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July 10, 2003

U.S. Fish and Wildlife Service
Terry L. Clayton, REM, CHMM
Division of Engineering, Environmental and Facility Compliance
7333 W. Jefferson Avenue
Suite 375
Lakewood, CO 80235

Re: Final Draft Preliminary Range Assessment (PRA), April 2003,
Vieques Naval Training Range, (VNTR) Vieques Island, Puerto
Rico

Dear Mr. Clayton:

UXB International Inc. has completed a review of the above referenced document. The results of this review are enclosed within a tabular attachment providing specific comments to the document by page, section, paragraph, and sentence. These comments are provided to assist regulators in refining a systematic approach to investigate and respond to Munitions and Explosives of Concern, Ordnance and Explosives, and or Unexploded Ordnance hazards that may impact VNTR personnel, stakeholders, and the environment.

The formulation of these comments recognizes protection of public health and environment, management principals for ordnance and explosives regulated as solid waste and potential hazardous waste, and the regulatory framework founded within CERCLA policy, process, and procedures. The review identified several sections of the assessment that require additional information to complete the assessment review and evaluate the appropriateness of the Conclusions and Recommendations.

The PRA scope seems to accelerate the CERCLA process by exploring stages of the CERCLA process in a premature sequence. The scope for the PRA seems to have a purpose to assess and conclude with a determination to remove land from further consideration. This has complicated the understanding of the information generated and perhaps biased the information to point toward institutional controls rather than the option for clearance, treatment, or surface clearance.



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Recommendations:

The scope of work should be revised to focus on the preliminary assessment stage of the CERCLA process. Within this stage, the regulatory framework should be identified with a concurrence by stakeholders for definitions, standards, and land use. The preliminary assessment stage must recognize that VNTR has a potential for ordnance to be encountered anywhere within bounds of the property. Therefore, the VNTR is an area of concern with the LIA, SIA, EMA, ECA, as subset locations.

In addition, the scope of work requires greater consideration for compliance with the Department of Defense and Environmental Protection Agency's agreed processes and procedures for Unexploded Ordnance (UXO) Management Principals (dated March 07, 2000) as well as the US. Navy/Marine Corps Installation Restoration Manual.

The PRA should consider the Conceptual Site Model (CSM) for Ordnance and Explosives and Hazardous, Toxic, and Radioactive Waste (HTRW) as a continuing, and evolving component of the DoD response and not a one-time function. Future studies must consider the CSM as a key component for the certification and validation of final risk mitigation. The CSM bridges the steps of the CERCLA process with technical planning information, thus providing project management, stakeholders, and the public with a clear understanding of the challenges and risks associated with future land use as well as providing the decision makers with any data gaps for consideration in sampling; either as part of a site investigation or characterization.

The PRA skims the important conclusion for the need to develop and implement a specific plan to address munitions and explosives of concern, or any material or item with the potential to explode while identifying appropriate Areas of Concern (AOC) versus Areas of Potential Concern (AOPC). The identification of AOCs/AOPCs will include mitigation mechanisms to assure protection of all FWS personnel, subcontractors, site visitors, or any person potentially exposed to an explosive hazard currently and in the future. The basic PRA conclusion should establish the scope of work for a follow on site investigation that identifies and documents MEC/ UXO surface occurrence, frequency, and volume to support further potential subsurface planning, sampling, and investigation. This conclusion is consistent with CERCLA providing an interim corrective measure, (removal of surface UXO) supplying additional information for the CSM, and communicating to the public an aggressive posture for safety.



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The comments, observations, and requests for additional information are part of the communication process between stakeholders to assist the CERCLA process. The draft VNTR PRA is a good start to formulating a basis for consistent terms, understanding, compliance, and outcomes. The refinement of this document with response to these comments and requests for additional information will yield a product that complies with Federal policy and conforms to regulatory requirements for an orderly transition to a remedial process. If you should have any questions or should require additional information, please do not hesitate to contact me at (703) 724-9630.

