

7/1/06-02495

Final

**Time Critical Removal Action/Interim Measures Work Plan
Amendment**

**Surface Munitions and Explosives of Concern at Munitions
Response Area-Eastern Conservation Area and Munitions
Response Area-Live Impact Area: Munitions Response Sites
9 through 12, 14, and 21 through 28**

**Former Vieques Naval Training Range (VNTR)
Vieques, Puerto Rico**

Prepared for

**Department of the Navy
Atlantic Division
Naval Facilities Engineering Command**

**Contract Task Order - 0047
Contract No. N62470-02-D-3052**

Prepared by



July 2006

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Acronyms and Abbreviations

ATG	Air-to-Ground
DoD	Department of Defense
ECA	Eastern Conservation Area
ERA	Expanded Range Assessment
LIA	Live Impact Area
MEC	Munitions and Explosives of Concern
MRA	Munitions Response Area
MRS	Munitions Response Site
NAVFAC	Naval Facilities Engineering Command
TCRA	Time Critical Removal Action
VNTR	Vieques Naval Training Range

Introduction

1.1 Introduction

This Amendment has been prepared to supplement the Final Time Critical Removal Action/Interim Measures (TCRA/IM) Work Plan (CH2M HILL, March 2005). The currently ongoing removal action was initiated July 2005 for the removal of surface Munitions and Explosives of Concern (MEC) from Munitions Response Area-Live Impact Area (MRA-LIA) Munitions Response Sites (MRSs) 1 through 8, 13, 15 through 20, and 29 through 31 at the former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico. The purpose of the TCRA is to reduce risks to human health and the environment where trespassing frequently occurs. This amendment presents the expanded area for the TCRA based on recent (Expanded Range Assessment/Phase I Site Inspection [ERA/Phase I SI]) findings and historical information.

This amendment supplements the March 2005 work plan and includes only the necessary updates to carry out work in the additional areas presented. All information presented in the March 2005 work plan is accurate to the date of this amendment with the exception of the information presented in this document.

This amendment has been prepared by CH2M HILL for the Naval Facilities Engineering Command (NAVFAC) Atlantic to meet current Department of Defense (DoD) guidelines for the investigation and clean-up of MEC.

1.2 Additional Removal Action Areas

The additional area for conducting the TCRA will be completed within the MRA-LIA and MRA-Eastern Conservation Area (ECA) for a total area of approximately 665 acres. The additional area includes MRSs 9 through 12, 14, and 21 through 28 in the MRA-LIA and the entire MRA-ECA (comprised of one MRS). These areas are shown in Figure 1-1 and are described in Table 1-1.

The objective of this additional removal action is the same as presented for the current removal action areas: reduce risks at MRSs identified as posing an explosive hazard due to MEC present on the ground surface (presented in Section 2.2). The primary risk is posed to unauthorized personnel accessing these areas. Access to these additional areas is currently restricted; however, trespassing occurs regularly (see Section 2.3). The restrictions to these areas are currently not anticipated to be lifted. The objectives will be met by removing all MEC present on the ground surface or exposed at the ground surface.

TABLE 1-1
MRA, MRS, and Historical Site Use/Name Matrix
Former VNTR, Vieques Island, Puerto Rico

