



Memorandum

August 4, 2004

TO: Honorable Jose Serrano

FROM: David M. Bearden
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Analysts in Environmental Policy
Resources, Science, and Industry Division

SUBJECT: Environmental Cleanup at Vieques Island and Culebra Island

Introduction

This memorandum responds to your request for CRS to identify and analyze key issues regarding the cleanup of environmental contamination resulting from weapons training and other activities of the U.S. Navy on Vieques Island and Culebra Island, Puerto Rico. The Navy ceased its operations on Vieques in 2003, and is investigating areas that it previously occupied to determine the extent of contamination and threat of human exposure.¹ Once these investigations are complete, the Navy will assess the degree of cleanup that will be required, and will select remedial actions to achieve that degree of cleanup. The Navy ceased its operations on Culebra in 1975,² and the land was transferred to other federal and non-federal entities for conservation and recreational purposes. The Army Corps of Engineers has removed some munitions in publicly accessible areas to avoid safety hazards. Local residents have expressed concern about the pace and degree of cleanup that is being done there. The Environmental Protection Agency (EPA) and the Puerto Rico Environmental Quality Board are responsible for overseeing the cleanup on Vieques and Culebra.

There has been significant public interest in the degree of cleanup that the Navy will perform on Vieques once the cleanup investigations are complete. The scope of the cleanup will depend on the extent and type of contamination that is found, and whether a pathway of

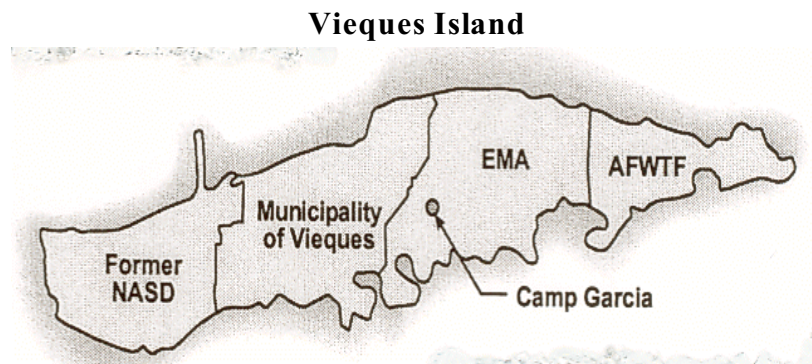
¹ In the 1940's, the federal government acquired lands on western and eastern Vieques for use by the Navy for training exercises and supporting operations, and required the residential population in these areas to relocate to the central portion of the island, where 9,300 people now reside.

² In 1901, the federal government placed Culebra Island under the control of the Navy to conduct training exercises, and required the residential population to relocate to areas outside of the bombardment zone. A civilian population of 1,700 now resides in the areas to which people were relocated when the Navy assumed control of the island.

human exposure exists.³ As required by the National Defense Authorization Act for FY2001,⁴ the Navy closed its ammunition storage and disposal facility on the western end of the island in 2001, and transferred these lands to the Department of the Interior, the Municipality of Vieques, and the Puerto Rico Conservation Trust for conservation purposes. Investigation of contamination in these areas is underway. As required by the National Defense Authorization Act for FY2002,⁵ the Navy ceased its operations on eastern Vieques in 2003, and is in the early stages of investigating the contamination on these lands. While the Navy expects some remediation to be required on the western end of Vieques, the eastern lands are likely to contain the most severe hazards, and therefore represent the greatest need for cleanup, as this area was the location of the former bombing range.

In accordance with the FY2002 Act, the federal government has maintained ownership of all of the eastern lands on Vieques. The Department of the Interior is required to administer them as a National Wildlife Refuge and a Wilderness Area. The Act prohibits human access in the Wilderness Area. The Department of the Interior may limit public access to some extent in the National Wildlife Refuge, due to the presence of munitions hazards or the need to protect sensitive wildlife populations and their habitat. As limiting public access would reduce the possibility of exposure, the Navy may be permitted to remove munitions⁶ and clean up related contamination to a less stringent level than would otherwise be required for less restrictive land uses, such as tourism or residential development.

The map and table below identify the western and eastern lands on Vieques where the Navy previously conducted operations, and where cleanup investigations have begun. These lands include the locations of the former Naval Ammunition Support Detachment (NASD), the Eastern Maneuver Area (EMA), and the Atlantic Fleet Weapons Training Facility (AFWTF), the latter of which includes the former bombing range.



Source: Environmental Protection Agency, Vieques Community Fact Sheet.

³ “Pathway of exposure” refers to a circumstance in which human beings could be exposed to a potentially hazardous substance. Some of the more common pathways of exposure include direct contact with contaminated soil, consumption of contaminated water, or consumption of food sources, such as fisheries or plants, that have been contaminated.

⁴ P.L. 106-398, Sections 1502 and 1508.

⁵ P.L. 107-107, Section 1049.

⁶ In this memorandum, the term “munitions” includes unexploded ordnance (UXO), detonated munitions, and munitions constituents, the latter of which include substances contained in munitions that can leach into the soil, surface water, and groundwater.

**Closure of U.S. Navy Installations on Vieques Island,
Status of Environmental Cleanup, and Preliminary Estimates of Cleanup Costs**

U.S. Navy Installation	Date of Closure	Acreage Transferred	Property Recipient	Cleanup Status ^a August 2004	Navy Cleanup Cost Estimates ^b
Naval Ammunition Support Detachment	April 2001	3,100	U.S. Department of the Interior	Remedial Investigation	FY2004 to Completion: \$22 million
		5,000	Puerto Rico Conservation Trust and Municipality of Vieques		
Eastern Maneuver Area and Atlantic Fleet Weapons Training Facility	April 2003	14,669	U.S. Department of the Interior	Remedial Investigation	FY2004 to Completion: \$103 million

Prepared by the Congressional Research Service using information provided by the U.S. Navy.

^a The environmental cleanup process involves several stages leading up to actual cleanup. The major stages of this process include: Site Inspection (or Preliminary Assessment) to determine what hazardous substances may be present and where they are located; Remedial Investigation and Feasibility Study (RI/FS) to determine the nature and extent of contamination in identified areas, and to examine the feasibility of different cleanup remedies; Record of Decision (ROD) to finalize the selection of a cleanup remedy and explain what this action entails; and Remedial Design and Remedial Action (RD/RA) to prepare and implement the selected cleanup remedy. After construction of a cleanup remedy is complete, operating and maintaining the remedy may be necessary for several years. Long-term monitoring of the site also may be necessary to ensure the effectiveness of a cleanup remedy to protect human health and the environment (as is usually the case with the remediation of groundwater).

^b The Navy's estimates of cleanup costs are preliminary, and are based on assumptions of the type and extent of contamination that is present and on the remedial actions that will be necessary to protect human health and the environment. Actual costs could differ, depending on the outcome of the site investigations and the final selection of remedial actions, which are subject to approval by the Environmental Protection Agency and the Puerto Rico Environmental Quality Board in their oversight capacity.

