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United States Government Accountability Office
Washington, DC 20548

March 26, 2007

The Honorable Charles B. Rangel
House of Representatives

Subject: *Defense Infrastructure: Environmental Cleanup of Former Naval Facilities on Vieques*

Dear Mr. Rangel:

This report responds to your request that we determine the status and estimated costs of environmental cleanup on the island of Vieques. For decades, the U.S. Navy conducted ship-to-shore bombing exercises and other live-fire training activities on the island, which is located off the coast of Puerto Rico. The Navy ceased its operations on Vieques in 2003. The Navy has transferred the land to the Municipality of Vieques and the Puerto Rico Conservation Trust for conservation purposes and to the Department of the Interior. Although the land has been transferred, the Navy remains responsible for environmental cleanup. The cleanup is being carried out under the Defense Environmental Restoration Program (DERP) that consists of (1) the Installation Restoration Program, which addresses cleanup of hazardous substances, and (2) the Military Munitions Response Program, which addresses cleanup of munitions.

We obtained information on the status and estimated costs of environmental cleanup on Vieques from the Department of the Navy. We performed our work from January through March 2007 in accordance with generally accepted government auditing standards.

Summary

The Navy has identified 37 potentially contaminated sites on Vieques that fall under the installation restoration program. The Navy concluded that no further action was required for 9 of these sites, and the remaining 28 sites are in various phases of the cleanup process. The Navy has allocated about \$18.1 million for the investigation and cleanup of these sites through fiscal year 2006 and estimates that an additional \$15.2 million is needed to complete cleanup.

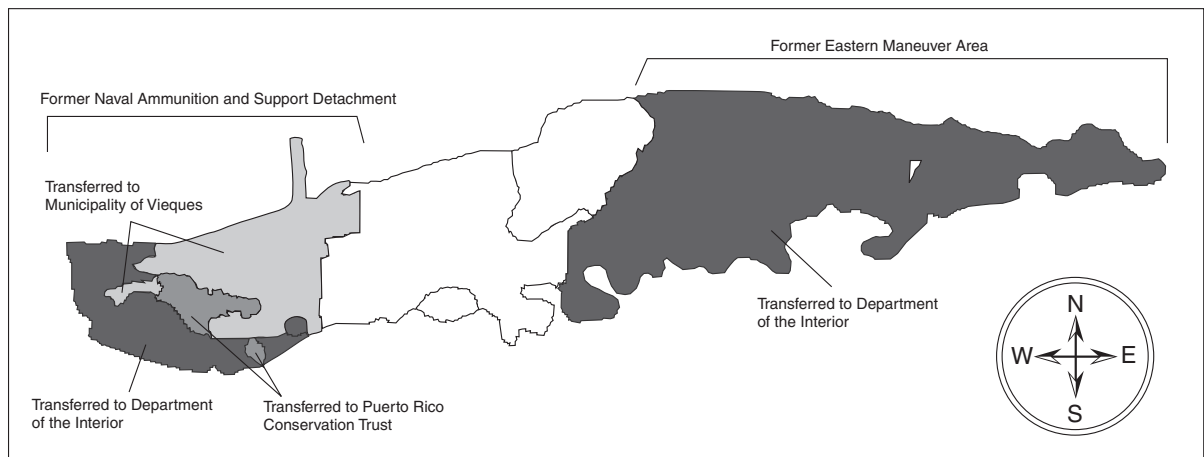
The Navy has begun the surface removal of munitions on both the east and west sides of Vieques under the munitions response program. In fiscal years 2007 and 2008, the Navy plans to continue surface removal of munitions on eastern Vieques and to begin subsurface munitions clearance on beaches on the eastern and western sides and other selected areas on western Vieques that have been surface cleared. The Navy

has allocated about \$35.4 million for the removal and investigation of munitions cleanup of Vieques through fiscal year 2006, and has programmed an additional \$235.3 million for cleanup. The Navy's cost estimates for munitions cleanup could change depending on the outcome of the site investigations and the final reuse plan developed by the Department of the Interior.