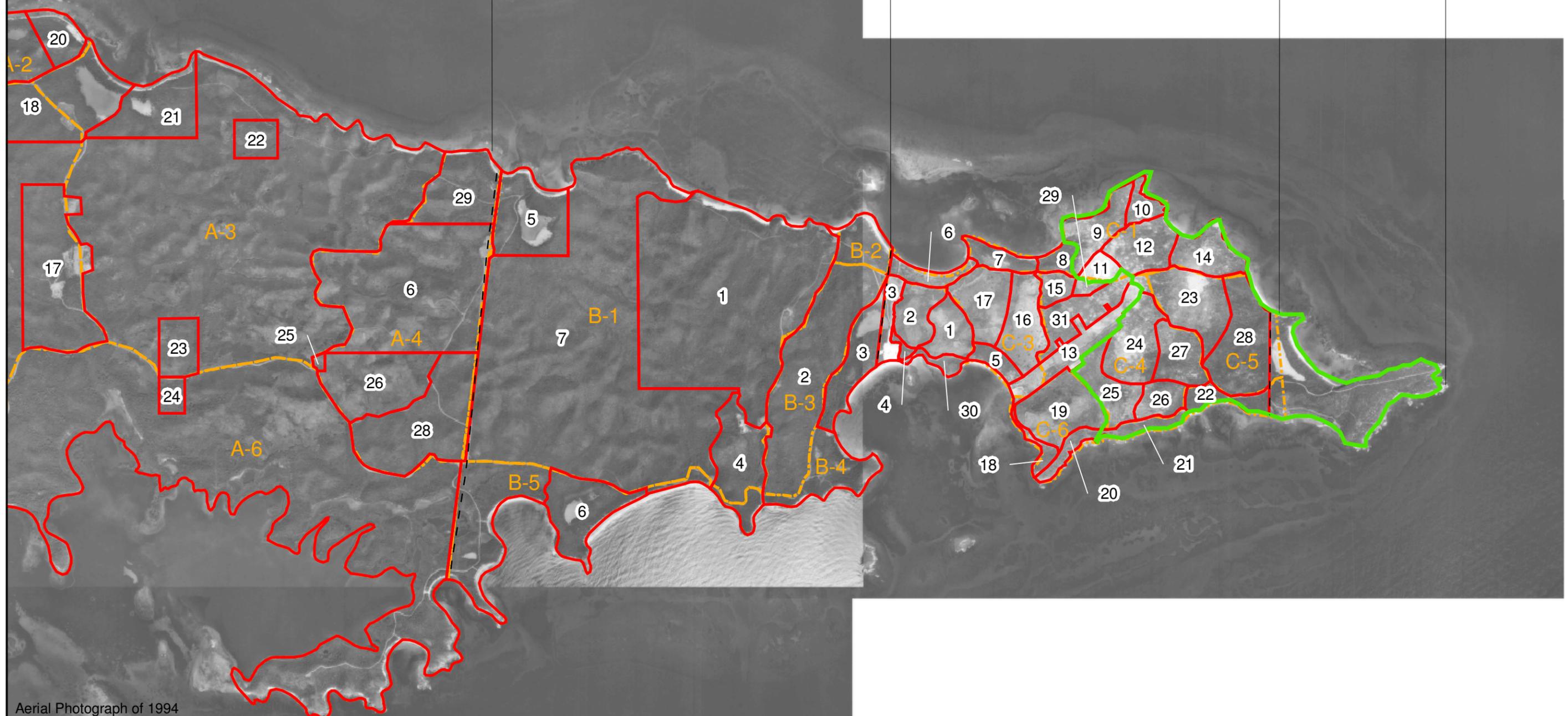
MRA	MRS Number	Historical Site Use/Name
MRA-LIA	MRS 9, 10	Air-to-Ground (ATG) Target
	MRS 11	Convoy Target/ATG Target
	MRS 12, 14, 21, 22, 24-28	ATG Target
	MRS 23	SAM East/ATG Target
MRA-ECA	Entire area defined as MRS 1	--

MRA-EMA

MRA-SIA

MRA-LIA

MRA-ECA



Aerial Photograph of 1994

- Expanded TCRA Area
- Parcel Boundary and Designation

Note: MRS numbers do not signify priority.



0 1,000
 Meters

Figure 1-1
 Expanded TCRA Area
 Former VNTR, Vieques, Puerto Rico

CH2MHILL

Basis for TCRA at Additional Areas

2.1 General

As stated in Section 1, trespassing occurs frequently within the Former VNTR MEC restricted areas and is discussed further in Section 2.3. Additionally, based on the findings of the ERA/Phase I SI (presented in Section 2.2) and historical data (presented in the March 2005 work plan) a significant hazard exists within the LIA because of MEC present at the ground surface. Based on the findings of the ERA/Phase I SI and known trespassing the risk to human health is equal to or greater in the MRSs described in this amendment as those in the March 2005 work plan.

2.2 Findings from ERA/Phase I SI

A significant number of MEC items were located during the inspection of the MRA-LIA MRSs using a transect approach and covering approximately 10% of each MRS. Table 2-1 lists the numbers of MEC items located and projected densities for each MRS. Additionally, Figure 2-1 shows the locations and categories of the MEC items located.