The following sections of this memorandum discuss the status and estimated costs of environmental cleanup on western and eastern areas of Vieques Island, analyze issues relevant to the cleanup, provide an overview of requirements for the cleanup of military munitions that are applicable to military training ranges, discuss cleanup actions and costs at Culebra Island, indicate the status of listing Vieques Island and Culebra Island as a single site on the National Priorities List (NPL) of the nation's most hazardous waste sites, and examine the implications of the site listing for environmental cleanup.

A list of agency contacts is provided below.

- Christopher Penny, Atlantic Division of the Navy, (757)322-4815;
- Robert Carpenter, Army Corps of Engineers, (904)232-2241;
- Carlos Ramos, EPA Region 2, (212)637-3588; and
- Eugene Scott, Puerto Rico Environmental Quality Board, (787)767-8181.

Western Vieques

In April 2001, the Navy transferred 8,100 acres on the western side of Vieques Island to the Municipality of Vieques, the Puerto Rico Conservation Trust, and the Department of the Interior. This land was the location of the former Naval Ammunition Support Detachment (NASD) that the Navy administered. The National Defense Authorization Act for FY2001 required this property to be transferred to the above entities after the NASD closed. Of the 8,100 acres, the Navy transferred 3,100 acres to the Department of the Interior for management as a National Wildlife Refuge. The Municipality of Vieques and the Puerto Rico Conservation Trust are managing the remaining 5,000 acres for conservation purposes. While the Navy is investigating the type and extent of contamination present on the former NASD, actual cleanup has not begun at this time.

Status of Cleanup Investigation. The NASD primarily served as an ammunition storage and disposal facility. Contamination from these operations is suspected to be present and may require remediation. As of the end of FY2003, the Navy had identified 17 potentially contaminated sites on the former NASD, including a 200-acre site where military munitions were discarded.⁷ Ammunition was disposed on-site using “open burn/open detonation” practices.⁸ Sites where these practices have occurred typically require the cleanup of surface and subsurface soils. The Navy is performing the cleanup investigation according to requirements specified in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)⁹ and the National Contingency Plan (NCP).¹⁰ The Puerto Rico Environmental Quality Board and EPA are responsible for providing oversight and guidance.

Cleanup Costs at Western Vieques. Once the site investigation is complete, the Navy will be liable for performing and paying for the cleanup.¹¹ Neither the Municipality of Vieques, nor the Puerto Rico Conservation Trust, is liable for any portion of the cleanup costs, as is stipulated by CERCLA for the transfer of federal property to non-federal entities that did not cause the contamination.¹² CERCLA does not address liability for transfer of

⁷ Department of Defense. *Defense Environmental Restoration Program Annual Report to Congress for FY2003*. April 2004. Appendix A, p. A-149.

⁸ Open burn/open detonation operations are used to destroy excess, obsolete, or unserviceable munitions. Open burning involves the destruction of a munition by an external heat source, and open detonation destroys the munition with an external explosive charge. These operations are conducted either on the surface of the land or in pits. Environmental concerns about these practices have led to the use of burn trays and blast boxes to help contain contaminants and emissions. The Department of Defense is using open burn/open detonation practices less frequently at installations located near populated areas across the country, due to potential environmental and safety hazards.

⁹ 42 U.S.C. 9601 et seq. CERCLA established the Superfund program to address the release or threatened release of hazardous substances in the United States, and requires contamination to be cleaned up to a level that is protective of human health and the environment.

¹⁰ 40 C.F.R. Part 300. The NCP is the set of regulations that implement CERCLA.

¹¹ The Department of Defense typically acquires the services of private contractors to perform environmental cleanup activities, rather than using military personnel.

¹² 42 U.S.C. 9620(h). CERCLA requires federal agencies to clean up contamination prior to the transfer of federal property to a non-federal entity. However, early transfer authority is provided (continued...)

federal property from one federal agency to another. The Navy accepted liability for the cleanup of lands on the former NASD that it transferred to the Department of the Interior in the Memorandum of Agreement for the land transfer.¹³ (A copy of this agreement is enclosed.) The agreement stipulated that:

...the Navy shall have sole and exclusive federal responsibility to fund and implement any actions (including response actions and associated operation and maintenance) required by applicable law, or by implementing regulations, including but not limited to CERCLA, to address environmental contamination resulting from the activities or presence of the Department of Defense (including entities acting with permission or under the authority of or in a contractual relationship with the Department of Defense) or which is present at the time of the transfer by the Secretary of the Navy to the Secretary of the Interior (including contamination subsequently discovered), unless the Department of the Interior caused or contributed to the contamination.¹⁴

The Navy will pay for the costs of site investigation and cleanup out of its Defense Environmental Restoration Account. Congress appropriates funding for this account in the annual appropriations bill for the Department of Defense (DOD).¹⁵ Congress does not allocate this funding for cleanup among the contaminated sites for which the Navy is liable. Rather, the Navy has the discretion to determine the allocations of funding for each site, taking into consideration the availability of annual appropriations and the competing cleanup needs of its contaminated sites across the country.¹⁶

As of the end of FY2003, the Navy had prepared a draft of No Further Action (i.e., no actual cleanup required) at 9 of the total 17 sites that it had investigated on former NASD lands located on western Vieques.¹⁷ For FY2004, the Navy plans to allocate \$2.3 million to

¹² (...continued)

(42.U.S.C. 9620(h)(3)(C). The use of this authority requires the concurrence of the transferring agency, EPA, and the governor of the state in which the property is located, and assurances that all necessary cleanup actions will be taken. The transferring agency that caused the contamination is liable for the cleanup, whether the property is transferred before or after remediation is complete.

¹³ Customarily, land transfers between federal agencies are executed through a Memorandum of Agreement, which specifies the conditions of the transfer. Typically, the federal agency that caused the contamination agrees to be liable for any necessary cleanup activities, including the remediation of contamination discovered in the future that was not originally addressed.

¹⁴ Memorandum of Agreement between the Navy and the Department of the Interior, April 27, 2001, Article IV(B), p. 3.

¹⁵ DOD's budget contains five Defense Environmental Restoration Accounts: Army, Navy, Air Force, Defense-Wide, and Formerly Used Defense Sites (FUDS). FUDS sites are military properties that were previously owned or used by DOD and decommissioned prior to the first rounds of base closings in 1988. Cleanup costs at sites closed under the base closure rounds in 1988, 1991, 1993, and 1995 are funded out of the Base Realignment and Closure (BRAC) Account, for which Congress appropriates funds in the annual appropriations bill for Military Construction.

¹⁶ As of the end of FY2003, the Navy had identified 1,720 contaminated sites within its jurisdiction at which cleanup was not complete. The Navy estimated costs of \$3.7 billion to complete cleanup at these sites. Department of Defense. *Defense Environmental Restoration Program Annual Report to Congress for FY2003*. April 2004. Appendix B, p. B-7-1, and Appendix C, p. C-6-1.