Background

On February 11, 2005, in response to a request from the Governor of Puerto Rico, the Environmental Protection Agency (EPA) listed Vieques Island on the National Priorities List (NPL) of seriously contaminated sites. The areas of Vieques listed on the NPL encompass the western side of the island, where the Navy stored and disposed of munitions at the former Naval Ammunition and Support Detachment, and on the eastern side, where the Navy conducted live-fire training exercises in the eastern maneuver area, as shown in figure 1.

Figure 1: Former Navy Land on Vieques



Source: Department of the Navy.

In April 2001, the Navy transferred about 5,000 acres of land on the western side of the island to the Municipality of Vieques and the Puerto Rico Conservation Trust and about 3,100 acres to the Department of the Interior. The National Defense Authorization Act for Fiscal Year 2002¹ required the Navy to close its installations on the eastern end of the island, and to transfer that land to the Department of the Interior. In April 2003, the Navy transferred about 14,700 acres on the eastern side of the island to the Department of the Interior, which combined that acreage with the 3,100 acres transferred in 2001 to establish the Vieques National Wildlife Refuge and Wilderness Area under the management of the Fish and Wildlife Service. The act stipulated that the Department of the Interior administer 900 acres on the eastern tip of the island, which was the live-impact area of the former bombing range, as a wilderness area. The law prohibits public access to this area. The act does not prohibit public access to the remaining 13,800 acres on the eastern side of the island. The extent of public access in this area will be governed by the refuge comprehensive conservation plan, to be prepared by the Fish and Wildlife Service, which will identify the refuge goals, long-term objectives, and strategies for achieving refuge purposes.

¹ Pub. L. No. 107-107, § 1049 (2001).

The Navy remains responsible for cleanup of environmental problems on its former properties. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended,² authorizes cleanup actions at federal facilities where there is a release of a hazardous substance into the environment or the threat of such a release. The CERCLA process generally includes the following phases and activities: preliminary assessment, site inspection, remedial investigation and feasibility study, remedial design and remedial action, and long-term monitoring. (An explanation of these phases is provided in enc. I.) The Superfund Amendments and Reauthorization Act of 1986³ added provisions to CERCLA specifically governing the cleanup of federal facilities and, among other things, required the Secretary of Defense to carry out the DERP. The DERP consists of two subprograms: (1) the Installation Restoration Program, which addresses cleanup of hazardous substances, and (2) the Military Munitions Response Program, which addresses cleanup of munitions, including unexploded ordnance and the contaminants and metals related to the munitions.

Installation Restoration Program

The Navy has identified 37 potentially contaminated installation restoration sites on Vieques. (Enc. II provides information on each site.) The status of installation site cleanup on the western and eastern sides of Vieques is described below.

- **Western Vieques (17 sites).** The Navy concluded that no further action was required for 9 sites. According to Navy officials, EPA and the technical staff of the Puerto Rico Environmental Quality Board concurred with the Navy's recommendation for no further action at these sites. However, the board's senior management deferred final approval until a public hearing was conducted. Although a public hearing was held in January 2004, the board did not provide the community with a final decision. As a result, the Navy is currently developing a plan to provide for a public review and comment period.

Remedial investigations are ongoing at the eight other sites. Risk assessments for three of those sites are anticipated to be completed by the third quarter of fiscal year 2007, and for another site in the first quarter of fiscal year 2008. The Navy has developed a removal action plan for the four remaining sites that is anticipated to be implemented by the fourth quarter of fiscal year 2007.

- **Eastern Vieques (20 sites).** A preliminary assessment/site inspection has been completed for the 20 eastern sites. A soil background investigation is ongoing to establish background levels for naturally occurring metals in the soils. The background investigation, anticipated to be completed by the end of 2007, will determine which sites will be recommended for remedial investigation and which sites will be recommended for no further actions.

² Pub. L. No. 96-510 (1980), as amended.