A significant number of MEC items are present at the surface in the LIA and the adjacent ECA (based on observation not part of the ERA/Phase I SI); however, a brief summary of trends is presented in the following paragraph.

Bomb densities are greatest in the vicinity of the former “convoy target”, specifically MRSs 9, 11, and 12. Projectile and mortar densities are greatest in the south central portion of the LIA and also in the vicinity of the former “convoy target”. MRS 19 in the south had the greatest concentration of projectiles and mortars. The munitions items classified as ICMS, grenades, and flares/pyrotechnics appeared less frequently across the inspection area. MRSs 14 (SAM East site) and 25 had the greatest densities of these types of munitions and the most frequently identified munitions item was the Mk-118 bomblet. Due to the high concentration of these items, less acreage was inspected (5-8%) due to the dense vegetation and more sensitive munitions items. However, a band of submunition contaminated area is apparent trending northeast from MRS 25 to MRS 14, as can be seen in Figure 2-1.

TABLE 2-1

MRA-LIA MRS Inspection Results and Projected MEC Densities
Former VNTR, Vieques, Puerto Rico

MRS	10% Inspection (MEC items located)			Projected MEC Density (items/acre)		
	Bombs	Projectiles/ Mortars	ICMS/Grenades/ Flares-Pyrotechnics	Bombs	Projectiles/ Mortars	ICMS/Grenades/ Flares-Pyrotechnics
9	146	28	3	39	8	1
10	16	7	--	11	5	--
11	39	12	--	32	10	--
12	166	53	14	40	13	3
13	43	6	3	9	1	1
14	32	15	15	9	4	4
15	22	2	--	15	1	--
18	18	10	--	19	11	--
19	48	90	--	8	15	--
20	5	5	--	4	4	--
21	4	7	--	3	5	--
22	5	14	2	3	7	1
23	48	18	5	7	3	1
24	51	40	13	10	8	3
25	37	29	10	10	9	4
26	6	7	2	4	3	1
27	26	9	3	3	3	1
28	33	32	18	4	4	2
29	9	1	--	17	2	--
31	40	5	--	15	2	--

