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Report to Congressional Requesters

April 2002

ENVIRONMENTAL CLEANUP

Better Communication Needed for Dealing with Formerly Used Defense Sites in Guam

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G A O
Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

April 11, 2002

The Honorable Joel Hefley
The Honorable Gene Taylor
The Honorable Robert Underwood
House of Representatives

The unexpected discovery of World War II-era chemical testing kits containing diluted mustard gas and other chemicals on private property in Guam, apparently left when the Department of Defense (DOD) relinquished use of the property, has raised questions about other contamination that may remain in Guam and the adequacy of DOD's efforts to identify and address the contamination. DOD is responsible for cleaning up the environmental contamination resulting from its past operations throughout the United States and its territories—a huge undertaking that involves both public and private lands and tens of billions of dollars. The task is especially complicated on formerly used defense sites—property formerly owned or used by DOD and now owned by private parties or other government agencies—because DOD often does not know where all of the contamination is located or what types of contamination may exist.

Identifying and addressing environmental contamination is particularly challenging on the island of Guam, a U.S. territory located in the western Pacific Ocean. Guam was a battlefield for U.S. and Japanese military forces during World War II, and it has been a strategic location for U.S. forces ever since. The entire island was under direct military control following the defeat of Japanese forces in Guam in 1944, and DOD retained control of more than one-third of Guam's 212 square miles following the establishment of civilian rule in 1950. Over the years, contamination of the soil and water occurred as DOD, in carrying out its mission, disposed of its hazardous waste. DOD also disposed of uncontaminated debris, such as jeep parts and other material. The location of such waste may not be known because, until the 1970s, disposal of contaminated waste and debris was not subject to stringent environmental laws, and DOD did not maintain comprehensive records on its disposal practices.

A number of federal and other agencies are involved in DOD's environmental restoration program in Guam. For example, on active (including closing) DOD installations, the Air Force and the Navy are responsible for identifying and addressing contamination. On formerly

used defense sites, DOD has delegated this responsibility through the Army to the Corps of Engineers. The U.S. Environmental Protection Agency (EPA) and the Guam Environmental Protection Agency (Guam EPA) provide regulatory oversight for DOD's environmental restoration program. DOD military services are also required to consult with the community—for example, by establishing restoration advisory boards to receive community input on specific environmental cleanup projects.

Concerned about such incidents as the discovery of discarded chemical testing kits, you asked us to determine (1) DOD's process for identifying locations of possible contamination and what locations were identified in Guam and (2) the nature and extent of concerns about identifying and addressing contamination in Guam raised by regulators and other stakeholders, such as restoration advisory board members.[1]

Results in Brief

DOD's process for identifying potentially contaminated locations in Guam has changed over the years. From the time DOD's identification efforts began in the early 1980s until the mid-1990s, this process involved actively searching records, maps, and other sources of information for such locations. This was a challenging task in Guam, especially on formerly used defense sites, given the contamination and debris that resulted from war-time battles and the limited records on disposal activities that occurred decades before identification efforts began. In the mid-1990s, partly in response to congressional direction to become more aggressive in cleaning up known contamination instead of continuing to identify new locations, DOD scaled back its identification efforts nationally. Since then, DOD has limited its efforts to search for potentially contaminated locations in Guam and has relied primarily on referrals from Guam EPA and on incidental discovery during construction and other operational activities to identify potentially contaminated locations. Through the mid-1990s, DOD identified a total of 202 potentially contaminated locations, including 155 on active installations and 47 on formerly used defense sites. Since then, using this more limited approach to identify potential contamination, five additional locations have been identified in Guam—four on active installations and one on a formerly used defense site. Based on DOD's extensive past activities in Guam and the continuing discoveries

[1] For this report, the term "stakeholders" means EPA or Guam EPA regulators, restoration advisory board members, or community members.

of potentially contaminated locations, stakeholders believe that additional contaminated locations likely exist.

Stakeholders had no major concerns about DOD's restoration program on active military installations in Guam, but they had three concerns regarding the Corps' efforts to identify and address contamination on formerly used defense sites. First, they were uncertain about the Corps' current process for adding potentially contaminated locations to its Guam inventory. Stakeholders need clear referral policies and procedures because they are the primary source of referrals of such locations to the Corps. However, the Corps has not developed written guidelines for stakeholders to use in referring such locations to it, including the information stakeholders should provide. Furthermore, the Corps has not effectively communicated to stakeholders the actions it plans to take on referrals. Regulators said that because the process is unclear, they have no assurance that the Corps has properly considered the referred locations for inclusion in its Guam inventory. Second, stakeholders were concerned that some locations containing debris such as metal and tires were excluded from consideration, even though the waste was caused by DOD and could place a financial burden on the owner to remove it. These exclusions, however, are consistent with DOD policy, which provides that DOD will only clean up debris that poses a threat to human health or the environment. Third, stakeholders were concerned about the slow pace of funding to clean up locations that had been identified as eligible for the program. Between fiscal year 1984 and 2000, 4 percent of the total expected cost of cleaning up these locations had been funded in Guam, compared with 16 percent nationwide. The Corps' explanation of this difference is that, even though contaminated locations in Guam pose risks to human health and the environment that are similar to risks posed by such locations nationally, unfunded projects in Guam have ranked lower when the work is sequenced. When sequencing work, the Corps considers not only a contaminated location's risk but also such factors as opportunities to group projects together, especially in remote areas where logistics are difficult and transportation costs are high, and concerns expressed by affected stakeholders.