¹⁷ Department of Defense. *Defense Environmental Restoration Program Annual Report to Congress* (continued...)

continue investigation of contamination at 7 of the 8 remaining sites.¹⁸ This amount is based on costs to comply with requirements specified in CERCLA for assessing the extent of contamination and potential pathways of human exposure. The Navy assumes that these investigations will reveal the need for removal of contamination (excavation and disposal) at 5 of these 7 sites, and assumes that the other 2 of these 7 sites will not require cleanup. The Navy estimates costs of \$3.7 million in FY2005 for beginning the removal of contamination at these 5 sites and for the preparation of documentation to “close-out” the other 2 sites at which it assumes cleanup will not be required.

The Navy estimates additional costs of \$16 million to complete cleanup at all sites on the former NASD from FY2006 through FY2007.¹⁹ Of these costs, \$5.3 million is estimated for the excavation and disposal of debris and contaminated soil, and \$8 million is estimated for the removal and cleanup of munitions at a former open burn/open detonation area. The remainder of the \$16 million estimate would be for operation and maintenance of cleanup remedies and site monitoring. To date, the Navy has not received approval from EPA and the Puerto Rico Environmental Quality Board for the assumed actions upon which this cost estimate is based. Actual costs could differ from the \$16 million estimate if the Navy’s investigations reveal a different level of contamination than it assumes is present, or if EPA and the Puerto Rico Environmental Quality Board determine that more extensive actions are necessary to protect human health and the environment. Costs also may rise if the Navy is required to pursue additional measures at the 9 sites for which it has proposed no further action be taken.

Eastern Vieques

In April 2003, the Navy transferred 14,669 acres on the eastern side of Vieques Island to the Department of the Interior.²⁰ The majority of this land was the site of the former Eastern Maneuver Area, which included Camp Garcia. The remaining land in the most eastern portion was the site of the former Atlantic Fleet Weapons Training Facility, which included the bombing range. In response to long-standing public concerns about safety, health, and environmental hazards arising from weapons training operations on Vieques, Congress included provisions in the National Defense Authorization Act for FY2002 that required the Navy to close its installations on the eastern end of the island, and to transfer its jurisdiction over these lands to the Department of the Interior.²¹

¹⁷ (...continued)

for FY2003. April 2004. Appendix A, p. A-149.

¹⁸ Information obtained from a written communication with the Department of the Navy, Office of Legislative Affairs, Office of the Secretary of Defense, May 10, 2004.

¹⁹ Ibid.

²⁰ The Navy transferred 14,573 acres on eastern Vieques to the Department of the Interior through a Memorandum of Agreement on April 30, 2003. The Navy transferred 96 additional acres prior to this agreement on April 29, 2003, for a total acreage of 14,669.

²¹ Section 1049 of the National Defense Authorization Act for FY2002 (P.L. 107-107) authorized the Secretary of the Navy to close its training installations on Vieques Island if equivalent or superior training facilities were available elsewhere. On January 10, 2003, the Secretary of the Navy signed a letter of certification to Congress confirming that alternative training sites had been identified and that training operations would cease on Vieques Island by May 1, 2003.

The Act stipulated that the Department of the Interior must “administer” the 900 acres on the eastern tip of the island as a Wilderness Area. This acreage is the site of the Live Impact Area of the former bombing range. The law prohibits public access in this area indefinitely to prevent human exposure to safety hazards. The Act requires the Department of the Interior to administer the remaining 13,769 acres of land on eastern Vieques as a National Wildlife Refuge. While the Act does not prohibit public access within the refuge, the Department of the Interior may restrict access in certain areas due to the presence of munitions hazards outside of the Live Impact Area,²² or the need to protect sensitive wildlife populations and their habitat.

The former Eastern Maneuver Area and the Atlantic Fleet Weapons Training Facility as a whole represent the greatest cleanup challenge on Vieques Island, due to the overall size of the land area and the likelihood of severe contamination on the bombing range. The Navy is in the early stages of investigating contamination. Actual cleanup has not begun as of this time. EPA and the Puerto Rico Environmental Quality Board are responsible for providing oversight and guidance.

Status of Cleanup Investigation. The Navy is performing the cleanup investigation in accordance with a Consent Order that EPA issued in January 2000 under the Resource Conservation and Recovery Act (RCRA).²³ Under this order, the Navy is investigating environmental contamination at 12 waste storage and disposal sites within the former Eastern Maneuver Area and the Atlantic Fleet Weapons Training Facility. The sites currently under investigation include 9 “Solid Waste Management Units,” and 3 additional “Areas of Concern” at which contamination is suspected to be present. Of these sites, 8 are located at or near Camp Garcia within the Eastern Maneuver Area, and 4 are located within the Atlantic Fleet Weapons Training Facility. The collective land area of the 12 sites covered under the Consent Order encompasses 80 acres. The order does not require the investigation of the former bombing range, as the range was still in use when EPA issued the order.

The Navy completed a Preliminary Range Assessment in April 2003, which identified areas where munitions may be present. Based on this assessment, the Navy is preparing a work plan for the investigation of contamination on the former bombing range. A Consent Order or other formal cleanup agreement with EPA has not been issued for these areas at this time.

The Governor of Puerto Rico has requested that EPA place the former Eastern Maneuver Area and the Atlantic Fleet Weapons Training Facility on the National Priorities List (NPL) of the nation’s most hazardous sites, along with western Vieques and Culebra Island where the Navy conducted training exercises until 1975. If these areas are listed, DOD, EPA, and the Puerto Rico Environmental Quality Board would enter into a federal

²² The Live Impact Area of the former bombing range served as the target area for offshore live-fire training exercises. While the majority of munitions landed within its perimeter, some may have landed off-target in surrounding areas, including beaches and underwater areas. Land-based maneuvers were also conducted in various portions of eastern Vieques, which involved live-fire training. The extent to which munitions may be present outside of the Live Impact Area is unknown at this time, and will not be determined until the cleanup investigation is complete.

²³ 42 U.S.C. 6901 et seq. RCRA specifies requirements for storing and disposing of solid and hazardous waste, and requires corrective action to clean up environmental contamination that occurs as a result of storage and disposal practices.

facility agreement that would outline a comprehensive cleanup plan in accordance with requirements under CERCLA. Until such an agreement is reached, EPA plans to continue the current site investigation on eastern Vieques under RCRA.²⁴ Regardless of whether the cleanup process is conducted under CERCLA or RCRA, the stringency of the cleanup would likely be the same, as the processes under both statutes are comparable. However, there are other significant issues stemming from the recommended site listing, which are discussed later in this memorandum.

Degree of Cleanup. There has been significant public interest in the extent to which munitions and related contamination will be cleaned up on the eastern end of Vieques Island. The scope of the cleanup will depend on public safety hazards posed by the presence of munitions and whether a pathway of exposure to munitions-related contamination exists. The Live Impact Area of the former bombing range that is to be administered as a Wilderness Area is likely the most contaminated portion of the island. As the National Defense Authorization Act for FY2002 prohibits public access on this land, a pathway of exposure through human contact with soil or surface water presumably would not be present if this prohibition is enforced. Consequently, cleanup may be less extensive than if the land were designated for uses that would involve human presence. However, if the cleanup investigation were to reveal that contamination has migrated off-range and presented a pathway of exposure, the Navy could be subject to more stringent cleanup actions.