Sincerely,

William T. Batt
Vice President

Enclosure: Comments

#	Item Page, Paragraph	Statement	Comment
1	General	Final Draft – Preliminary Range Assessment Report, April 2003	Please include an introduction and description of the Environmental Baseline Survey with some discussion of the findings for facility properties and conclusions.
2	General	Final Draft – Preliminary Range Assessment Report, April 2003	<p>A Preliminary Range Assessment identifies the known and suspect areas of concern. The document seems to be written from the perspective of a foregone conclusion or predetermined outcome. The document is entitled “Preliminary Range Assessment,” yet the content includes an assessment of risk with recommendations for institutional controls. If risk assessment is the purpose, then risk should be included in the title, thus changing the intent.</p> <p>The first step in the process is to identify the current project stage. Typically, this means ASR, PA/SI, EE/CA, RA, Recurring Review, etc. Thus, the PA/SI is also the time to begin identifying constraints and dependencies and their potential effects on anticipated site activities. These should at least include consideration of administrative, technical, legal, and regulatory issues.</p> <p>The document needs expansion to capture the regulatory issues, challenges, and requirements.</p>
3	General	Final Draft – Preliminary Range Assessment Report April 2003	<p>The Preliminary Assessment needs to address and identify both the regulatory framework and demographics/land use.</p> <p>Regulatory Framework – The laws, regulations, guidance and principles that affect the use, detection, recovery, or disposal of MEC – including an institutional analysis to determine the mission, authority and willingness of local agencies to support institutional controls.</p> <p>Demographics and Land Use – The distribution, density, characteristics and changes of the human population and their effects on the way land is used.</p> <p>The title “Preliminary Range Assessment” seems to track with the regulatory framework process of CERCLA – “Preliminary Assessment and Site Investigation”. However, the Executive Summary should state how the CERCLA process was selected.</p>

4	General	Final Draft – Preliminary Range Assessment Report April 2003	<p>(1) MEC response actions must comply with all Applicable or Relevant and Appropriate Requirements (ARARs). Applicable requirements are cleanup standards, standards of control, and other substantive environmental protection requirements promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, response action, location or other circumstance found at a CERCLA site. Relevant and appropriate requirements are cleanup <i>standards</i> that, while not “applicable,” address situations sufficiently similar to those encountered at a CERCLA site that their use is well-suited to the particular site.</p> <p>(2) To select a suitable response action, the Preliminary Range Assessment should list the ARARs.</p>
5	General	Final Draft – Preliminary Range Assessment Report April 2003	Text sections relating to Scope seem to be capsulated. Add a verbatim copy of the Scope of Services from the Navy to the contractor.
6	General	Final Draft – Preliminary Range Assessment Report April 2003	<p>The Executive Summary should include the Technical Planning Process (TPP) with a list of the members of the TPP team used to develop the project objectives with the customers, stakeholders, and the regulators. This will document that the goals and needs of the customer(s), stakeholders, and regulators are the foundation for selecting and implementing any reasonably safe response action. ALL TPP team members and landowners are considered customers.</p> <p>Identifying the TPP Team goals is a critical function within the TPP process to ensure appropriate scope planning activities are coordinated with members. TTP goals are defined by current and future land use, regulatory compliance, budget, and schedule requirements/limitations.</p> <p>Example: A typical goal of the Preliminary Assessment might be to understand the impact that the presence MEC has at the site and to identify appropriate response actions to reduce and/or manage the risk of ordnance and explosives that allows for reasonable public use of the site.</p>
7	General		Add a Glossary of definitions and terms.