Note: -- no items in class identified

2.3 Trespassing Observed for the MRA-LIA During 2005

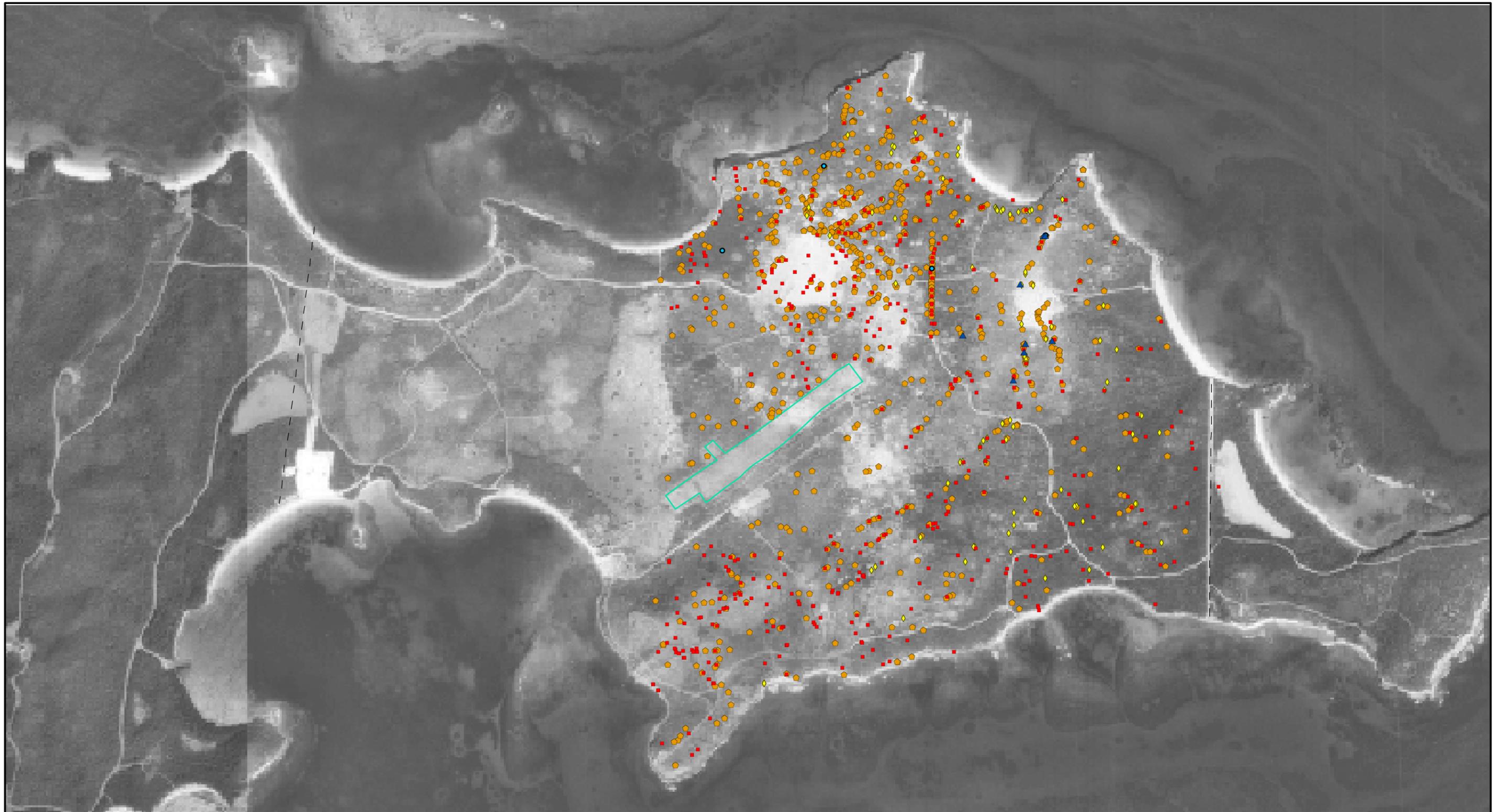
During the ERA/Phase I SI, conducted January 2005 through June 2005, and the current removal action trespassing within the LIA has been observed in the MRA-LIA on numerous occasions. The observed trespassing is detailed in Table 2-2 below and includes pleasure boaters accessing beaches and areas beyond the beaches, horseback riders, organized protest groups, and others. On numerous occasions boats have been observed in the waters and bays off the LIA and no people were observed on the beaches; however, in most cases the large boats had small boats tied off, which in many cases are used to go ashore. It should also be noted that no personnel are present on site on weekends, with few exceptions, so

any trespassing on weekends would not be observed. However, boats are most often found anchored just off-shore on Fridays and Mondays, which may indicate that persons may be accessing the beaches and other parts of the MRA-LIA on weekends.

Attachment A shows photos from the website (<http://homepage.mac.com/dbsantana/PhotoAlbum17.html>) of a group protesting the removal action. The photos clearly show the group entering the LIA and conducting activities in and around former target areas and constructed MEC holding area.

TABLE 2-2
Trespassing Events – 2005
Former VNTR, Vieques, Puerto Rico

Event	Date (all dates are 2005)	Location (all in LIA or adjacent waters, specific area identified if known)
2 horseback riders	January 13	Vicinity of most westerly target area
Bicyclist	January 15	North LIA, west of ECA border
Boaters and people on beach	January 10, 17, 31	North
Boaters and people on beach	February 14	North
Horseback rider	March 11, 23	Vicinity of former convoy target
Evidence of bonfire and large burned area likely due to fire getting out of control	March 26	North
Boaters and people on beach	April 25, 26	North
Boaters and people on beach	May 6	North
Anti-removal action group and tourists	May 27, 28, 29	Multiple locations in LIA
Boaters and people on beach	July 5, 6	North
Boaters and people on beach	July 22, 23, 24	North
Boaters and people on beach and inland	September 18	North



CATEGORY

- ◆ BOMBS
- ◆ ICMS/GRENADES/FLARES-PYROTECHNICS
- PROJECTILES/MORTARS
- ROCKETS/GUIDED/MISSILES
- ▲ SUBMUNITION

No GPS Data Available

Items Located:
 2 Rockets/Guided Missiles
 15 Projectiles/Mortars
 43 Bombs
 5 ICMS/Grenades/Flares-Pyrotechnics