³ Pub. L. No. 99-499, § 120 and § 211 (1986).

The Navy has allocated about \$18.1 million for the investigation and cleanup of installation restoration sites through fiscal year 2006 and estimates that an additional \$15.2 million is needed to complete cleanup, as shown in table 1.

Table 1: Navy Cost Estimate for Cleanup of Installation Restoration Sites on Vieques

Dollars in thousands			
Fiscal year	Western	Eastern	Total
2007	\$520	\$2,351	\$2,871
2008	226	1,993	\$2,219
2009	211	1,691	\$1,902
2010	182	179	\$361
2011	203	1,597	\$1,800
2012 and beyond	92	6,003	\$6,095
Total	\$1,434	\$13,814	\$15,248

Source: Department of the Navy.

The Navy's cost estimates for installation restoration sites are based on the type and extent of contamination identified to date and the remedies it assumes would be adequate to prevent human exposure. Actual costs could differ, depending on the outcome of the site investigations and the final selection of remedial actions.

Military Munitions Response Program

The Navy has begun the surface removal of munitions on both the east and west sides of Vieques. In fiscal year 2007 and 2008, the Navy plans to continue surface removal of munitions on eastern Vieques and to begin subsurface munitions clearance on beaches on the eastern and western sides and other selected areas on western Vieques that have been surface cleared. The status of munitions cleanup on the western and eastern sides of Vieques is described below.

- **Western Vieques.** A 100-acre surface munitions clearance was completed in fiscal year 2003, and surface clearance at the former open burn/open detonation site⁴ will be conducted in fiscal years 2007 and 2008.
- **Eastern Vieques.** A preliminary assessment/site inspection identified approximately 9,000 acres potentially affected by munitions and explosives of concern in the former eastern maneuver area. Approximately 1,100 acres, which includes the former live-impact area, is currently undergoing a time-critical removal action to remove munitions from the surface. A total of 290 acres (225 acres inland and 65 acres of beaches) have been surfaced cleared. The Navy expects to complete surface removal of the remaining 810 acres covered by the time-critical removal action by 2010. The cleanup of the remaining 7,900 acres potentially affected by munitions will depend on the results of future site investigations and the final comprehensive conservation

⁴ The open burn/open detonation site was used to destroy excess, obsolete, or unserviceable munitions.

plan being developed by the Fish and Wildlife Service of the Department of the Interior.

The Navy has allocated about \$35.4 million for the investigation of munitions cleanup of Vieques through fiscal year 2006, and has programmed an additional \$235.2 million for cleanup, as shown in table 2.

Table 2: Navy Cost Estimate for Munitions Cleanup on Vieques

Dollars in thousands			
Fiscal year	Western	Eastern	Total
2007	\$1,538	\$20,000	\$21,538
2008	1,000	19,000	\$20,000
2009	1,000	19,000	\$20,000
2010	1,000	19,000	\$20,000
2011	1,000	19,000	\$20,000
2012 and beyond	115	133,643	\$133,758
Total	\$5,653	\$229,643	\$235,296

Source: Department of the Navy.

The Navy’s cost estimates for munitions cleanup are based on the remedies it assumes would be adequate to prevent human exposure. Actual costs could differ, depending on the outcome of the site investigations and the final Comprehensive Conservation Plan being developed by the Department of the Interior.

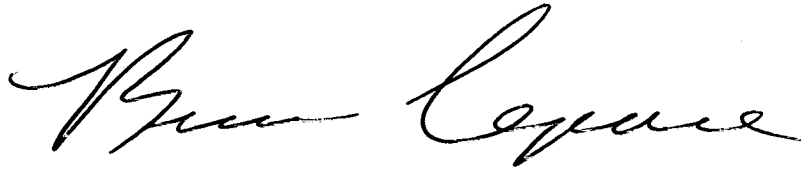
Agency Comments

We received technical comments from DOD, which we incorporated as appropriate.