8	Page ES-1 Bullet 1	Provide information about the types, quantities, constituents, and other factors related to the military munitions employed; and identify the type(s) and location(s) of any targets that may have been used on the MEC areas on the facility.	If bullet number one is the beginning of the introduction for the PRA, then additional foundation within the introduction is required to introduce: who, what, where, why, and how. The Executive Summary should introduce the document purpose, the Technical Planning Process and Team, scope of the effort defined by the Navy, and then transition into a summary by scope task for the implementation action relating to task (i.e.: policy compliance, process execution, and procedure results).
9	Page ES-1 Bullet 1	The assessment is limited to the collection of information on the land-based areas, no underwater assessments are provided.	Define underwater areas (i.e., deepwater, shallow water, mean high tide, low mean tide, surf zone, tidal plane, estuaries, ponds , runoffs etc). Provide rationale for limiting the collection of information to land areas . Information relating to underwater MEC has a direct relationship to the evaluation of land MEC.
10	Page ES-1 Bullet 2	Identify range operations or management practices, past or present, that can potentially have adverse environmental impacts to the MEC or surrounding areas .	Since this is an objective – provide a summary of the types of range operations or management practices that did result in adverse impacts.
11	Page ES-1 Bullet 3	Identify MEC areas requiring further investigation prior to arriving at decisions on the need (or lack of need) for remedial actions;	The Executive Summary should present an indication of the magnitude of MEC requiring further investigation (i.e., number of areas of concern, number of operable units, solid waste management units, etc.) "prior to arriving at decisions on the need (or lack of need) for remedial actions" – This statement is not consistent with the purpose of a CERCLA Preliminary Assessment, since it is the purpose of either the Remedial Investigation/ Facility Investigation to provide information for either a Feasibility Study or Corrective Measures Study to reach a Record of Decision or Statement of Basis. The Preliminary Assessment phase of the CERCLA process identifies: (a) The nature of the contamination. (b) The urgency/threat of release or potential release. (c) The timeframe required for initiating a removal action. After evaluating the above features, either an emergency, time critical, or non-time critical removal action may be selected. Expand the text within the Preliminary Assessment to include these major sections and the appropriate information to form the foundation for the selection of future actions.

12	Page ES-1 Bullet 4	Identify the need for an accelerated remedial action or removal action, if required, due to an imminent threat to human health or the environment;	<p>The Executive Summary should state that an endangerment determination is plausible based on a significant possibility that an individual may encounter MEC hazards, and that these hazards may cause injury or death to individuals who encounter the hazards if not addressed through the response action.</p> <p>The Executive Summary should acknowledge that data gaps exist throughout the report, thus a potential for UXO to be encountered on the surface is not a remote probability.</p>
13	Page ES-1 Bullet 6	Based on the field reconnaissance and risk assessment eliminate from further consideration suspect Munitions and Explosives of Concern (MEC) areas that pose no threat to public health or the environment	The bullet is inconstant with the CERCLA process and, given the data gaps, cannot realistically support an unbiased outcome. The statement should be withdrawn. The elimination of areas from further concern is first possible as a result of concurrence after the site investigation phase by regulators not the transferring party.
14	Page ES-1 Bullet 7	Based upon the information gathered and the explosives risk, propose an initial explosives safety risk assessment to identify areas for further action. Each investigated area was scored and ranked in accordance with guidance provided in the Defense Environmental Restoration Program (DERP) Guidance Manual,	<p>Provide DERP guidance manual (paragraph and page) as an addendum, and include a trade off analysis with comments for each area of concern to explain the rational and justification for any determination.</p> <p>Since the Preliminary Range Assessment has data gaps and provides no information on the types of fuzing associated with the ordnance identified, it seems unrealistic that this statement could be achieved with any credibility in this phase of the process.</p> <p>Recommend, when appropriate, the Explosive Safety Risk focus on:</p> <ul style="list-style-type: none"> (A) Known (vs. suspect) abandoned military munitions on all/any portion of the range and the types of munitions present or suspected to be present. (B) Control of public access to the range, and the effectiveness of these controls. (C) The potential for direct human contact with abandoned military munitions at the range and evidence of people entering the range. (D) Response actions that were, or are, undertaken at the range. (E) The regulatory safety impacts of a planned or mandated date for transfer of the range from military control to others.