Similarly, the Department of the Interior could limit public access to lands outside of the Live Impact Area that are to be administered as a National Wildlife Refuge, if munitions hazards are present. If access to these lands were restricted, the Navy could be subject to less stringent cleanup requirements there as well, unless contamination were to migrate to areas where people are present. Requirements applicable to the removal of munitions and cleanup of related contamination, and potential pathways of exposure on Vieques from the migration of contamination, are discussed below.

Requirements Applicable to Munitions Removal and Cleanup. In 1997, EPA promulgated a Military Munitions Rule²⁵ applicable to operational ranges, in response to requirements under the Federal Facilities Compliance Act of 1992. For purposes of determining applicability to the Solid Waste Disposal Act, these regulations identify when military munitions are considered a solid waste, and if these wastes are also hazardous, the management and disposal standards that apply. According to these regulations, munitions are *not* considered solid or hazardous waste, and are therefore not subject to waste management and disposal requirements under the Solid Waste Disposal Act, until they are removed from the range. However, these regulations do not specify *when* munitions must be removed. Consequently, munitions can remain on an operational range indefinitely, unless contamination from munitions migrates off-range, possibly requiring their removal to eliminate the source of the contamination. The Navy routinely cleared some of the unexploded ordnance from the bombing range on eastern Vieques when the range was operational. The Navy was subject to regulations under the above munitions rule when disposing of *removed* ordnance at the former NASD on the western end of the island.

When removing munitions from former training ranges, DOD is subject to cleanup requirements under CERCLA. This statute specifies how the cleanup is to proceed from site

²⁴ Information obtained in a telephone conversation with EPA Region 2 officials on July 15, 2004.

²⁵ 40 CFR 266, Subpart M.

inspection to the implementation of cleanup remedies. However, it does not specify cleanup standards for specific hazardous substances, such as munitions or contamination that may have leached from munitions into the soil or water. Rather, CERCLA requires responsible parties to clean up contamination according to legally applicable, relevant, and appropriate (federal and state) requirements (ARARs).²⁶

At the time the munitions rule for operational ranges was promulgated, EPA stated that it was postponing final action on the status of military munitions left on closed or transferred ranges, such as the former range on Vieques. The agency's stated intent was to evaluate DOD's rule regarding Closed, Transferred, and Transferring Ranges Containing Military Munitions (also known as the DOD range rule), that was under development at the time. The range rule was proposed in the *Federal Register* in 1997,²⁷ but has not been finalized. When or if such a rule will be promulgated is uncertain at this time.

In lieu of a finalized range rule, DOD has released a variety of guidance documents intended to specify its requirements applicable to closed, transferred, and transferring ranges that could be applied to cleanup as an ARAR. For example, on June 8, 2000, DOD posted a Notice of Availability for its "Interim Range Rule Risk Methodology (IR3M), Supporting DOD's Range Rule."²⁸ The IR3M was intended to serve as a "guidance document to provide a consistent methodology to assess and manage risks posed by military munitions, unexploded ordnance, and other constituents."

In July 1999, DOD issued safety standards for storing and disposing of ammunition and explosives.²⁹ Chapter 12 of this document includes standards for the removal of munitions on former training ranges. These standards specify depths of soil excavation relative to land use, according to which munitions must be removed to protect public safety.³⁰ These standards range from an excavation depth of 10 feet for commercial or residential use³¹ to 1 foot for limited public access uses, such as wildlife preserves. Excavation depths are not specified if there would be no public access to lands where munitions are present, nor is the extent to which munitions must be removed from underwater areas specified.

In addition to safety hazards, munitions can present other risks to human health and the environment. A variety of potentially hazardous substances can leach from munitions into the soil, surface water, and groundwater. There are no uniform standards for the removal of munitions based on threats to human health and the environment, as there are for safety hazards, discussed above. However, CERCLA requires the application of site-specific standards that may be necessary to protect human health and the environment. Such

²⁶ 42 U.S.C. 9621(d).

²⁷ 62 *Federal Register* 50796.

²⁸ 65 *Federal Register* 36423.

²⁹ Department of Defense. *DOD Ammunition and Explosives Safety Standards*. DOD 6055.9-STD. July 1999. The full text is available at: <http://www.ddeb.pentagon.mil/60559s99.pdf>.

³⁰ *Ibid.*, p. 216.

³¹ DOD's safety standards require removal of munitions 4 feet deeper than the depth that would be necessary for construction, which could require excavation deeper than 10 feet depending on the construction depth. For example, a construction depth of 8 feet would require that munitions be removed to a depth of 12 feet.

standards could specify the extent to which munitions must be cleared, if removing them is necessary to eliminate the source of contamination.

In a December 2003 report, the General Accounting Office (GAO, now renamed the Government Accountability Office) looked at the status of cleanup operations at closed DOD facilities that are contaminated with military munitions.³² The GAO report listed over 200 substances that can be present within military munitions and identified 20 of these substances that are of greatest concern due to their widespread use and potential environmental impact. Among these 20 substances are perchlorate, trinitrotoluene (TNT), Royal Demolition Explosive (RDX), His Majesty's Explosive (HMX) and white phosphorus. In addition to these substances, munitions typically contain heavy metals such as lead. Lead that accumulates on a range can leach into the soil or groundwater or be carried off site by storm water. According to guidance prepared by the U.S. Army Environmental Center, these impacts can easily pose an imminent hazard under RCRA, requiring corrective action.³³

At this time, EPA and the states have not established generally applicable standards for all of the potentially hazardous substances that may be present in munitions, which could be used as an ARAR to require cleanup under CERCLA. Site-specific standards still could be applied to address particular threats. However, GAO's report notes that the current understanding of the causes, distribution, and potential impact of substances leaching from munitions into the environment is limited.³⁴ Limited knowledge of the risks that these contaminants pose to human health and the environment could present challenges in developing site-specific standards that are sufficiently protective. The nature of the impacts of substances leached into the environment from munitions, and whether they pose unacceptable risks to human health and the environment, depend on numerous factors, including the pathway of exposure, toxicity, dose, duration, and the sensitivity of the exposed populations. The extent to which potentially hazardous substances have leached from munitions into the environment on Vieques Island will not be known until the site investigations are complete.

Possible Pathways of Exposure. As noted earlier, the prohibition on public access in the Wilderness Area, and the possibility of limited access in the National Wildlife Refuge, would significantly reduce exposure to contamination from contact with soil or surface water. However, there are other possible pathways of exposure if contamination were to migrate outside of these areas. At this juncture, a pathway of exposure to inhabited

³² General Accounting Office. GAO-04-147. *Military Munitions: DOD Needs to Develop a Comprehensive Approach for Cleaning Up Contaminated Sites*. December 2003.

³³ U.S. Army Environmental Center, *Prevention of Lead Migration and Erosion from Small Arms Ranges*, p. 8-9.