We are recommending that DOD, through the Army, develop written guidelines for stakeholders in Guam to use when referring potentially contaminated locations to the Corps and identify the information stakeholders should include when they refer such locations. We are also recommending that DOD, through the Army, improve efforts to communicate with stakeholders in Guam to better inform them about policies and procedures for referring potentially contaminated locations to

the Corps and actions it plans to take on referrals it receives. In commenting on our draft report, DOD agreed with both of our recommendations.

Background

Under its environmental restoration program, DOD is responsible for identifying and cleaning up contamination that is a threat to human health or the environment and resulted from its past activities on active and closing installations and on formerly used defense sites. The types of contamination include petroleum products; heavy metals, such as lead and mercury; paints and solvents; and other hazardous substances. The restoration program also covers substances that may not be contaminants, such as ordnance and explosive waste and unsafe buildings and debris. The program is guided primarily by the Superfund Amendments and Reauthorization Act of 1986, which amended the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.[2] DOD's program also must comply with applicable state laws. Under federal and state law, the EPA and state regulatory agencies oversee DOD's restoration program.

The Office of the Deputy Under Secretary of Defense, Installations and Environment, formulates policy and provides oversight for the restoration program. In fiscal year 1997, program funding was partitioned into five environmental restoration accounts: Army, Navy (including Marine Corps), Air Force, formerly used defense sites, and defensewide. The military services plan, program, and budget for individual restoration projects. The Air Force administers its program through its Environmental Restoration Branch; the Navy, through its Naval Facilities Engineering Command; and the Army, through its Environmental Center. The Army also administers the program at formerly used defense sites through the Environmental Division of the U.S. Army Corps of Engineers. The restoration program at installations designated for closure or mission

[2] The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, governs cleanup of the Nation's most severely contaminated federal and nonfederal hazardous waste sites. The Superfund Amendments and Reauthorization Act of 1986, which amended that act, formally established DOD's environmental restoration program. In addition, under the Resource Conservation and Recovery Act of 1976, as amended, a facility that treats, stores, or disposes of hazardous waste must clean up current and prior contamination under an order or as a condition of obtaining a permit from EPA or a state agency authorized by EPA.

realignment is funded separately, through the Base Realignment and Closure program.[3]

DOD's environmental restoration program is one of the largest in the United States, containing over 28,000 potentially contaminated locations, and involves several stages. First, potentially contaminated locations must be identified. Next, restoration program officials assess locations to determine if they are eligible for cleanup under the program. If a location is found to be on an active installation or a formerly used defense site and is contaminated from past DOD activities, the location is evaluated for risk and, if cleanup is necessary, a cleanup approach is selected.[4] Because DOD has many projects in its inventory, it sets priorities for sequencing the work. Eventually, the location is cleaned up or a remedy is put in place and, if necessary, is monitored to ensure protection of human health and the environment. Through fiscal year 2000, DOD had spent over $17 billion on its restoration program. Cleanup at most locations is scheduled for completion by 2074, and the total expected cost of the program is projected to be over $42 billion.[5]

[3] Under the Base Realignment and Closure program, DOD identifies and implements domestic military base realignments and closures authorized by federal legislation during 1988-1995.

[4] We are currently examining the process DOD uses to determine that no further action is needed to clean up formerly used defense sites.

[5] Included in this estimate are DOD costs for addressing contamination on active installations as well as formerly used defense sites and properties removed from DOD's control as part of its Base Realignment and Closure program.