			<p>(F) The extent of any documented incidents involving abandoned military munitions at/from the range. In this subparagraph, the term 'incidents' means any/all of the following: explosions, discoveries, injuries, reports, and investigations.</p> <p>(G) The potential for drinking water contamination or the release of weapon components into the air.</p> <p>(H) The potential for destruction of sensitive ecosystems and damage to natural resources.</p>
15	Page ES-1 Paragraph 2, Sentence 1	The scope of the PRA was based on DoD guidance for performing response actions on military ranges, as well as U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency's (USEPA) guidance on ordnance and explosive response actions.	These guidance's are helpful tools; however, this statement seems to be the root of the problem for the Executive Summary . The Executive Summary needs to identify the Naval policy and the regulatory process to be implemented prior to mixing in steps from these guiding documents. Recommend a continuity check be performed against whatever process Naval Policy stipulates and proceed consistently with that guidance.
16	Page ES-2 Paragraph 1, Sentence 1	The VNTR includes the following <u>operational areas</u> ...	Change text to read " <u>non</u> -operational areas". Effective April 30, 2003 VNTR became a non-operational facility and was transferred by Public Law 106-398, as amended by Public Law 107-17.
17	Page ES-2 Paragraph 2, Sentence 1	Of the 62 MEC areas discussed in this PRA.	<p>Cross reference to where the 62 areas are discussed in the report. Page 2-18 Section 2.2.3 Summary of MEC Areas does not indicate 62 MEC areas; 62 MEC areas of concern are not listed within the report; Figure 2-2 does not identify 62 MEC areas of concern.</p> <p>Add a list (including geographical references) identifying the 62 MEC areas of concern and size of each area (either in acres or square feet).</p>
18	Page ES-2 Paragraph 5, Sentence 1 Page ES-3 Paragraph 1, Sentence 1	<p>... MEC present at six ranges, 10 artillery gun positions, one ATG target area, and one ordnance loading/offloading area.</p> <p>In addition to the 19 MEC areas investigated within the VNTR, an analysis of historical aerial photographs and interviews of personnel identified 43 additional potential MEC areas within the VNTR boundaries.</p>	<p>Totals indicate 18 locations with MEC areas of concern.</p> <p>Paragraph indicates 19 locations with MEC areas of concern – statements conflict.</p>

19	Page ES-3 Paragraph 3, Sentence 2	The Risk Assessment Code (RAC) is an interim internal DoD wide approach for providing a single consistent preliminary evaluation of explosives hazards posed by MEC areas.	Provide reference title, date, and latest revision used that details the DOD policy, process, and procedure for this approach. This document or guidance needs to be reviewed before comments can be finalized.
20	Page ES-3 Paragraph 4, Sentence 2	Should the security be breached at VNTR by trespassers, similar to what has occurred on several occasions during the last few years, the explosive safety risk will increase to a high-risk category for these MEC areas.	The security of VNTR is routinely breached ; therefore, the actual risk is already "high-risk."
21	Page 1-1 Section 1, Paragraph 1, Sentence 2	The information obtained from the PRA (munitions-related Archives Search and Inspection) will be combined with knowledge and information gathered the <u>Environmental</u> Baseline Survey (EBS) for the VNTR, which was completed concurrently with the PRA.	Incomplete sentence
22	Page 1-1 Section 1.1, Paragraph 1, Sentence 1	The PRA conducted for the VNTR was designed to identify those munitions and explosives of concern (MEC) areas that may pose no threat to the public or the environment ...	Change text to read "The PRA conducted for the VNTR was designed to identify areas that may pose <u>a</u> threat to the public or the environment." Some MEC risk of casualty may pose lesser threats than others, but to use the logic that it is zero or not a threat is contradictory to the designation of MEC .
23	Page 1-1 Section 1.1, Paragraph 1, Sentence 2	In addition, objectives also included an initial preliminary prioritization for sequencing areas for further action.	State the regulatory framework actions of identifying the nine criteria to evaluate for sequencing: Compliance ARAR's Protection of human health and environment Long term effectiveness and permanence Reduction of toxicity, mobility, or volume through treatment or removal Short-term effectiveness Implementability cost Regulatory/stakeholder/public acceptance Community acceptance

			The preliminary prioritization for sequencing of areas may be better accomplished after the Site Investigation phase of the process.
24	Page 1-2 Bullet 9	Present data elements required to complete prioritization and cost to complete analysis using approved Department of the Navy methodology.	Define Department of Navy methodology, provide proper name of reference, and cite document. Comment reserved pending review of document
25	Page 1-2 Bullet 11	The field truthing element of the PRA utilized accessible ARS information and field reconnaissance methods, based on visual observations, to evaluate risks posed by any MEC noted within individual areas.	The Executive Summary should include this bullet to clarify that field truthing was on a percentage bases, with physical inspection areas restricted to easy access points and accessible areas .
26	Page 2-5 Table 2-1	TABLE 2-1 Types of Ordnance Most Frequently Used at VNTR	Expand table to define the nomenclature and type by function of the fuzing associated with these ordnance items. Dud rates and fuzing for these items will clarify the type of action required to function the item (i.e., movement, impact, change in orientation , electric impulse, static etc) thus establishing risk
27	Page 2-6 Section 2.2.2.1	However, live ordnance was not used on a regular basis until 1974.	Some training munitions are dangerous, though not filled with HE. The relevance of the sentence is that usage of live ordnance is confirmed and that frequency, distribution, and volume of use remain unknown .
28	Page 2-7 Section 2.2.2.1 Paragraph 1	Data for the period prior to 1974 was not recovered during the records search.	This statement concludes a data gap exists; therefore, within the summary of the documents this statement should be transformed into a scope objective and outcome of the site investigation.
29	Page 2-7 Section 2.2.2.1 Paragraph 1 Sentences 2 & 3	The accuracy of data from 1974 up to the 1983 MQA has not been confirmed as the Navy was under no legal obligation to track ordnance amounts up until that period when provisions of the MOA required the Navy to maintain statistics regarding the types and amounts of ordnance used which were to be made available to the appropriate Commonwealth of Puerto Rico representatives if requested. Information reviewed in the 1979 EIS indicates that range utilization records from the period	These sentences conclude that information gathered from 1974 to 1979 contain inaccuracies. This information should be recognized in the summary of the report to place the findings in prospective.