³⁴ For example, there has been significant public concern about the potential risks of perchlorate, which is commonly used in munitions propellants. There currently is not an enforceable federal or state drinking water standard for this substance that could be applied to cleaning it up. The National Academy of Sciences (NAS) is studying the health effects of perchlorate to assist EPA in developing a federal drinking water standard. The state of California is in the process of developing a standard as well, and is awaiting the results of the NAS study. While an enforceable federal or state drinking water standard for perchlorate has not been finalized at this time, EPA has applied site-specific standards to the cleanup of perchlorate at some Superfund sites using state public health goals as an ARAR under CERCLA. For a list of examples, refer to EPA's web site at: http://www.epa.gov/fedfac/documents/perchlorate_site_summaries.htm.

areas in the central portion of the island from the migration of contamination through groundwater appears unlikely. The groundwater has not been used as a primary drinking source since 1978 because of high saline levels. The majority of residents receive their drinking water through a public water supply that is piped in from the Puerto Rico mainland.³⁵ A few public and private groundwater wells still exist on the island and are occasionally used when the public water supply is interrupted.

The Agency for Toxic Substances and Disease Registry (ATSDR) released a public health assessment of public drinking water supplies and groundwater on Vieques Island in October 2001.³⁶ The agency concluded that the public water supply was safe to drink. It also concluded that water from wells used when the mainland supply is interrupted is safe to drink, with the exception of one private well that contains water most likely contaminated from agricultural pollution.³⁷ While it appears that contamination from the former bombing range had not migrated to drinking water wells at the time of the ATSDR's assessment, EPA or the Puerto Rico Environmental Quality Board could require the Navy to take actions that would prevent migration in the future.

Another possible pathway of exposure is the consumption of contaminated fish and shellfish. Contamination could migrate into the ocean from storm water runoff from the beaches on the former bombing range or could leach into the ocean from underwater munitions, possibly contaminating fish and shellfish populations. The consumption of contaminated fish and shellfish could pose a risk to human health, depending on the type and concentration of contaminants and extent of exposure. The ATSDR released a public health assessment for the consumption of fish and shellfish around Vieques Island in June 2003.³⁸ The agency conducted a survey indicating that nearly half of the residents on Vieques consume fish one or two times each week. Heavy metals in fish and shellfish were detected, but the agency concluded that the concentrations were too low to harm human health.

These findings have been controversial among local residents who have attributed various symptoms that they have experienced to the consumption of contaminated fish. There appear to be no data to confirm that the consumption of contaminated fish poses a health threat at this time. However, EPA or the Puerto Rico Environmental Quality Board could require the Navy to take cleanup actions that would prevent migration of contamination into the ocean, based on the possibility that the concentration of contaminants in fish and shellfish could rise to harmful levels in the future if migration were to occur.

³⁵ As a result of the salt water intrusion into the groundwater, an underground pipeline was built in 1977 from the Puerto Rico mainland. Most residents receive their drinking water from this pipeline. This water is stored in above-ground tanks prior to distribution.

³⁶ Agency for Toxic Substances and Disease Registry. *Public Health Assessment: Drinking Water Supplies and Groundwater Pathway Evaluation, Isla De Vieques Bombing Range, Vieques, Puerto Rico*. October 16, 2001. The full text of the assessment is available on the agency's web site at: http://www.atsdr.cdc.gov/HAC/PHA/vieques/vie_toc.html.

³⁷ The ATSDR reports that a public health hazard advisory has been issued for this well, and that residents have been personally informed that the water from this well is not safe to drink.

³⁸ Agency for Toxic Substances and Disease Registry. *Public Health Assessment: Fish and Shellfish Evaluation, Isla De Vieques Bombing Range, Vieques, Puerto Rico*. June 27, 2003. The full text of the assessment is available on the agency's web site at: <http://www.atsdr.cdc.gov/HAC/PHA/viequesfish/viequespr-toc.html>.

Cleanup Costs at Eastern Vieques. The National Defense Authorization Act for FY2002 did not address liability for the costs of environmental cleanup on eastern Vieques in authorizing the transfer of these lands from the Navy to the Department of the Interior. As is the case for the former Naval Ammunition Support Detachment on western Vieques, the Memorandum of Agreement for the transfer of lands on the eastern side of the island to the Department of the Interior stipulated the Navy's acceptance of the liability for the entire cleanup of contamination that was present at the time of the transfer. (A copy of this agreement is enclosed.) The memorandum specifies that:

... [the] Navy shall have sole and exclusive federal responsibility to fund and implement any Response Actions (including operation and maintenance) required by applicable law or implementing regulations, including but not limited to CERCLA and RCRA, to address Environmental Contamination resulting from the activities or presence of DOD (including entities acting with permission or under the authority of or in a contractual relationship with DOD) or which is present at the time of the transfer by [the] Navy to [the Department of the] Interior (including contamination subsequently discovered), except to the extent that [the Department of the] Interior or a third party caused or contributed to such contamination after the date of the transfer.³⁹

As is the case for the cleanup of the Naval Ammunition Support Detachment, the Navy will allocate funding for cleanup on the eastern side of Vieques from its Defense Environmental Restoration Account. As noted earlier, this account is funded in the annual appropriations bill for DOD. Congress does not typically specify how funding under the environmental restoration accounts is to be allocated among contaminated sites. Rather, the Navy will determine the allocation of funding for the cleanup on eastern Vieques on an annual basis, taking into consideration the availability of appropriations by Congress and the competing cleanup needs of the other contaminated sites for which the Navy is responsible.

The Navy has calculated preliminary estimates of the costs to complete cleanup on eastern Vieques. As indicated in the table on page 3, these estimates total \$103 million from FY2004 through site completion. The accuracy of these estimates depend on numerous factors. Among these factors is whether the land continues to be administered as a National Wildlife Refuge and a Wilderness Area by the Department of the Interior, as required by current law. Some stakeholders advocate the transfer of these lands to private property developers. If Congress were to amend the law to allow the property to be transferred to a private entity for a land use with a greater potential for human exposure, the cleanup could be more costly. For example, if the land were used for tourism or residential development, the degree to which the contamination would need to be remediated could be more stringent and therefore more costly. Costs estimates for the removal of munitions and related cleanup, and for non-munitions cleanup, are discussed separately below, including a breakdown of the total \$103 million estimate.

Cost Estimates for Munitions Removal and Related Cleanup. In May 2004, the Navy estimated costs of \$2 million in FY2004 and \$8 million in FY2005 for investigating the presence of munitions and munitions-related contamination on the former bombing range, and other areas of eastern Vieques where munitions may be present.⁴⁰ Costs

³⁹ Memorandum of Agreement between the Navy and the Department of the Interior. April 30, 2003. Article VI(A). p. 6.

⁴⁰ Information obtained from a written communication with the Department of the Navy, Office of (continued...)

in FY2004 are for developing and implementing work plans to perform these site investigations, to define the sites where the investigations are to be conducted, and to prepare a preliminary munitions response plan for eastern Vieques. Costs in FY2005 are for conducting investigations for which work plans are complete and for beginning the removal of munitions in areas where completed site investigations indicate the greatest risk. The Navy plans to continue site inspections in other areas and to collect data to assess the overall scope of its munitions response plan for eastern Vieques.