DOD Scaled Back Its Efforts to Identify Additional Contaminated Locations as Attention Shifted to Cleaning Up Locations Already Identified

DOD's efforts for identifying locations in Guam that may have environmental contamination have been scaled back since the mid-1990s. Under the current approach, DOD generally limits its efforts to search for potentially contaminated locations, instead concentrating on cleaning up locations already identified. Of the known contaminated locations in Guam, most were identified when DOD, under an earlier approach, funded major efforts to search for them. For both DOD-owned property and formerly used defense sites, the Navy, the Air Force, and the Corps conducted multiple organized searches for contamination in the 1980s and early 1990s, usually through contracts with private companies. The searches included activities such as reviewing records and historical photographs, observing property conditions, and interviewing knowledgeable individuals. If contamination was discovered or suspected during a search, the location could be added to DOD's inventory. Since the mid-1990s, however, DOD has shifted its focus to cleaning up contamination and generally has limited its efforts to search for potentially contaminated locations. Since then, potentially contaminated locations on active military installations have been discovered through normal operations and construction activities, while the Corps has relied primarily on regulators or community residents to bring potentially contaminated locations on formerly used defense sites to its attention. DOD has added far fewer locations to the Guam inventory since the change in program emphasis. However, based on DOD's extensive past activities in Guam and the continuing discoveries of potentially contaminated locations, regulators and other stakeholders believe that additional undetected contamination may exist in Guam and that a continuing process to identify that contamination is needed to protect human health and the environment.

DOD's Searches Have Identified Many Potentially Contaminated Locations

Starting in the 1980s, DOD agencies conducted several searches to identify potentially contaminated locations in Guam. The Navy, the Air Force, and the Corps used similar approaches that generally involved hiring contractors to, among other techniques, review archived records, maps, and photographs; inspect property; and interview knowledgeable individuals. These searches occurred on different occasions over the

years.[6] For example, between 1984 and 1994, the Corps conducted three separate searches in Guam to identify contaminated locations. According to a Corps Honolulu District Office official, more than one search was conducted because Corps officials had concerns that all contaminated locations may not have been identified in the prior studies. The identification of formerly used defense sites can be difficult in Guam because land use and property transfer records are hard to locate and are often incomplete.

Searches by the Navy, the Air Force, and the Corps identified a large number of potentially contaminated locations on both active DOD properties and formerly used defense sites.[7] In addition, several potentially contaminated locations were brought to DOD's attention through referrals from other parties, such as Guam EPA. For all of Guam, a total of 202 potentially contaminated locations were included in the DOD inventory, including 155 on active installations and 47 on formerly used defense sites. The circumstances varied under which DOD used these locations, as did the types of hazardous waste and debris they contained. For example, for years the Air Force disposed of construction debris, aircraft components, ordnance, and chemical waste, such as pesticides, on private property located on the cliff-line boundary of Andersen Air Force Base. At the same time, the Navy disposed of paints, paint thinners, battery casings, and other material on its own property, which was located near the ocean at Orote Point, Guam. Figure 1 shows the Navy's disposal site before environmental restoration action began.

[6] In addition to searches conducted under the environmental restoration program, some installations conducted searches for solid waste locations to address requirements under the Resource Conservation and Recovery Act of 1976, as amended, and some Navy installations conducted searches to meet DOD property transfer requirements under the Base Realignment and Closure program.

[7] A number of the locations initially identified in the searches were not added to the Guam inventory because they were duplicate locations or did not meet program eligibility requirements. For example, one of the Corps' searches in Guam identified hundreds of potentially contaminated locations, but after analyzing the data and doing some additional investigation, the Corps added only 32 locations to its inventory. Corps officials said that all the locations identified were not included in its inventory, among other reasons, because the locations were (1) duplicates, (2) situated on active DOD installations, and (3) transferred from DOD control after October 17, 1986, which was the cutoff point for eligibility as formerly used defense sites, in which case the transferring agency would be responsible.

Figure 1: Navy Disposal Site at Orote Point Before Restoration

Source: Navy.

Few Locations Were Identified after Emphasis Shifted from Identifying Locations to Clean Up

In the mid-1990s, as a result of congressional direction and the belief that much of the environmental contamination had been found, DOD changed its focus from identifying locations with potential contamination to addressing contamination at the locations already identified. DOD officials said that most contaminated locations had been found and that the change in focus was a natural progression of the program. The Congress was also concerned that DOD had not made much progress in cleaning up identified locations and that more money was being spent on identifying and studying locations than on the actual cleanup. Consequently, in the National Defense Authorization Act for Fiscal Year 1996, the Congress set a goal for DOD to spend no more than 20 percent of its environmental program funds for program support, studies, and investigations.

Despite the shift in focus from identifying locations to addressing the contamination already found, DOD continued to identify and add potentially contaminated locations to its inventory in Guam, although fewer locations were added than in the past (see table 1). While DOD continued to fund some searches, such as one to identify chemical warfare materials on the Fifth Field Marine Supply Depot in Guam, restoration program officials began to rely primarily on others to bring the locations to their attention. On active installations, contamination was discovered as a result of construction or other operational activities. For example, the

Navy added two locations to its inventory in 1995 that were discovered during construction activities. On formerly used defense sites, the Corps began relying primarily on agencies, such as Guam EPA, and other sources, such as community residents, to identify potential locations. For example, Guam EPA referred the only potentially contaminated location that the Corps added to its inventory since the shift in program emphasis.