		1973 through 1976 were only 60 percent accurate, and that records from the period 1976 through 1979 were approximately 90% accurate.	
30	Page 2-7 TABLE 2-2	TABLE 2-2 -- Number of NGFS Rounds Expended Annually by Type	Revise to include the fuzing associated with these ordnance items.
31	Page 2-8 TABLE 2-3	TABLE 2-3 -- Number of ATG Ordnance Rounds Expended at Live Impact Area Annually by Type	Revise to include the fuzing associated with these ordnance items.
32	Page 2-9 Section 2.2.2.1 Paragraph 2	Since 1977, four documented cases of Napalm use have been recorded in the VNTR	Add the type of fuzing used for Napalm firebombs, along with the hazards of fuzing filler (WP) and the filler for the bombs main charges. This information relates to future risk assessments.
33	Page 2-10 Section 2.2.2.2 Paragraph 2	Inert MK-76 and MK106 practice bombs and inert 2.75 inch and 5 inch Zuni rockets.	The term "Inert" is misleading - inert ordnance is not explosive, or no longer usable as a weapon. -- MK-76 and MK106 practice bombs and 2.75 inch and 5 inch Zuni rockets are "practice ordnance" that may contain a pyrotechnic or explosive charge to report functioning. These items have been known to cause injury to range personnel performing maintenance functions. These items have also been known to contain 40 CFR listed residues that are environmentally harmful.
34	Page 2-9 Section 2.2.2.2 Paragraph 3	To the south of bull's eye target 1 (Figure 2-2) a strafing range was installed for practice with 20mm machine gun rounds. Table 2-4 summarizes the type and amount of practice ATG ordnance that was fired from 1974 to 1998.	Unless the research <i>can</i> verify that only Target Practice (TP) 20 mm ammunition was ever used for staffing, the assumption should be made that 20MM ammunition with a graze sensitive feature in fuze could be encountered. This type of 20MM ammunition has been routinely recovered from both Naval and Air Force strafing ranges operated during the period. The Site Investigation should use this information, as an objective to confirm through analyses that 20MM projectile with high explosives and graze sensitive features do/do not exist.
35	Page 2-12 Section 2.2.2.3	During the height of activity at camp Garcia in the mid-1950s to early 1960s marine artillery gun positions were established throughout the EMA where live artillery fire was directed toward artillery targets, such as old vehicles, located within the SIA and LIA. An aerial photograph analysis (ERI, 2003)	The statement in 2.2.2.3 seems to miss the information provide in the forth paragraph of ES-2: "The EMA, encompassing 11,070 acres, was established in 1947 and provided maneuvering areas and ranges for the training of marine amphibious units and battalion landing teams in exercises of amphibious landings, small arms fire, artillery and tank fire, shore fire control, and combat engineering tasks . The heaviest training events occurred from the mid-1950s to the early 1960s. However, no ordnance data was available for these years ."