The Navy has estimated additional costs of \$76 million to clean up the former bombing range and other munitions training areas from FY2006 and “beyond.”⁴¹ This estimate covers the Live Impact Area (900 acres), Eastern Conservation Area (200 acres), Surface Impact Area (2,500 acres), Eastern Maneuver Area (6,000 acres with munitions concern), and beaches (public access, except for the Live Impact Area.) The Navy considers its cost estimate of \$76 million to be preliminary. This estimate may require further calculation as more is learned about the presence of munitions that will require clearance. Significant uncertainties will remain until the site investigations are complete, and the level of munitions clearance is established.

The Navy assumes that \$30 million of its \$76 million estimate would be for munitions removal and related cleanup around the 900 acres that constituted the Live Impact Area of the former bombing range. The \$30 million would be for conducting surface sweeps to clear munitions along the perimeter of this area to allow the Department of the Interior to enforce the statutory prohibition on public access, respond to fires, and manage protected habitat. This amount also includes costs for the construction of fences at key points to prevent public access, and the posting of signs to warn possible intruders of access restrictions due to safety hazards. The Navy’s cost estimate does not include removal of munitions or the cleanup of munitions-related contamination within the 900-acre area itself. The Navy’s estimate does not include costs for these actions based on its assumption that enforcement of the statutory prohibition on public access would prevent exposure to safety or health hazards. However, these costs could rise if contamination were to migrate off-range and present a pathway of exposure, possibly requiring the clearance of munitions to eliminate the source of the contamination.

Cost Estimates for Non-Munitions Cleanup. In May 2004, the Navy estimated costs of \$1.9 million in FY2004 and \$1.0 million in FY2005 to conduct site investigations at the 12 sites identified in the RCRA Consent Order.⁴² As noted above, investigation of potential contamination at these sites does not include the former bombing range, or other areas where munitions may be present. These cost estimates are based on actions to which the Navy and EPA have formally agreed under the Consent Order. The Navy estimates additional costs of \$14 million through 2014 to complete all necessary actions to clean up contamination at these sites. The Navy based this estimate on previous environmental assessments performed prior to the RCRA Consent Order.

⁴⁰ (...continued)

Legislative Affairs, Office of the Secretary of Defense, May 10, 2004.

⁴¹ Ibid.

⁴² Ibid.

Cleanup completion costs could be higher than estimated if the earlier assessment did not identify all contamination, possibly resulting in more extensive cleanup actions being required. Even if the earlier assessment is accurate, the Navy's assumed cleanup actions have not received approval from EPA, which would not occur until the site investigation is complete and actions to address the contamination have been selected. Costs could be higher if EPA were to require more extensive actions than the Navy has assumed.

Comparison to Cleanup Costs on Kaho'olawe Island. Numerous press articles have stated that the roughly \$400 million⁴³ in cleanup costs of the Navy's former bombing range on Kaho'olawe Island⁴⁴ in Hawaii is an indicator of the "true" costs facing the Navy at Vieques. The Navy began a comprehensive cleanup of the island in 1993 and transferred control of access to the State of Hawaii in November 2003 upon completion of the cleanup. The Memorandum of Agreement for the transfer of Kaho'olawe from the Navy to the State of Hawaii specified that munitions would have to be cleared to a level that would allow public access. The agreement stipulated that all munitions would be cleared from 100% of the surface, and that 25% of the land would be restored to the point that it would be safe for multiple uses, one of which is human habitation.⁴⁵ There has been disagreement as to whether the Navy met these standards in cleaning up the island.

There are no munitions clearance levels stipulated in the Memorandum of Agreement for the transfer of land on Vieques Island from the Navy to the Department of the Interior. As discussed earlier, the National Defense Authorization Act for FY2002 prohibits public access in the former Live Impact Area that is to be managed as a Wilderness Area. The Act does not specify the extent to which the public may have access to other lands in eastern Vieques that the Department of the Interior is to manage as a National Wildlife Refuge.

From a public safety standpoint, neither of the above land uses would necessitate the clearance of munitions at Vieques to address explosive hazards, which are similar to clearance levels at Kaho'olawe Island. Consequently, the extent and costs of removing munitions may be lower at Vieques. However, if contamination on the former bombing range on Vieques were to migrate and present a pathway of exposure, a more extensive and costlier cleanup than the Navy has assumed may be required.

⁴³ Congress appropriated a total of \$460.5 million for the cleanup of Kaho'olawe Island from FY1993 through FY2004. Beginning in FY1995, Congress appropriated funds for this purpose under a new line-item account, the Kaho'olawe Island Conveyance, Remediation, and Environmental Restoration Trust Fund, to set aside dedicated funds for the cleanup.

⁴⁴ Kaho'olawe Island is located six miles southwest of Maui and covers a land area of approximately 28,000 acres. The Navy used the uninhabited island as a bombing range for training exercises from 1941 through 1990. The entire island was used for training purposes up to the 1970's. After that time, only 1/3 of the island was used for these activities. See the Navy's web site for additional background information at: <http://www.hawaii.navy.mil/CNBDATA/Kahoolawe/index.htm>.

⁴⁵ Memorandum of Agreement between the Navy and the State of Hawaii, May 6, 1994, Article VI. The full text of the Memorandum of Agreement is available on the above web site. As passed by the Senate, Section 314 of the National Defense Authorization Act for FY2003 (S. 2514, S.Rept. 107-151) would have revised the terms of the Memorandum of Agreement to require the Navy to remove munitions from 75% of the *surface* of Kaho'olawe Island, rather than 100%, due to concern about the feasibility of removing munitions from all surface areas. This provision was not adopted in conference, which kept the original cleanup standard of the memorandum intact.

Culebra Island

Culebra Island is located nine miles north of Vieques Island, and was once part of a comprehensive training range complex for the Navy along with Vieques. President Roosevelt placed Culebra Island under the control of the Navy in 1901, and the Navy conducted training exercises on the island and its surrounding waters through 1975. In response to concern about public safety hazards posed by live-fire training on Culebra, Congress included provisions in Section 204 of the Reserve Forces Facilities Authorization Act of 1974, which directed the Navy to cease its operations on and around the island and to relocate them elsewhere.⁴⁶

In accordance with this Act, the Navy turned the land over to the General Services Administration in 1975 for transfer to non-federal entities for conservation and public recreational purposes. The federal government retained a portion of the land, which is currently managed as a National Wildlife Refuge by the Department of the Interior. For safety purposes, public access was to be limited in areas of the transferred land where munitions were present. Section 204(c) of the 1974 Act addresses the expenditure of federal funds for environmental cleanup on the island:

Notwithstanding any other provision of law, the present bombardment area on the island of Culebra shall not be utilized for any purpose that would require decontamination at the expense of the United States. Any lands sold, transferred, or otherwise disposed of by the United States as a result of the relocation of the operations referred to in subsection (a) [ship-to-shore and other gun fire and bombing operations of the U.S. Navy] may be sold, transferred, or otherwise disposed of only for public park or public recreational purposes.⁴⁷

Several legal issues are raised by the above provision. The threshold issue is whether it bars federal expenditures or *land uses* – that is, whether it prohibits any decontamination expenditures by the United States on Culebra or, read more literally, prohibits land uses that would require decontamination expenditures by the United States. The two readings are quite different. The first blocks any federal expenditure for cleanup, while the second contemplates the possibility of federal expenditure for this purpose in certain circumstances (as the result of pre-1974 activities, or post-1974 activities, improperly allowed or carried out in open violation of the act).