Table 1: Number of Potentially Contaminated Locations in DOD's Guam Inventory and the Identification Method Used

	DOD component			
Primary method for identifying locations	**Air Force**	**Navy**	**Corps**	**Total**
DOD searches (from early 1980s to mid-1990s)	51	104	47	**202**
Referrals from other parties and operational activities (after mid-1990s)	0	4	1	**5**
Total	**51**	**108**	**48**	**207**[a]

[a]Some of the potentially contaminated locations in DOD's inventory were ultimately found ineligible for cleanup under DOD's environmental restoration program. For example, of the 48 potential locations identified by the Corps, 8 were not formerly used defense sites and 22 were not contaminated. For more information on Guam locations, see http:/www.gao.gov/GAO-01-1012SP/GM.html.

Source: GAO analysis of DOD data.

Stakeholders said they believe that not all contaminated locations in Guam caused by DOD have been found. Given the extent of past DOD operational activities in Guam, the few controls over disposal practices during and after World War II, and the continuing discoveries of contamination problems, this view seems reasonable. In part to respond to congressional concerns, the Corps has budgeted $500,000 in fiscal year 2002 to conduct an islandwide archival search in Guam to identify formerly used defense sites with evidence of potential chemical warfare material. Even with this effort, however, stakeholders will continue to have an important role in alerting DOD agencies to potential environmental hazards on the island.

Concerns about Identifying and Addressing Contamination Highlight Need for Better Procedures and Communication

Stakeholders raised no major concerns about DOD's cleanup efforts on active military installations, but raised three major concerns about the Corps' efforts to identify and address contamination on formerly used defense sites in Guam.

- Their first concern is that the Corps' current process for adding potentially contaminated locations to its inventory is not clear to them. We believe that the lack of clarity can be attributed to the Corps' failure to develop well-understood written guidelines for stakeholders to use when referring such locations to the Corps, including the information that should be included with the referrals. We also found that the Corps has not effectively communicated to stakeholders the actions it plans to take on the referrals.

- The second concern is that DOD excludes from the restoration program debris that does not pose a threat to human health or the environment, even though it was caused by DOD and could place a financial burden on owners who incur costs to remove it. However, DOD policy provides for cleaning up debris only if it is a threat to human health or the environment.

- The third concern is the slow pace of funding environmental cleanup on formerly used defense sites included in the restoration program. During fiscal years 1984-2000, 4 percent of the total expected cost of locations the Corps approved for cleanup had been funded in Guam while, nationally, 16 percent had been funded, even though contaminated locations in Guam posed risks to human health and the environment that were similar to risks posed by such locations nationally. The Corps explained that, consistent with DOD policy, the unfunded locations in Guam ranked lower in sequencing work than the locations that were funded nationally.

Process for Adding Potentially Contaminated Locations to Corps' Inventory Is Unclear to Stakeholders

Stakeholders have reported that the process for referring potentially contaminated locations to the Corps is unclear to them. Without a clearly understood process, stakeholders cannot be sure that the Corps is properly considering the referred locations for inclusion in its Guam inventory. DOD policy requires the identification of contamination from its past activities, but neither DOD nor Corps policy sets forth the process that stakeholders should use when making referrals. In fact, the Corps' formerly used defense site program manual, which is its primary document setting forth policy guidance for executing the program, is silent on procedures stakeholders should use to make referrals. Corps Pacific Ocean Division and Honolulu District Office officials acknowledged that the division and district offices did not have written guidelines explaining

the referral process, but the Corps district office program manager said the process was verbally explained to Guam EPA and other stakeholders.[8]

One area needing clarification is the information that should be included with referrals of potentially contaminated locations. Stakeholders were unclear about the information they should provide when referring such locations to the Corps because the Corps had not defined what information was required. Neither DOD nor Corps policy sets forth the information required with referrals, and the Corps district program manager said that the district office had provided no written guidelines to stakeholders regarding information requirements. Moreover, the program manager said that the referrals the Corps district office had received were sometimes incomplete. For example, the program manager told us that the information provided by Guam EPA with an October 30, 1999, letter referring several potentially contaminated locations was incomplete because there was no documentation showing contamination or indicating that the locations were likely formerly used defense sites. The program manager also said that more information would be needed before the Corps would take any action to determine whether the referred locations should be added to the inventory. Guam EPA officials told us that, in the summer of 2001, the Corps had verbally informed them that more information was needed with their referrals, but it did not describe the specific information needed. Rather than identifying the specific information that should be included, the program manager asked that Guam EPA and others include as much information as possible with any referrals, including information that indicates that the locations were formerly used defense sites and describes potential contamination associated with DOD activities.

