with red lines. However, the figure has what appear to be four or possibly five separate areas bounded in red, one being inside the other within the subarea. Revise Figure 2-8 to depict the single boundary of Rocket Range UXO 4 Subarea in red or in some other distinctive color used only for that particular boundary.

Also, modify the description of the vertical study boundary for UXO 2 to incorporate the 5 feet of dredge spoils atop portions of the firing lines, resulting in a vertical boundary in this area of 6 feet bgs.

19. Section 3.4, Develop the Analytic Approach, Pages 33 of 97 through 35 of 97

In the subsections entitled UXO 1, UXO 2, and Rocket Range UXO 4 Subarea of Section 3.4, the analytic approach for each site appears to assume that the only potential situation is that the expected items will either be discovered or will not be found. None of the subsections have a procedure for reacting to an unexpected discovery (i.e., a munition or munitions not known or expected to be present). In addition, there is no process described for further processing of subsurface anomalies that are not resolved at the intrusive investigation depth limits. Correct this omission in each of the subsections in Section 3.4.

20. Section 3.4, Develop the Analytic Approach, Page 34 of 97

The text refers to “the *average* Incremental Sample (IS) surface soil concentration” however, the word “average” should be omitted. Incremental samples by nature have averaged the concentration across the sampled grid area. EPA assumes what is intended is simply the resulting concentration in the single IS sample will be used, as opposed to calculating an average concentration from multiple incremental samples. This is true throughout the report.

21. Section 3.4, Develop the Analytic Approach, Page 35 of 97 – first bullet

At UXO 2 a sufficient number of samples should be taken to calculate a 95% UCL without the SI data and to represent contamination concentrations across the area, since the SI data did not include all the appropriate analytes. Otherwise, the data may be combined for delineation, isocontour lines, etc.

22. Section 5.2.1, Sample Design and Rationale UXO 1, Page 45 of 97

The first paragraph of Section 5.2.1 states “Detector-aided surveys will be conducted along parallel 5-foot lanes in the areas marked on Figure 5-1.” A review of Figure 5-1, Expanded Site Inspection Detector-Aided Survey, reveals that a four-lane grenade range as described in FM 23-30 (Grenades and Pyrotechnics) and the MCO 3570.1B (Range Safety) could be placed in the large unsurveyed area on the figure (i.e., the portion not shaded green) that runs generally northeast. Depending on the placement of the throwing positions, the grenade impact points could extend outside of the area encompassed by the red circle. If the lane and range barricading was very efficient and was subsequently removed, it is possible that no visual or geophysical indication of a grenade range due to detection of MEC or munitions debris (MD) would be found in the green shaded areas selected for investigation.

Further, the second paragraph of Section 5.2.1 states “During surveying, shallow subsurface anomalies (up to 1 foot bgs) will be marked with a flag, these shallow subsurface anomalies

identified will be intrusively investigated using manual techniques, only anomalies matching the size of suspected MEC (a grenade) and larger will be identified for intrusive investigation.” It is unclear as to how this depth and/or size will be determined by the instrument operators using a Schonstedt or a White’s detector. Also, no process is discussed identifying how it will be determined that the uninvestigated anomalies are not other MEC not expected to be present. In addition, no information is provided as to what action will be taken concerning anomalies that remain unresolved at the 1-foot excavation depth.

And finally, the text indicates the field team, with the direction of the MRP Site Manager, will decide which anomalies will be intrusively investigated if the area is saturated. EPA withholds the right to determine sufficiency of the investigation from a regulatory standpoint based on results of the ESI since the density and distribution of anomalies cannot be presented at this time.

Therefore, review Section 5.2.1 and Figure 5-1 and expand the section to provide more details of how the noted process will ensure detection of any grenade range that may be present on the site. Further, provide an explanation of how a Schonstedt or a White’s can make the depth and size determinations for anomalies detected. Finally, provide a discussion of the processing of unresolved anomalies or reference where this information may be found elsewhere in this document or its attachments.

23. Section 5.2.2, Sample Design and Rationale UXO 2, Page 46 of 97

Section 5.2.2 provides no information as to the process that will be followed should the investigation discover MEC, MD, or anomalies that appear to be items other than small arms related. Revise Section 5.2.2 to discuss this concern.