		indicates that as many as 30 gun emplacements and positions may have existed historically at the EMA.	The statement above, combined with the data gaps in use and location, would place the EMA in a high-risk category and a greater level of focus during the site investigation phase. Though 30 gun emplacements were examined, the loss of importance to the information on ES-2 may have biased the field effort toward the firing point rather than an examination of the maneuver area for potential impact areas.
36	Page 2-12 Table 2-4	TABLE 2-4 Practice Bombs Expended in the SIA, 1974-1998	Include type of fuze; fuze filler, and reporting method (i.e., smoke, dye, etc.) research fillers for hazardous waste constituents.
37	Page 2-13 Table 2-5	TABLE 2-5 Number of Rounds of Marine Ordnance Expended Annually by Type	Fuzing for these types of ordnance range from impact to mechanical time. Fillers include explosives, white phosphorus, and some ejecting flares. Lists should identify the type of fuze and filler for each item.
38	Page 2-14 Table 2-6	TABLE 2-6 Rounds of Small Arms Ammunition Fired within the EMA Ranges by Type, 1983-1998	The small arms ranges may have some hazardous associated with the metals from bullet heads as well as from the training mixtures used with grenades. List the types of grenades used and the fuzing and fillers associated.
39	Page 2-15 Section 2.2.2.4 Paragraph 2, second to last sentence	Controlled vegetation burning was conducted on occasion as required during range clearance efforts to reduce vegetative cover in areas where the EOD Mobile teams were operating.	The establishment of the fact that burning is an approved and longtime used procedure to reduce vegetation cover is an important fact and needs to be brought to the forefront and reiterated in the summary. This fact will play a role in future planning and scheduling of investigation events.
40	Page 2-15 Section 2.2.2.4 Paragraph 2, last sentence	Recovered items were treated by open detonation within the EPA permitted OB/OD pits located in the LIA.	The status of this permitted facility needs to be identified. If it is closing, the phase of closure and schedule should be inserted.
41	Page 2-15 Section 2.2.2.4 Paragraph 4	On occasion, delivered ordnance did not reach the intended target within the LIA and may have landed in either the SIA or EMA. When this occurred, the incident was reported to the EOD Mobile Unit teams from NSSR so that efforts can be made to re-acquire these items from the SIA or EMA, if possible, during normal range clearance activities.	Add statement to the Executive Summary and consider in future risk.

42	Page 2-15 Section 2.2.2.4 Last Paragraph	Since training commenced in the 1940s, more than 700,000 items of live and inert munitions have been expended without a single round falling outside the limits of the Inner Range Complex (Pace-Fallon, 1999).	Reference not found in report (Pace-Fallon, 1999) Please include a map that identifies the inner range complex. This statement is contradicted by the Statement in the preceding paragraph (<i>On</i> occasion, delivered ordnance did not reach the intended target within the LIA and may have landed in either the SIA or EMA) It is not creditable to believe that over a 60 year time period, one person could witness every training mission and observe such a large area of acreage to make such a statement. Please provide documented proof to verify the claim. The important part of the statement is that live munitions have been expended.
43	Page 2-17 Section 2.2.2.4 Table 2-7	TABLE 2-7 Winter 1994 Refurbishment Ordnance Report	Add the type of fuzing associated with the ordnance and fillers.
44	Page 2-18 Section 2.2.2.4 Table 2-8	TABLE 2-8 Winter 2002 Refurbishment Ordnance Report	Add the type of fuzing associated with the ordnance and fillers.
45	Page 2-18 Section 2.2.3	2.2.3 Summary of MEC Areas	Add a list of the MEC areas by name, location, number, and suspect hazard.
46	Page 2-18 Section 2.2.3.2 Sentence 2	During 1969 , the construction of bulls-eye targets 1 and 2, used for inert bombing, established the east and west boundaries of the SIA.	Replace the word inert with "practice"
47	Page 2-19 Section 2.2.3.3 Paragraph 1, Sentence 1	The EMA encompassing 1 1,070 acres was established in 1947 ... shoe fire control, and combat engineering tasks.	Replace shoe with "shore"
48	Page 2-19 Section 2.2.3.3 Last Paragraph, Sentence 2	A detailed field reconnaissance for each of these gun positions was completed.	Replace "detailed" with "10%/15%". Section 3.1 states that field reconnaissance was performed with percentage 10/15%.