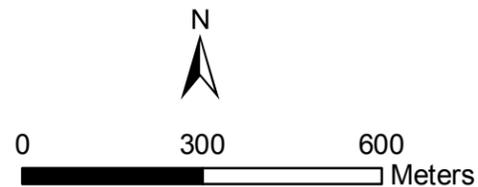


Figure 2-1
 MRA-LIA Surface Findings
 Former VNTR, Vieques, Puerto Rico

Changes to Technical Approach

3.1 Vegetation Clearance

Vegetation removal will be required for greater than 90 percent of the additional TCRA area. Vegetation removal will be conducted as described in Section 2.4.4.1 of the March 2005 work plan and in accordance with NOSSA letter 8020 Ser. N537/98 (January 20, 2006). However, controlled burning of vegetation may be employed for both the original and amended MRSs. If controlled burning of vegetation is determined to be appropriate and is the chosen method of vegetation removal:

1. A controlled burn plan will be developed,
2. a fire prevention and control plan will be developed,
3. State and Federal requirements, including any permits, will be met, and
4. The necessary Health and Safety Plans will be developed.

SECTION 4

References

CH2M HILL, Inc. *Final Time Critical Removal Action/Interim Measures Work Plan, Surface Munitions and Explosives of Concern at Munitions Response Area-Live Impact Area, Munitions Response Sites 1 through 8, 13, 15 through 20, and 29 through 31, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico.* March 2005.

Attachment A – Photo Log

Photos of Munitions Items, Targets, and Landscape Features Taken by Trespassers in LIA



Photos of Trespassers in the LIA



Attachment B – Responses to Comments

MEMORANDUM

Response to Comments on *Draft Time Critical Removal Action/Interim Measures Work Plan Amendment Surface Munitions and Explosives of Concern at Munitions Response Area - Live Impact Area, Munitions Response Site: 9 through 12, 14, and 21 through 28 Former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico (CH2M HILL, December 2005)*

TO: Vieques Munitions Response Subcommittee

COPIES: NAVFAC Atlantic

FROM: CH2M HILL

DATE: July 18, 2006

This memorandum compiles the Navy's responses to all of the comments received on the *Draft Time Critical Removal Action/Interim Measures Work Plan Amendment Surface Munitions and Explosives of Concern at Munitions Response Area - Live Impact Area, Munitions Response Site: 9 through 12, 14, and 21 through 28 Former Vieques Naval Training Range (VNTR), Vieques Island, Puerto Rico (CH2M HILL, December 2005)*. For each reviewing agency, the comments have been reproduced, followed by the response in bold type.

EPA Comments

*Draft Time Critical Removal Action/Interim Measures Work Plan Amendment Surface Munitions and Explosives of Concern at Munitions Response Area - Eastern Conservation Area and Munitions Response Area - Live Impact Area, Munitions Response Site: 9 through 12, 14, and 21 through 28 Former Vieques naval Training Range, Vieques, Puerto Rico
December 20, 2005*

USEPA GENERAL COMMENTS

1. The DTCRA/IMWP Amendment states that, "All information presented in the March 2005 work plan is accurate to the date of this amendment with the exception of the information presented in this document." However, the March 2005 work plan states in Section 2.12.1.2 that, "At the operating site, two scrap metal holding areas will be established." It further states that, "These areas are approximately 10,000 square feet in plain view and are fenced to control access." This seems to

conflict with the June 2005 Advent work plan, where Attachment 2-1 indicates that, "At the operating site, two scrap metal containers will be pre-positioned." Actual practice as observed during the March 22, 2006, oversight visit appears to be the placement of the scrap on the ground surface in the vicinity of the two fenced sites, which seem to currently be unused. This should be reconciled by the Navy, and any discrepancies in the CH2M HILL, Advent, and MKM work plans that address the related surface removal activities should be corrected to present the same process for dealing with scrap metal.

Please review the cited portions of the listed work plans and ensure that each describes the same process for establishing and operating the holding areas for scrap metals. Also, please provide the EPA with the details of the process used to correct the work plans being used for in-process work when the procedures provided therein are different from those actually in use or proposed for use.

Navy Response. Section 2.5.4 of the Final TCRA work plan states that a designated area will be established for the collection of MPPEH. Currently designated areas are being used for the collection of MPPEH and the scrap management subcontractor periodically moves the piles to the central processing location. The fenced areas have been constructed with wider gates to allow access by large equipment). The scrap management contractor will utilize the fenced areas for storage.