If this initial issue is resolved in favor of prohibiting all payments by the United States for cleanup after 1974, a second issue arises. What is the effect of CERCLA's enactment in 1980, and subsequent amendments in 1986 that clarified the applicability of CERCLA to federal facilities? The broad cleanup authorities in CERCLA, on their face, recognize no exception for Culebra. Thus, one must ascertain whether CERCLA by implication amends the 1974 law to repeal its expenditure-barring language, or whether the 1974 prohibition remains in effect as an exception to CERCLA. If the 1974 language is construed merely as a land use prohibition, there would not be a conflict with CERCLA, which would allow the federal government to pay for cleanup actions if the land *is* being used for purposes that would require remediation to protect human health and the environment. This issue is fundamentally legal in nature and is beyond the scope of this memorandum. At this time,

⁴⁶ P.L. 93-166, Section 204.

⁴⁷ P.L. 93-166, Section 204(c).

CRS is not aware of any litigation regarding the authority of the federal government to pay for the cleanup of Culebra Island.

To protect public safety, the Army Corps of Engineers has paid for the limited removal of some munitions from the surface of the island in publicly accessible areas since 1995. These areas include beaches and campgrounds where munitions have been found in the soil or have washed up on the beach from the ocean. The Corps has conducted these removal actions with authorities provided under CERCLA to address immediate threats. The Corps, rather than the Navy, has performed these actions, as the Corps is responsible for cleaning up all Formerly Used Defense Sites (FUDS). These sites are properties formerly owned or leased by DOD, which were decommissioned prior to the first round of base closings in 1988. The Corps included the former bombardment areas at Culebra Island in the FUDS program, as these areas were decommissioned in 1975.

Through the end of FY2003, the Corps reports that it had spent \$1.6 million on the removal of munitions on Culebra Island, and estimates that additional funds of \$14.4 million will be needed from FY2004 through completion of planned removal actions (extent of removal and completion date not specified).⁴⁸ The funding for these activities comes out of the Defense Environmental Restoration Account for FUDS sites. As is the case for the Navy, Congress appropriates funding for the Corps' Defense Environmental Restoration Account in the annual appropriations bill for DOD. The Corps allocated the above \$1.6 million in funding for the removal of munitions on Culebra Island from this account, based on the availability of annual appropriations and the competing cleanup needs of other FUDS sites across the country.⁴⁹

Status of Requested NPL Site Listing

In June 2003, the Governor of Puerto Rico, Sila M. Calderon, requested that EPA list Vieques Island and nearby Culebra Island as a single site on the National Priorities List (NPL) of the nation's most hazardous waste sites.⁵⁰ (A copy of the governor's request is enclosed.) Local residents have expressed concern about the pace and degree of the cleanup that is being done on Culebra, and have advocated including it in the NPL site listing along with Vieques. In response to local concern about risks to fisheries, swimmers, and divers,

⁴⁸ Department of Defense. *Defense Environmental Restoration Program Annual Report to Congress for FY2003*. April 2004. Appendix B, p. B-2-19.

⁴⁹ As of the end of FY2003, DOD reports that there were 2,233 FUDS sites in the United States where cleanup was not complete, and estimated that \$15.6 billion in funding would be necessary to complete cleanup at these sites, of which \$12 billion would be for removing unexploded ordnance and cleaning up munitions-related contamination. Department of Defense. *Defense Environmental Restoration Program Annual Report to Congress for FY2003*. April 2004. Appendix B, p. B-6-1. Appendix C, p. C-5-1.

⁵⁰ CERCLA allows the governor of each state or U.S. territory to designate one site for inclusion in the NPL (42 U.S.C. 9605(a)(8)(B)). This authority had not been used in Puerto Rico prior to the governor's request to list Vieques and Culebra on the NPL. EPA primarily adds sites to the NPL based on the Hazard Ranking System (HRS), which assesses potential threats to human health and the environment. A site listed at the request of a governor is not subject to scoring under the HRS to determine eligibility for listing. However, an HRS assessment may be useful in informing the cleanup process. For further information on the HRS, refer to EPA's web site at: http://www.epa.gov/superfund/programs/npl_hrs/hrsint.htm.

Governor Calderon requested that underwater areas around both islands, which contain munitions, be included in the site listing. (A site description is enclosed, which indicates the extent of the areas that would be included in the listing.)

In December 2003, EPA forwarded a recommendation for listing the above areas on the NPL to the Office of Management and Budget (OMB). Listing a site on the NPL is subject to standard federal rulemaking procedures, involving formal notice of the proposed listing in the *Federal Register*, receipt and consideration of public comment, and notice of final listing in the *Federal Register*. OMB has not approved the notice of proposal for the site listing at this time.

If the NPL site listing is finalized, DOD would perform the entire cleanup under CERCLA, with oversight from EPA and the Puerto Rico Environmental Quality Board. As discussed earlier, the Navy and EPA are currently conducting cleanup investigations in a relatively small area of 80 acres under RCRA in eastern Vieques. Cleanup at these sites would be performed in accordance with CERCLA if the area recommended for listing is finalized. Until a final decision is made regarding the site listing, it is unclear whether RCRA or CERCLA would be used to govern the cleanup on the remaining areas of eastern Vieques, including the former bombing range. As the Army Corps of Engineers has been performing the cleanup on Culebra Island in accordance with CERCLA, including it in the site listing would not alter the statute applicable to the cleanup there.

Implications of an NPL Site Listing for Environmental Cleanup

The primary argument in favor of listing Vieques and Culebra on the NPL is the potential for an expedited cleanup through greater coordination among DOD, EPA, and the Puerto Rico Environmental Quality Board. If the recommended areas are listed, these three entities would enter a comprehensive federal facility agreement that would outline a plan for the entire cleanup. A comprehensive agreement might be more efficient than entering separate agreements for each contaminated area. Putting a single agreement in place also might help to avoid potential confusion as to which requirements are applicable to the cleanup of contaminated areas.

Proponents of the site listing also maintain that there is the potential for gaining approval of cleanup actions more quickly on eastern Vieques under CERCLA, rather than RCRA, as there generally are fewer administrative procedures for the approval of such actions under CERCLA. For example, RCRA typically requires permits to be obtained prior to the implementation of cleanup actions, whereas CERCLA does not. While the Navy would not be subject to RCRA's permitting procedures under CERCLA, the Navy would still be subject to procedures for obtaining a Record of Decision (ROD) for the approval of remedial actions. RODs are subject to federal rulemaking procedures that require a formal notice of proposal in the *Federal Register* and an opportunity for public comment before a proposed action can be finalized. Regardless of differences in administrative procedures, performing the cleanup under CERCLA would not alter the stringency of the cleanup relative to RCRA, as the cleanup requirements under both statutes are very similar.