We are sending copies of this report to the Secretary of Defense and other interested parties. We will provide copies of this report to others upon request. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions on the information discussed in this report, please feel free to contact me at (202) 512-4523 or leporeb@gao.gov. Contact points for our offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report were Mike Kennedy, Assistant Director; Susan Ditto; and Karen Kemper.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Brian Lepore". The signature is fluid and cursive, with the first name "Brian" written in a larger, more prominent script than the last name "Lepore".

Brian Lepore
Acting Director, Defense Capabilities and Management

Enclosures - 2

CERCLA Cleanup Phases and Activities

The CERCLA process generally includes the following phases and activities.

- **Preliminary Assessment (PA).** Available information is collected regarding contamination, including a search of historical records, to confirm whether a potential environmental contamination or military munitions hazard could be present and to determine whether further action is needed.
- **Site Inspection (SI).** This step usually involves a walk around the site by an environmental engineer and may involve some limited soil and water sampling, including an analysis to determine the extent and source(s) of the hazards.
- **Remedial Investigation/Feasibility Study (RI/FS).** More rigorous statistical sampling and analysis is conducted at this phase to determine the exact nature and extent of the contamination; determine whether cleanup action is needed; and, if so, select alternative cleanup approaches. These include removal, limiting public contact, determining no further action is warranted, or cleaning of the hazardous media (soil, air, or water) on site.
- **Remedial Design/Remedial Action.** This phase involves designing and constructing the actual cleanup remedies, such as a pump and treat facility for groundwater, or removing munitions.
- **Long-term Monitoring.** At this phase, parties responsible for the cleanup periodically review the remedy in place to ensure its continued effectiveness, including checking for unexploded ordnance and educating the public.

Installation Restoration Sites on Vieques

Site	Description	Status		
		Navy proposed no further action	CERCLA phase-in progress	Estimated completion
Western Vieques				
05	Former fuel disposal site	X		
10	Former waste paint and solvents disposal site	X		
14	Former wash rack	X		
15	Former waste transportation vehicle parking area	X		
B	Former wastewater treatment plant	X		
C	Drainage ditch	X		
F	Former septic tank	X		
K	Former water well	X		
L	Abandoned septic tank	X		
04	Inactive open burn/open detonation area		RI	1 st quarter FY 2008
E	Underground waste oil storage tank		RI	3 rd quarter FY 2007
H	Former power plant		RI	3 rd quarter FY 2007
I	Former asphalt plant		RI	3 rd quarter FY 2007
06	Mangrove disposal site		NTCRA	4 th quarter FY 2007
07	Disposal site		NTCRA	4 th quarter FY 2007
J	Former staging area disposal site		NTCRA	4 th quarter FY 2007
R	Former operations and staging area		NTRCA	4 th quarter FY 2007
Subtotal western	17	9	8	
Eastern Vieques				
01	Camp Garcia landfill		PA/SI	1 st quarter FY 2008
02	Former fuels off-loading site		PA/SI	1 st quarter FY 2008
04	Former waste areas of building 303		PA/SI	1 st quarter FY 2008
05	Former spent battery accumulation area		PA/SI	1 st quarter FY 2008
06	Former waste oil and paint accumulation area		PA/SI	1 st quarter FY 2008
07	Former waste oil accumulation area		PA/SI	1 st quarter FY 2008
08	Former waste oil accumulation area		PA/SI	1 st quarter FY 2008
10	Former sewage treatment lagoons		PA/SI	1 st quarter FY 2008
12	Former solid waste collection unit area		PA/SI	1 st quarter FY 2008
A	Former diesel fuel fill pipe area		PA/SI	1 st quarter FY 2008
F	Rock quarry		PA/SI	1 st quarter FY 2008
G	Former pump station and chlorination building		PA/SI	1 st quarter FY 2008
	8 ground-scarred areas		PA/SI	1 st quarter FY 2008
Subtotal eastern	20	0	20	
Total	37	9	28	

Source: Department of the Navy.

Note: NTCRA means non-time-critical removal action.

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