49	Page 2-20 Section 2.2.5	2.2.5 Foreign Military Use Information regarding the types and quantities of ordnance utilized for training purposes by foreign nations were not identified during the records search component of the PRA.	<p>Discuss the type of training in terms of either naval gunfire, air training, ground maneuvers etc. The types of possible ordnance can be presented as a potential given the era of training and the type of systems available to those countries, i.e., British Navy 1980 to present: Potentially these types of weapons systems could have been used.</p> <table border="1" data-bbox="1059 404 1964 751"> <tr> <td>155 mm/52 Naval Gun</td> <td>Type 45</td> </tr> <tr> <td>4.5"/55 Mark 8</td> <td>Destroyers and Frigates</td> </tr> <tr> <td>30 mm/75 GCM Series 30 mm/75 LS-30B</td> <td>Type 22 Frigates, Amphibious Assault Ships, smaller warships</td> </tr> <tr> <td>30 mm/77 Goalkeeper</td> <td>Invincible, Type 22 Batch 3 and Type 23</td> </tr> <tr> <td>20 mm/76 Phalanx</td> <td>Warships after 1985</td> </tr> <tr> <td>20 mm</td> <td>Warships after 1940</td> </tr> </table> <p>This information would give an indication of the type of ordnance possible, and with research, the potential types of fuzing.</p>	155 mm/52 Naval Gun	Type 45	4.5"/55 Mark 8	Destroyers and Frigates	30 mm/75 GCM Series 30 mm/75 LS-30B	Type 22 Frigates, Amphibious Assault Ships, smaller warships	30 mm/77 Goalkeeper	Invincible, Type 22 Batch 3 and Type 23	20 mm/76 Phalanx	Warships after 1985	20 mm	Warships after 1940
155 mm/52 Naval Gun	Type 45														
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20 mm/76 Phalanx	Warships after 1985														
20 mm	Warships after 1940														
50	Page 2-20 Section 2.3	2.3 Physical Setting	Establish the current security measures - Include discussion describing the ingress and egress routes to the property, areas , and facilities. Identify the institutional controls and engineering controls to limit access and communicate risk to the population, i.e., type of fencing, linear feet, number of gates, linear feet of areas void of barriers, number of signs, spacing, etc.												
51	Page 2-29 Second to last paragraph	The Consent Order was issued based on information gathered during a RCRA Facility Assessment (RFA) completed by A.T. Kearney, Inc., on October 13, 1988 (A.T. Kearney, 1988), and an updated RFA completed by the Puerto Rico Environmental Quality Board (PREQB) on September 27, 1995 (PREQB, 1995).	Expand the description of the Consent Order issued October 13, 1988. Please discuss the impact of any new regulatory compliance requirements, (the munitions rule) and determine if the additional guidance will impact clean-up.												

52	Page 3-1 Section 3-1 Paragraph 1	Field investigations associated with the PRA <u>followed approved methods for the assessment of ranges</u> , and were designed to capture as much visual information as possible in this mostly non-equipment evaluation of the areas under study.	Identify the approving body, the approved methods, and include as an addendum the approved methods for the assessment of ranges.
53	Page 3-2 Section 3-2 Paragraph 2	Results of that effort using the most recent aerial photograph from 1994 ...	Suggest using "All" available aerial photographs. The 1994 photographs may not reflect previous use of areas, or the relocation of range boundaries and targets.
54	Page 3-2 Section 3-2 Paragraph 2, last sentence	As previously indicated in Section 2.2 of this report, several additional MEC areas were identified from the analysis of historical aerial photos.	Same comment as above
55	Page 3-5 Section 3-2 Paragraph 2, Sentence 2	On most occasions, these procedures included a 15 percent visual evaluation and a Schonstedt® metal detector sweep, coupled with a perimeter walk with Global Positioning System (GPS) coordinates to map boundaries of each.	Provide rationale and procedure for establishing perimeter boundaries of site. Based solely on a 10%/15% walk and visual/Schonstedt search is not enough search to conclude boundaries.
56	Page 4.1 Section 4 General	4.1 VNTR Conceptual Site Model	<p>An effective CSM presents known or suspected conditions about sources and potential receptors, and the interactions between them. The Preliminary Range Assessment should recognize those types of information are relevant to developing the CSM. In most cases, the needed information may be categorized into five "profile types" that address specific yet overlapping types of information. These profile types include:</p> <p>1. Facility Profile—describes man-made features and potential sources at or near the site:</p> <div style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> Structures, sewer systems, process lines, underground utilities • Physical boundaries (past and current), fencing, administrative controls, etc. • Current and historical process and manufacturing areas • Ordnance activity areas (firing points, impact areas, storage areas, munitions manufacturing, or disposal areas) • Storage and waste disposal • Historical features that indicate potential source areas (landfills or </div>