Proponents also favor a comprehensive site listing for Vieques and Culebra from the standpoint of community involvement. If the recommended site listing is finalized, DOD would be authorized to provide a *centralized* public forum through which local residents could obtain information on all of the cleanup actions at Vieques and Culebra. Without a

comprehensive site listing, the opportunity for public participation might be splintered among *separate* forums directed at discrete areas of each island.

DOD is authorized to provide two different types of forums through which the community is informed about cleanup actions that are being considered. DOD may establish a Technical Review Committee at a site under its jurisdiction where there is a release or a threatened release of a hazardous substance, and may establish a Restoration Advisory Board at a site under its jurisdiction where environmental restoration activities are being planned or implemented.⁵¹ These committees or boards usually hold meetings on a quarterly basis to inform the public about the status of the cleanup and provide citizens with the opportunity to express concerns about proposed actions in person to federal and state officials.

DOD reports that it formed a Technical Review Committee in FY2001 to inform citizens about the status of cleanup on former NASD lands located on western Vieques.⁵² At the request of the community, DOD indicates that it plans to convert this committee into a Restoration Advisory Board in FY2004.⁵³ If the recommended site listing is finalized, all of Vieques and Culebra would be treated as a single site, authorizing DOD to establish *one* board through which citizens would receive comprehensive information regarding the cleanup. Otherwise, DOD might establish a separate board for each contaminated area of Vieques and Culebra, requiring citizens to attend meetings in numerous locations to gain a comprehensive understanding of cleanup actions that are being considered.

Related to the issue of community involvement, an NPL site listing would make grant funds available for technical assistance to help citizens interpret and review documents and other information on cleanup actions being considered. CERCLA authorizes EPA to award up to a total of \$50,000 in grants for technical assistance to communities located adjacent to an NPL site.⁵⁴ In March 2004, EPA awarded a technical assistance grant in the amount of \$20,000 to community groups to help citizens understand the cleanup investigation on eastern Vieques that is currently being done under RCRA.⁵⁵ EPA reports that it was able to award this grant with discretionary funds of the Office of the Administrator.⁵⁶ If the recommended NPL site listing is finalized, the residents of Vieques and Culebra would be eligible to receive up to \$50,000 in funds for technical assistance under CERCLA, which would be in addition to the \$20,000 grant that EPA has already awarded under the RCRA investigation.

While there are potential benefits to an NPL site listing with regard to the pace of cleanup and community involvement, the Navy would not be required to clean up contaminated areas to a more stringent level if the site is listed. CERCLA (or RCRA) apply

⁵¹ 10 U.S.C. 2705(c)-(d). For further information on stakeholder involvement, refer to DOD's web site at: http://www.dtic.mil/envirodod/Stakeholder/WCommunity/SI_WCRAB.htm.

⁵² Department of Defense. *Defense Environmental Restoration Program Annual Reports to Congress for FY2004*. April 2004. Appendix A, p. A-149.

⁵³ Ibid.

⁵⁴ 42 U.S.C. 9617(e).

⁵⁵ For more information, see EPA's web site at: <http://www.epa.gov/region02/news/2004/04040.htm>.

⁵⁶ Information obtained in a telephone conversation with EPA Region 2 officials on July 28, 2004.

to contaminated areas even if they are not listed on the NPL.⁵⁷ Rather, the NPL identifies potentially contaminated sites that warrant investigation and serves as a list of priorities for information and planning purposes. Listing a site on the NPL does not determine the degree of cleanup, nor does it increase the availability of funding.

However, if the Navy were designated as being solely responsible for the cleanup under the site listing, instead of jointly with the Corps, less funding might be available for cleanup. As discussed earlier, cleanup funding for Vieques currently comes out of the Navy's Defense Environmental Restoration Account, and cleanup funding for Culebra currently comes out of the Corps' Defense Environmental Restoration Account for FUDS sites. If the Corps' current responsibilities at Culebra are transferred to the Navy under a single site listing, the FUDS account may no longer be available, leaving only the Navy's account to fund the cleanup.

From the standpoint of the opportunity to bring citizen suits, there is also a possible disadvantage to performing the cleanup under CERCLA, rather than RCRA, regardless of whether Vieques and Culebra are listed on the NPL. While EPA and the Puerto Rico Environmental Quality Board are responsible for overseeing the cleanup, the right of citizens to sue is a means by which the community can take enforcement action against DOD if the department does not conduct the cleanup in accordance with statutory and regulatory requirements. CERCLA and RCRA differ in at least one substantial way, with regard to the time frame within which citizens have the right to sue. The citizen suit provision in CERCLA (or any other federal law) cannot be invoked in most "challenges to removal and remedial action" under CERCLA,⁵⁸ until the removal or remedial action is *completed*.⁵⁹ Cleanup actions taken under RCRA have no such timing restriction.⁶⁰ Citizens may sue under RCRA at any point during the cleanup process, as opposed to *after* the completion of the action in question under CERCLA.

Conclusion

Whether or not Vieques and Culebra are listed on the NPL, and regardless of whether CERCLA or RCRA are applied, the extent of the cleanup will depend on threats to human health and the environment and the types of remediation that will be deemed necessary to address these threats. The pace of the cleanup will depend on the extent to which the site investigations reveal *immediate* threats that require time-critical removal actions. Otherwise,

⁵⁷ CERCLA applies to the release of hazardous substances in the United States, whether or not a site is listed on the NPL (42 U.S.C. 9604). RCRA applies to the management and disposal of solid and hazardous wastes, and requires corrective actions to clean up contamination resulting from these activities (42 U.S.C. 6901 et seq.). DOD is required to implement its Defense Environmental Restoration Program in accordance with CERCLA, regardless of whether or not a site is listed on the NPL (10 U.S.C. 2701(a)). However, in practice, DOD follows requirements under RCRA, rather than CERCLA, to clean up contamination at *active* waste disposal sites operated with permits issued under RCRA. For example, the Navy is conducting a cleanup investigation under RCRA on eastern Vieques, as its facilities on these lands were active at the time the investigation began in 2000. The stringency of the cleanup is essentially the same under CERCLA or RCRA, as the cleanup processes are very similar under both statutes.

⁵⁸ 42 U.S.C. 9659.

⁵⁹ 42 U.S.C. 9613(h). See, *Clinton County Commissioner v. U.S. EPA*, 116 F.3d1018 (3rd Cir. 1997).

⁶⁰ 42 U.S.C. 6972.

long-term remedial actions may be used to address *potential* threats of exposure. Depending on the remedy selected and the quantity of contamination, long-term remediation can take several years or even decades in some cases, making for a lengthy cleanup.

Whatever actions are required, the progress of cleanup will ultimately depend on the availability of federal funding to pay for the remediation. The Defense Environmental Restoration Accounts are currently the only source of funding for cleanup on Vieques and Culebra. How much would be available under these accounts for these areas is limited by annual appropriations by Congress and the competing needs of other contaminated sites across the country. The availability of federal funding for cleanup at Culebra is further complicated by the legal issue of whether the Reserve Forces Facilities Authorization Act of 1974 prohibits federal expenditure for decontamination of the island.