24. Section 5.2.3, Sample Design and Rationale Rocket Range UXO 4 Subarea, Page 47 of 97

Section 5.2.3 presents some issues as follows:

- What is the technical basis for the 50-foot spacing of transects in the wooded area? Section 5.2.12, Intrusive Investigation – Manual Techniques, indicates that the visual sample plan (VSP) will be used to select anomalies. However, no mention of its use to space transects in this subarea has been provided here or in the preceding sections of the document.
- Is there a step-out procedure for the 50 by 50-foot grid if MEC or MD is discovered in close proximity to the grid boundary to aid in defining the extent of the target area?
- What percentage of the “area down range” will be investigated (surface and subsurface)?
- Why is the investigation depth four feet in the target area and two feet elsewhere?
- As is the case with the investigation of the preceding sites, Section 5.2.3 provides no information as to the process that will be followed should the investigation discover MEC, MD, or uncharacteristic anomalies that appear to be related to munitions not known to have been employed on site.

Revise Section 5.2.3 to address these concerns. In addition, note the subsequent comment on

Section 5.2.9.1, Detector-Aided Surveys and Positioning, concerning the 100-foot spacing of some of the transects.

25. Section 5.2.4.2, Site Accessibility and Exclusion Zones, Page 50 of 97

Section 5.2.4.2 states “For this project, the EZ at UXO 1 will be established at a minimum of 7 feet from the edge of the survey area and the EZ for the Rocket Range UXO 4 Subarea will be 239 feet.” No basis for these two determinations is provided. Revise Section 5.2.4.2 to provide the munitions and net explosive weights that were used to make these determinations and describe the calculation procedures used to accomplish this.

26. Section 5.2.5, IVS, Page 51 of 97

Section 5.2.5 states “The Expanded SI will utilize the MEC RI GSV. An explanation of GVS procedures, analysis, and disassembly is presented in Worksheet #17 of the MEC RI UFP-SAP (Tetra Tech, 2012a).” Define the acronym “GVS” as it is only used here and is not defined in the Acronyms section.

27. Section 5.2.9.1, Detector-Aided Surveys and Positioning, Page 53 of 97

The first paragraph of Section 5.2.9.1 states “For the Rocket Range UXO 4 Subarea, surveys will be conducted along transect spaced at 50-foot and 100-foot spacing as shown in Figure 5-3 in accessible areas of the site.” Although the process for the Rocket Range UXO 4 Subarea has been discussed in previous sections of the ESI WP, this is the first mention of transects spaced at the 100-foot distance. Further, it was noted that transects spaced at the 100-foot distance are located in the portion of the site where the density of MEC/MD is likely to be less than the area where the 50-foot transects are employed. This lesser density and greater spacing combination will result in a reduced probability of detecting any MEC/MD present. Provide a discussion of this spacing in Section 5.2.3, Sample Design and Rationale Rocket Range UXO 4 Subarea, and include the basis for the change to the 100-foot spacing.

28. Section 6.2, Field Tasks, Page 69 of 97 – Additional Sampling (groundwater at UXO 4 and impact areas at UXO 2)

Somewhere in this section please include the groundwater samples for highly soluble propellants at UXO 4 and samples investigating the impact areas for UXO 2 as requested in previous comments.

29. Section 6.2, Field Tasks, Page 71 of 97 – IS Sampling

The information in the first sentence regarding incremental sampling and the information on Figure 6-1 are inconsistent. Please reconcile the inconsistencies. EPA supports the text.

The IS grids in the marsh sediments should be located in high density areas, not just centered on a lone MEC. EPA withholds the rights to approve the sufficiency of the data collected based on results as implemented in the field.

30. Section 6.2, Field Tasks, Page 72 of 97 – Sediment Sampling

Please describe how many samples will be taken at UXO 2. Note previous comment regarding sufficient numbers of samples and sample location distribution.

31. Section 6.4, Reference Limits and Evaluation Table, Page 77 of 97

Be sure to include information for the groundwater samples.

32. Section 6.5, Sample Design and Rationale, Page 84 of 97

See Section 6.2 comment above regarding additional samples needed. Address them herein.

Also, the last sentence of the third paragraph of Section 6.5 states “If significant levels of MC target analyte concentrations are found at any of the sites, it is possible that additional data may be collected.” The statement is not consistent with the objectives of collecting data at UXO 1, UXO 2, and UXO 4 as summarized in the Executive Summary. According to the Executive Summary, all eight UXO sites will be addressed in an RI report which implies that sufficient data will be collected during the ESI for UXO 1, UXO 2, and UXO 4 to support nature and extent interpretations of the data as well as risk assessment activities conducted in the follow-on RI report. In order to ensure that sufficient data are collected to address UXO 1, UXO 2, and UXO 4 in the RI report, Section 6.5 should be revised to state that if munitions constituents (MC) target analytes are detected at any of the sites above project action limits (PALs), the collection of sufficient data to meet RI requirements will be warranted to ensure that the PAL exceedances are delineated in support of the follow-on RI report activities.