These uncertainties have been exacerbated by poor communication between the Corps and its stakeholders. Guam EPA officials told us that the Corps often did not respond to or share much information about the referrals it had received, so they did not know whether the Corps was properly considering their referrals. For example, concerning several referrals made between October 30, 1999, and May 18, 2000, the Guam EPA administrator wrote a letter on June 20, 2000, to the district engineer in the Corps Honolulu District Office complaining that no feedback had

[8] The Corps Pacific Ocean Division has jurisdiction over the Honolulu and Alaska District Offices. The Honolulu District Office includes Hawaii, Guam, and other U.S. territories and possessions in the Pacific.

been provided regarding whether the referred locations were eligible for funding or what action the Corps planned to take on the referrals. The Corps program manager had no written record of a response to this letter. However, the program manager said that the referrals had been verbally acknowledged with a Guam EPA official, who was also told that no action to assess the referrals would be taken at that time because there was no money available due to higher priority work. The Guam EPA official did not recall receiving this information.

Stakeholders said that they discussed concerns about the formerly used defense sites program with the Corps, but the concerns have not been resolved. For example, EPA officials organized a work group to improve the Corps Honolulu District Office's process for dealing with formerly used defense sites. Concerns about how to add locations and other issues related to the Corps' inventory process, such as what locations may exist that are not on the inventory, were raised in the initial work group meeting in January 2001. The meeting involved EPA, Guam EPA, Corps district and division officials, and officials from other interested federal agencies, such as the Fish and Wildlife Service, the National Park Service, and the Coast Guard. EPA officials told us that concerns about the inventory were also discussed at an August meeting of the work group and would continue to be discussed in future meetings. As of February 2002, the work group was still considering the concerns.

In our view, improved communications on the part of the Corps would help stakeholders better understand the process for referring potentially contaminated locations to the Corps, including information they should include with such referrals. Under the Superfund Amendments and Reauthorization Act of 1986, EPA regulations, and DOD policy, the Corps is required to consult with regulators and the public in the decision-making process for environmental cleanup. Nationally, since 1994, restoration advisory boards have been the primary forum for communities affected by contamination at formerly used defense sites to keep informed of and participate in decisions affecting cleanup. Corps policy is to establish a restoration advisory board for formerly used defense sites that contain an active cleanup project if, among other reasons, a board is requested by a government agency. However, there currently is no restoration advisory board for formerly used defense sites in Guam. In August 2001, Guam EPA asked the Corps Honolulu District Office to establish a restoration advisory board for the island. While none of the pending projects in Guam have progressed far enough to be considered active and Corps district officials have expressed concern about the cost of establishing a board in Guam, the Corps district office engineer agreed

in September 2001 that a board would be a good tool and committed to discussing the issue with the work group discussed previously. In addition, in August 2001, the Corps' formerly used defense sites national program manager visited Guam, in part, to improve communications with regulators and assure them that the Corps would be more responsive to their inquiries about site eligibility.

Stakeholders Are Concerned that the Corps Is Not Cleaning Up Debris, Although the Corps' Approach Is Consistent with DOD Policy

Stakeholders' second concern is that the Corps has not accepted responsibility for some apparent military debris discovered on private property. For example, in 2001, a property owner unearthed military debris while excavating for a foundation on a residential lot east of Guam's capitol city. As figure 2 shows, the debris included jeep parts, scrap metal, and other material, such as tires. The debris apparently had been discarded and buried years before, when the lot was part of the 700-acre Fifth Field Marine Supply Depot. Upon discovering the debris, the property owner notified Guam EPA, which in turn notified the Navy and the Corps. After inspecting the site, the Corps Honolulu District Office decided that since the debris contained no apparent toxic materials, and, prior to excavation by the owner, had been buried, it was not a threat to human health or the environment and was therefore not eligible for funding under the restoration program.

Figure 2: DOD Debris Unearthed While Excavating Private Property in Guam

Source: GAO.

The Corps' decision to exclude this debris is consistent with DOD policy, although it likely will result in a financial burden for the property owner. The Superfund Amendments and Reauthorization Act of 1986 authorizes using environmental restoration program funds to remove unsafe debris, and DOD has adopted a policy that it only cleans up debris that poses a threat to human health or the environment. DOD officials stated that this policy is necessary, in part, to ensure that most funding is directed toward cleaning up contamination from hazardous and toxic waste that poses a greater risk to human health or the environment. While the Corps followed DOD policy in making its decision, the property owner may incur costs to remove the debris and relocate the construction project. A stakeholder said that this type of problem was likely to increase as more of Guam's limited land base is developed.[9]

[9] Guam's population growth rate averaged 2.3 percent annually between 1990 and 2000, almost twice the national average of 1.2 percent over the same period.