USEPA SPECIFIC COMMENTS

1. Section 3, Changes to Technical Approach, page 3-1: Subsection 3.1, Vegetation Clearance introduces the possibility of controlled burning as an additional vegetation option to those MRSs listed in the amendment and does not seem to include those listed in the March 2005 work plan. If this is not the intent of the amendment, and all of the MRSs previously included in the TCRA are also being considered for vegetation removal by controlled burning, the wording of the subsection should be revised to so indicate. Please review the cited subsection and revise it as deemed appropriate.

Navy Response. Vegetative removal by controlled burning is an option for all MRSs; the original LIA-MRSs 1 through 8, 13, 15 through 20, and 29 through 31, as well as the Amended MRSs LIA MRSs 9-12, 14, and 21 through 28. The amendment paragraph will be modified as follows: "However, controlled burning of vegetation may be employed for both the original and amended MRSs."

EQB Comments
Draft Time Critical Removal Action/Interim Measures Work Plan Amendment
Surface Munitions and Explosives of Concern at Munitions Response Area -
Eastern Conservation Area and Munitions Response Area – Live Impact Area,
Munitions Response Site: 9 through 12, 14, and 21 through 28
Former Vieques naval Training Range, Vieques, Puerto Rico
December 20, 2005

The subject document is intended to expand the area of the Time Critical Removal Action (TCRA) to include the remaining area to the east of the original TCRA project including the remainder of the LIA and the ECA.

The amendment provides adequate information for its intended purpose (to expand the boundaries of the TCRA project) with the following exception:

1. The LIA Munitions Response Sites (MRS) shown in Figure 1-1 do not match the written description of the expansion area. The written description is, “Munitions Response Area-Live Impact Area: Munitions Response Sites 9 through 12, 14 and 21 through 28. Review of the map in Figure 1-1 shows the following discrepancies:
 - a. MRS 20 is bounded in green indicating that it is also included in the expansion area.
 - b. MRS 26 cannot be found on the map.
 - c. MRS 29 is bounded in green indicating that it is also included in the expansion area.

It is recommended that these discrepancies between the written description of the TCRA expansion area and the boundary shown in Figure 1-1 be reconciled and corrected.

Navy Response The boundaries for MRS 20 and 29 have been changed to red, indicating that they are part of the original area. The label for MRS 26 has been added to Figure 1-1.

There are some uncompleted planning tasks that should be finalized to ensure the adequate documentation of the TCRA project. The following comments address these uncompleted planning tasks.

2. It is not certain whether or not work has started in the expansion area. Access for regulatory members of the Project Team to the web-based Vieques GIS has been promised at the last CTC and MR committee meetings, but this has not yet been provided. Access to the web-based GIS would allow the reviewer to determine whether or not work has already begun in the expansion area. Without this access one can only ask the question, “Has work begun in the expansion area?” If it has, it should be noted that this TCRA Amendment has not been formally reviewed and approved by the lead regulatory agency, the EPA. It is recommended that it be determined whether or not work has been begun in the TCRA expansion area prior

to the approval of this amendment and what, if any, impact this may have on the approval and regulatory oversight of the work that has been completed.

Navy Response. Work has not yet started in the proposed amendment area.

3. Issues involving the work plans for this project have not been resolved. The following two important planning documents are either not finalized or were finalized without comment by the regulators:
 - a. The Master Work Plan (Draft MEC Master Work Plan, Former Vieques Naval Training Range, Vieques, Puerto Rico) was issued as a draft in September 2005. The regulatory agencies commented on the MWP and responses to those comments were posted to the Vieques web site on April 4, 2006. These comments have yet to be discussed and resolved. Therefore, this work is currently being performed without an agreed-upon MWP.
 - b. The TCRA Work Plan being used by MKM Engineers, Inc. (Time Critical Removal Action/Interim Measures Work Plan, Surface Munitions and Explosives of Concern at Munitions Response Sites 8, 13, 15, 18 through 20, 29, and 31, Former Vieques Naval Training Range, Vieques Island, Puerto Rico, November 5, 2005) was not issued as a draft document. Because of this the regulators were not provided with an opportunity to comment on this important document and it was immediately put into use.