33. Section 6.5.1, UXO 1, Page 85 of 97

Section 6.5.1 indicates that soil samples will only be collected if MEC and Material Potentially Presenting an Explosive Hazard (MPPEH) is identified. As a result, no samples will be collected in the absence of MEC/MPPEH. However, based on previous sections presented in the ESI WP, this approach is not supported. For example, according to the Section 5.2.1, Sample Design and Rationale UXO 1 (Page 45 of 97), the area appears to have been landscaped since the time period of supposed use as a grenade range. As a result, soils and potentially grenade fragments have likely been mixed during site redevelopment. Thus, any MC associated with MEC/MPPEH may not necessarily be co-located. Further, according to Section 2.2.3.3, MEC Contaminant Migration Pathways (Page 21 of 97), munitions-related items are not expected to be visible on the ground surface at UXO 1 because this area has been developed and “it is assumed that any MEC or MPPEH that might have been present on the surface during site development would have been previously discovered and removed.” Consequently, if MEC or MPPEH were removed, then MC could still be present in the remaining soil. Based on information presented in Section 5.2.1 and Section 2.2.3.3 and the fact that this site is located adjacent to a housing area, soil samples should be collected and analyzed for metals and explosives despite the likely absence of MEC or MPPEH unless adequate information is presented that a grenade range never existed at this area to support excluding further sampling.

34. Section 6.5.2, UXO 2, Pages 85 through 86 of 97

Please provide the justification or rationale for a 50 point composite sample representing a 200

feet by 100 foot grid in accordance with the IS guidance and as relates to a small arms range firing line.

Don't forget to address sampling of the impact areas.

35. Section 6.5.3, Rocket Range UXO 4 Subarea, Page 86 of 97

Section 6.5.3 indicates that soil and sediment samples will be collected at UXO 4 Subarea. However, according to Section 2.4.3.4, MC Contaminant Migration Pathways, soil and sediment at the Rocket Range UXO 4 Subarea may also be impacted by perchlorate. Section 2.4.3.4 then states that since perchlorate is very soluble, it would not be present in soils or sediments. This logic is more appropriate for sediment covered by surface water. However, perchlorate should be included for soil samples to confirm the presence or absence of this constituent associated with past historical activities. It is recommended that perchlorate be included in the suite of analyses for soil samples collected from UXO 4 Subarea. In addition, add groundwater samples to be analyzed for perchlorate due to high solubility. Ensure that perchlorate is included in Section 6.4, Reference Limits and Evaluation Table; Section 6.6, Sampling Locations and Methods/SOP Requirements Table; and Section 6.7, Field Quality Control Sample Summary Table and throughout the document as necessary.

Additionally, this section indicates the sample locations will be determined in the field, therefore EPA retains the right to determine if sampling is sufficient based on results as implemented in the field.

36. References, Page 96 of 97

In the References section of the ESI WP, the reference that reads "NAVSEA (Naval Sea Systems Command), 2009. Director of Commander, Ammunition and Explosives Safety Ashore, NAVSEA OP 5 VOLUME 1, 15 January 2001, W/Change 8 - 1 July 2009" should read "NAVSEA (Naval Sea Systems Command), 2009. Director of Commander, Ammunition and Explosives Safety Ashore, NAVSEA OP 5 VOLUME 1, 15 January 2001, W/Change 10 - 1 July 2011." Revise the ESI WP to correct this discrepancy.

37. Appendix A, Site-Specific Information, Appendix A-3, Rocket Range UXO 4 Subarea

The unnumbered pages entitled ROCKET, HEAT, 3.5 INCH, M28A2; ROCKET, PRACTICE, 3.5-INCH, M29; and ROCKET, 3.5-INCH, WP, M30, contain what may be misleading information. Each notes that the propellant in these rockets is "M7 propellant powder." While M7 propellant powder is the material of which the rocket motor grains are constructed, they are extruded rod propellant formed into grains that are approximately five inches long and 3/8-inch in diameter. If the motor is intact (i.e., unfired), it will contain no M7 propellant powder in powder form. The only powder that will be present is the black powder in the rocket motor igniter. Note this at an appropriate location in the document.