Stakeholders Are Concerned about the Slow Progress in Cleaning Up Identified Locations, but the Corps' Approach Follows DOD Policy

The third concern raised by stakeholders is that the Corps has not made sufficient progress in cleaning up locations that the Corps has accepted for inclusion in the restoration program. They said that little work has been done to date or is scheduled in the next several years. Despite the shift in focus in the mid-1990s to cleaning up contaminated locations that have been identified, between fiscal year 1984 and 2000, the Corps spent $4.9 million on its environmental restoration program in Guam, which represents 4 percent of the total expected cost in Guam.[10] Nationally, the Corps has spent about 16 percent of the total expected cost of its restoration program. Six of the 20 projects the Corps approved for cleanup action in Guam have been completed, while 3 are scheduled for completion before 2011, 2 between 2011 and 2020, and 9 after 2021. Most of the completed cleanup projects in Guam have involved removing hazardous waste and underground storage tanks. The remaining work mostly involves removing ordnance and explosive waste.[11]

Corps officials acknowledged the difference in funding between Guam and other locations, but they said that it was an appropriate outcome of the Corps' approach to prioritizing the sequence of work. The Corps considers several factors in sequencing work, including the risk posed to human health or the environment, legal obligations, stakeholder concerns, and program management considerations.[12] Contaminated locations on formerly used defense sites in Guam have a similar risk profile as locations nationally. Risk, therefore, does not explain the difference in funding. Corps officials said that when other factors besides risk are considered, projects in other locations emerge with higher priority. For example, the Alaska District Office sometimes combines low priority projects with high priority projects in remote areas of Alaska to save transportation and other costs.

[10] Funding figures in this report exclude program management and support costs.

[11] For more information on the types of cleanup in Guam and nationwide, see U.S. General Accounting Office, *Environmental Contamination: Cleanup Actions at Formerly Used Defense Sites*, GAO-01-557 (Washington, D.C.: July 31, 2001).

[12] For a discussion of issues associated with DOD's need for a risk-based funding approach, see U.S. General Accounting Office, *Environmental Cleanup: Too Many High Priority Sites Impede DOD's Program*, GAO/NSIAD-94-133 (Washington, D.C.: Apr. 21, 1994). Program management considerations include several factors, such as earmarking funds for some types of contamination that would otherwise receive little or no funding under the current risk-based approach. For example, DOD has allocated about $40 million annually to clean up ordnance and explosive waste that might not be funded under a strictly risk-based allocation system.

If new contamination is discovered, the Corps can reassess its priorities and redistribute available funds to address the problem. For example, a Guam landowner discovered World War II-era chemical testing kits with diluted mustard gas and other chemicals on his property in July 1999. Due to the potential threat, EPA conducted an emergency response action and, within 3 weeks of discovery, it had removed 16 kits from the property. One week later, the Corps inspected the property using ground-penetrating radar and removed 19 additional kits. In March 2000, the Corps expanded its efforts to a 6-acre area surrounding the property and removed at least 17 more kits. Overall, the Corps spent over $4.6 million on this project, which represented about 95 percent of all the environmental restoration funds it had spent in Guam. To fund this unexpected effort, the Corps reallocated funds from other projects within its Pacific Ocean Division and from other sources, such as Corps headquarters.

Conclusions

Despite DOD's efforts to identify environmentally contaminated locations in Guam, it is likely that some contamination has yet to be discovered. Because DOD agencies now limit their efforts to search for the contamination and instead rely primarily on others to identify such locations, it is important to have a clearly understood process in place for referring those locations to DOD. Although stakeholders raised no major concerns about the process for active DOD installations, the Corps' process for adding potentially contaminated locations to its formerly used defense site inventory is unclear—both the procedures to follow and the information to include. Without a clear process, the Corps cannot ensure that it is carrying out its environmental responsibilities properly. Furthermore, stakeholders cannot be assured that they are meeting the Corps' information needs. Stakeholders need to better understand the process for referring potentially contaminated locations to the Corps because the stakeholders are the persons and entities most likely to make referrals. Moreover, once the referrals have been made, communications between the Corps and its stakeholders about actions the Corps plans to take have been ineffective. Without knowing the actions that the Corps plans to take on referrals, stakeholders have no assurance that the Corps has properly considered the referrals to determine whether the potential locations should be added to the inventory. By not effectively communicating with stakeholders, the Corps' process is not transparent, and stakeholders lack the assurance they seek that the Corps' restoration program is properly implemented in Guam.