		<p>lagoons, ground scars, impact craters)</p> <p>2. Physical Profile—describes factors that may affect release, fate and transport, and access:</p> <ul style="list-style-type: none"> • Topographic and vegetative features or other natural barriers • Surface water features and drainage pathways • Surface and subsurface geology, including soil type and properties • Meteorological data • Geophysical data • Hydrogeological data for depth to ground water and aquifer characteristics • Other physical site factors that affect site activities • Soil boring or monitoring well logs and locations <p>3. Release Profile—describes the movement and extent of contaminants in the environment:</p> <ul style="list-style-type: none"> • Determination of contaminant movement from source areas • Contaminants and media of potential concern • Impact of chemical mixtures and co-located waste on transport mechanisms • Locations and delineation of confirmed releases with sampling locations • Migration routes and mechanisms (HTRW and OE constituents) • Modeling results <p>4. Land Use and Exposure Profile—provides information used to identify and evaluate the applicable exposure scenarios, receptors, and receptor locations:</p> <ul style="list-style-type: none"> • Receptors associated with current and reasonable future land use on and near the facility (residential, recreational, commercial, agricultural, industrial, public forest, etc.) • Zoning • Types of current or future activities at the facility, including frequency and nature of activity (intrusive or non-intrusive) • Beneficial resource determination (aquifer classification, natural resources, wetlands, cultural resources, etc.) • Resource use locations (water supply wells, recreational swimming, boating, or fishing areas, hiking trails, grazing lands, historical burial grounds, etc.) • Demographics, including subpopulation types and locations (schools, hospitals, day care centers, site workers, etc.)
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			<p>5. Ecological Profile—describes the natural habitats of the site and ecological receptors in those areas:</p> <ul style="list-style-type: none"> • Description of the property at the facility, including habitat type (wetland, forest, desert, pond, etc.) • Primary use of the property and degree of disturbance, if any • Identification of any ecological receptors in relation to habitat type (endangered or threatened species, migratory animals, fish, etc.) • Relationship of any releases to potential habitat areas (locations, contaminants or hazards of concern, sampling data, migration pathways, etc.)
7	Page 4-1 Section 4-1	4.1.1 Primary Sources	Add text regarding assumptions about the sources (i.e., probable munitions, fuzes and/or residue contaminants)
58	Page 4-4 4.1.2.1	“ships located offshore to the south of Vieques”	Include the firing fans for off shore firing.
59	Page 4-5 Section 4.1.3	Secondary Sources	Provide a more thorough description of sources. Topics may include, but are not limited to: movement through heat heave, tidal action, erosion, human activity
	Section 4.1.4		Provide a more thorough description.
61	Page 4-5 Section 4.1.5	By statue, the LIA will be developed into a wilderness area with no public access ...	Include a statement that DOI and contract workers will have access to the area.
62	Page 4-8 Section 4-2	Preliminary Explosive Hazard Evaluation	<p>Data relating to fuzing was not considered. The sections take a far too liberal approach. Until proven otherwise, a conservative, worst case scenario should be considered (i.e., RAC 1)</p> <p>Section 4.2.2 subparagraph line 5) includes a liberal assumption. Enough data has not been generated to conclude isolation, security <i>guards</i>, or fencing will impact the probability. This is based on numerous incursions, future land use to public beaches, and emotional issues surround access.</p> <p>Include an explanation for the rational for each of the hazard probability determinations for at least each area LIA, SIA, EMA, ECA. I.e.: Improbable, Remote, Occasional, Probable, and Frequent.</p>

63	Page 4-8 Section 4.2.1	The hazard severity component of the RAC procedure takes into account five factors (catastrophic, critical, marginal, negligible, and none) that provide a qualitative measure of the worst credible event resulting from personnel exposure to various types <u>and quantities</u> of unexploded ordnance.	Remove “quantities” from the sentence “of unexploded ordnance” since, one UXO will cause catastrophic occurrence.
64	Page 5.1 Section 5.1 General	Conclusions and Recommendations	Comments for Conclusion and Recommendations are withheld pending the response to these comments and observations listed above.