Both of the above issues represent potentially important discrepancies that may cause technical problems if the work is being accomplished under incomplete plans or plans that are not formally reviewed by the regulators. Enclosed you will find EQB's comments on the Final MKM TCRA Work.

Navy Response. The work is being conducted under the *Final Time Critical Removal Action/Interim Measures Work Plan Surface Munitions and Explosives of Concern at Munitions Response Area-Live Impact Area, Munitions Response Sites 1 through 8, 13, 15 through 20, and 29 through 31*. As agreed to, regulatory agencies would be provided copies of individual contractor work plans for review. However, the review of the contractor work plan would not delay the approval of the TCRA work plan, unless it was demonstrated that the contractor work plan significantly contradicted the TCRA work plan. Additionally, all references to the master work plan were removed from the Final TCRA work plan because that document had not been finalized.

4. It is recommended that the relevant plans be discussed and finalized as soon as possible to correct this deficiency.

The requirements of the plans are not being fully implemented. For example, concerning security for MEC left in place the document “Final Time Critical Removal Action/Interim Measures Work Plan”, March 2005, says (Page 2-12, Section 2.5.4):

“The Specific location of the item will be evaluated to determine any security or access concerns. Finally, the next planned demolition event for the site will be considered to determine if additional measures will be necessary to maintain control/security of the item. Additionally, activities that may result in increased trespassing or attempts to access the work areas will be evaluated to determine if additional measures should be taken to discourage access, prevent access, or minimize potential encounters with UXO.”

This paragraph requires frequent communication between the Navy, EPA, EQB, USFWS and possibly other organizations to assess “activities that may result in increased trespassing or attempts to access the work areas” and to evaluate them “to determine if additional measures should be taken to discourage access, prevent access, or minimize potential encounters with UXO.” It appears that this requirement was not fulfilled during the recent Easter holiday because the regulatory agencies and USFWS are not known to have been contact by the Navy to discuss this important issue.

It is recommended that the requirements of this approved plan, and other plans upon acceptance by the regulators, be fully implemented during the TCRA in the expansion area covered by this amendment.

The appropriate agencies and personnel are contacted when boaters moor in waters within the exclusion zone. The appropriate agencies and personnel were contacted over the Easter holiday when boaters moored in waters within the exclusion zone. The above paragraph is intended to state that when conditions change that allow greater access to areas containing UXO (broken fences or gates), or there is a planned land trespassing event that CH2M HILL or Navy is aware of that can be prevented., the appropriate agencies should be contacted for consultation and action.

Navy Response. The procedures for securing UXO (in this case performing demolition of UXO) that may be accessible by unauthorized personnel is being conducted when events may result in increased activities in the work area. The Navy is working with USFWS, USCG, DNER, and PR State Police to establish agreements to increase the presence of enforcement and notification that will minimize or decrease the unauthorized access of the area. In addition, a Navy contractor is patrolling the waters around the LIA during demolition activities to minimize boats entering the exclusion zone.

U.S. FWS Comments

*Draft Time Critical Removal Action/Interim Measures Work Plan Amendment
Surface Munitions and Explosives of Concern at Munitions Response Area -
Eastern Conservation Area and Munitions Response Area – Live Impact Area,*

*Munitions Response Site: 9 through 12, 14, and 21 through 28
Former Vieques naval Training Range, Vieques, Puerto Rico
December 20, 2005*

1. The expanded TCRA area extends out towards Punta Este. While this is now termed the Eastern Conservation Area (ECA), it was part of the LIA until the 80's. The Navy will be expanding its removal of MEC into the ECA (MRA-ECA). We are interested in this happening but there are several sensitive species in that particular area and some sea bird nesting sites, we would need to talk about these, may need to have GeoMarine conduct a plant survey of that area prior to mobilizing into the area. Also the vegetation there has not been impacted for at least 20 years, for the most part, its dense palm scrub/shrub with limestone rock.

Navy Response. Any work in this area will be conducted in accordance with the procedures identified in the Biological Assessment for the LIA, which is in the process of being expanded to include the EMA, SIA, and ECA.

2. The additions will include beaches, hopefully we can finalize the turtle issues prior any work in these areas.

Navy Response. It is expected that prior to work beginning in the ECA the Biological Assessment will be expanded to include this area. Since receipt of comments the BA for the LIA has been agreed to.