Recommendations for Executive Action

To improve DOD's management of the process for identifying contamination on formerly used defense sites in Guam, we recommend that the secretary of the Department of Defense direct the secretary of the Department of the Army to develop written guidelines for stakeholders in Guam to use when referring locations of suspected contamination to the Corps. The Army should also identify the information that stakeholders should include when making such referrals.

To improve stakeholders' overall understanding of DOD's restoration program on formerly used defense sites in Guam, we recommend that the secretary of the Department of Defense direct the secretary of the Department of the Army to improve efforts to communicate with stakeholders in Guam to better inform them about policies and procedures for stakeholders to use when referring potential locations to the Corps and the actions the Corps plans to take on the referrals it receives. One way to do this would be to establish a restoration advisory board for formerly used defense sites in Guam.

Agency Comments and Our Evaluation

We provided DOD with a draft of this report for its review and comment. DOD responded that, except for one concern, the draft report represented a fair and accurate assessment of the Corps' efforts to identify new potentially contaminated sites in Guam and coordinate cleanup of those sites with regulators and other stakeholders. DOD agreed with our recommendations to develop written guidelines on its referral process and to improve communications with stakeholders in Guam. DOD's one concern was that some information that it had provided to us during our review, such as clarifying the types of materials found in Guam and the conditions under which the Corps would establish a restoration advisory board in Guam, was left out of the report. In finalizing our report, however, we incorporated these and other DOD suggestions as appropriate.

Regarding our recommendation that the Army develop written guidelines for stakeholders in Guam to use when referring locations of suspected contamination to the Corps, DOD agreed and stated that it would publish such written guidelines and make them publicly available. DOD also stated that its process in Guam could be improved and that the Corps has undertaken a programwide improvement initiative to better coordinate cleanup of formerly used defense sites with regulators and stakeholders. One aspect of the initiative is the development of management action plans, which also provide regulators with the opportunity to communicate with the Corps on cleanup priorities and to notify the Corps about other

potentially contaminated locations. DOD stated that in response to our recommendation, and as a first step in developing a management action plan in Guam, it would direct the Army to convene interagency meetings with Guam EPA to review the list of formerly used defense sites and develop an updated inventory.

Regarding our recommendation that the Army improve efforts to communicate with stakeholders in Guam, DOD agreed and said it would direct the Army to develop a community relations plan for Guam that describes the information needs of the community and tools the Corps can use to reach out to the community, such as public meetings and information papers. Through these tools, DOD stated that the Corps would also be able to better communicate its procedures for referring potentially contaminated locations. DOD also stated that establishment of restoration advisory boards would be considered if there is sufficient, sustained community interest and cleanup projects are planned on the island. As we stated in our report, such boards are one way to improve communications with stakeholders in Guam.

DOD also provided technical corrections, which we incorporated as appropriate. DOD's written comments on the draft report are included in appendix I.

Scope and Methodology

To determine the process used by DOD to identify potentially contaminated locations in Guam and determine what locations were identified, we reviewed relevant federal laws and regulations and DOD policies and procedures and discussed DOD's environmental restoration program with DOD officials. We also visited DOD officials in Hawaii and Guam to discuss the program and document their efforts to identify environmental contamination in Guam. We reviewed each military service's inventory of potentially contaminated locations in Guam and the method by which the locations were discovered. We also discussed DOD's current inventory of contaminated locations with Guam EPA officials and other stakeholders.

To determine the nature and extent of concerns about the environmental restoration program raised by regulators and other stakeholders, we discussed the program with Guam EPA officials and other interested parties in Guam, such as restoration advisory board members and EPA officials. To evaluate the concerns raised by stakeholders, we reviewed relevant federal laws and regulations and DOD environmental restoration program policies and procedures and discussed the program with DOD

headquarters and field officials. We also analyzed program funding in Guam and nationally. We did not independently verify DOD's funding data, which forms the basis for DOD's annual report to the Congress and is publicly available.

We conducted our work from June 2001 to March 2002 in accordance with generally accepted government auditing standards.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 5 days after the date of this letter. At that time, we will send copies of the report to the secretary of defense; the administrator, Environmental Protection Agency; and the administrator, Guam Environmental Protection Agency. We will make copies available to others on request.

If you or your staff have any questions, please call me at (202) 512-3841. Key contributors to this report are listed in appendix II.

(Ms.) Gary L. Jones
Director, Natural Resources and Environment

Appendix I: Comments from the Department of Defense

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

ACQUISITION, TECHNOLOGY AND LOGISTICS

Ms. Gary L. Jones
Director, Natural Resources and Environment
U.S. General Accounting Office
Washington, D.C. 20548

APR. 04 2002

Dear Ms. Jones:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, GAO-02-423, ENVIRONMENTAL CONTAMINATION: Process for Dealing with Formerly Used Defense Sites in Guam Needs Strengthening, (GAO Code 360092).

In the attached response, DoD comments that with the exception of some information previously provided to GAO about the FUDS program on Guam that was not incorporated in the report, the draft report represents a fair and accurate assessment of the Army Corps of Engineers' efforts to identify new sites and coordinate Formerly Used Defense Site (FUDS) cleanup with regulators and the community.

For these reasons, DoD concurs with the first recommendation that the Army Corps of Engineers develop procedures for regulatory agencies and other stakeholders to use when referring locations of suspected contamination on Guam to the Army Corps of Engineers. DoD will direct Army to prepare a management action plan inventory of FUDS on Guam in coordination with the U.S. Environmental Protection Agency (EPA) and Guam EPA, and publish written guidelines for referral of new sites.

In regard to the second recommendation, DoD concurs that the Army Corps of Engineers should improve efforts to communicate with stakeholders in Guam. DoD will direct Army to develop a community involvement plan for FUDS activities on Guam which will help raise community awareness and provide opportunities for community participation in planned FUDS activities. DoD will also direct the Army, where appropriate, to establish Restoration Advisory Boards (RABs) for FUDS on Guam.

My point of contact on this matter, Mr. Kurt Kratz (703) 697-5372, is available to discuss our responses to recommendations and additional comments provided on this document.

Sincerely,

for Raymond F. DuBois, Jr.
Deputy Under Secretary of Defense
(Installations and Environment)

Attachment

GAO DRAFT REPORT DATED FEBRUARY 28, 2002
(GAO CODE 360092)

"ENVIRONMENTAL CONTAMINATION: PROCESS FOR DEALING WITH FORMERLY USED DEFENSE SITES IN GUAM NEEDS STRENGTHENING"

DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATIONS

Now on p. 17.

RECOMMENDATION 1: To improve DoD's management of the process for identifying contamination on formerly used defense sites in Guam, the GAO recommended that the Secretary of the Department of Defense direct the Secretary of the Department of the Army to develop procedures for stakeholders in Guam to use when referring locations of suspected contamination to the Corps. The Army should also identify the information that stakeholders should include when making such referrals. (pp. 15-16/GAO Draft Report)

DoD RESPONSE: DoD concurs with the recommendation. Although DoD contends that the Corps has verbally communicated procedures for regulatory agencies to use when referring locations of suspected contamination to the Corps and has made an effort to coordinate identification of suspected contamination with regulatory agencies, DoD agrees that communication with regulatory agencies and other stakeholders on Guam could be further improved. Towards that end, over the last year the Corps of Engineers, under the Army's direction, has undertaken a number of initiatives nationally with states, tribes, and EPA, to better communicate and coordinate cleanup with stakeholders as part of an overall FUDS Improvement Initiative. One recommendation resulting from the initiative is the development of state-wide management action plans (MAPs). Plan development would provide an opportunity for regulatory agencies to communicate priorities on cleanup as well as notify the Corps of Engineers about other sites. In response to GAO's recommendation, therefore, DoD will direct the Army, as a first step toward implementation of a MAP, to convene interagency meetings with Guam EPA to review the list of FUDS properties on the island, and develop a management action plan inventory, after completion of the current archival search. DoD will also direct the Army to develop specific written guidelines for regulatory agencies and the public to use in referring new sites to the Corps of Engineers, and to make those guidelines publicly available.

Now on p. 17.

RECOMMENDATION 2: To improve stakeholders' overall understanding of DoD's restoration program on formerly used defense sites in Guam, the GAO recommended that the Secretary of the Department of Defense direct the Secretary of the Department of the Army to improve efforts to communicate with stakeholders in Guam to better inform them about policies and procedures for stakeholders to use when referring potential locations to the Corps and the actions the Corps plans to take on the referrals it receives. One way to do this would be to establish a restoration advisory board (RAB) for formerly used defense sites in Guam. (p. 16/GAO Draft Report)

DoD RESPONSE: DoD concurs with the recommendation to improve communications with stakeholders, especially community members. DoD will direct the Army develop a community relations plan for Guam which describes information needs of the community and tools the Corps of Engineers can use for outreach. DoD envisions, that at least initially, public meetings and information papers will be used to reach out to the community. Through these vehicles, the Corps will be able to communicate procedures for referring potential contaminant locations. Establishment of a RAB will be considered provided there is sufficient, sustained community interest and cleanup projects are planned on the island.

Appendix II: GAO Contacts and Staff Acknowledgments

GAO Contacts

William R. Swick (206) 287-4851
Byron S. Galloway (202) 512-7247

Staff Acknowledgments

In addition to the above, Don Cowan, Jonathan Dent, Doreen Feldman, Susan Irwin, and Stan Stenersen made key contributions to this report.

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