

July 2010

SUPERFUND

Interagency Agreements and Improved Project Management Needed to Achieve Cleanup Progress at Key Defense Installations



GAO

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Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE JUL 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE Superfund: Interagency Agreements and Improved Project Management Needed to Achieve Cleanup Progress at Key Defense Installations				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Government Accountability Office, 441 G Street NW, Washington, DC, 20548				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 73	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



Highlights of [GAO-10-348](#), a report to congressional requesters

Why GAO Did This Study

Before the passage of federal environmental legislation in the 1970s and 1980s, Department of Defense (DOD) activities contaminated millions of acres of soil and water on and near DOD sites. The Environmental Protection Agency (EPA) has certain oversight authorities for cleaning up contaminants on federal property, and has placed 1,620 of the most contaminated sites—including 141 DOD installations—on its National Priorities List (NPL). As of February 2009, after 10 or more years on the NPL, 11 DOD installations had not signed the required interagency agreements (IAG) to guide cleanup with EPA. GAO was asked to examine (1) the status of DOD cleanup of hazardous substances at selected installations that lacked IAGs, and (2) obstacles, if any, to cleanup at these installations. GAO selected and visited three installations, reviewed relevant statutes and agency documents, and interviewed agency officials.

What GAO Recommends

GAO is recommending, among other things, that EPA and DOD identify options that would provide a uniform method for reporting cleanup progress at the installations and allow for transparency to Congress and the public. EPA and DOD agreed with the recommendations directed at them. GAO is also suggesting that Congress may want to consider giving EPA certain tools to enforce CERCLA at federal facilities without IAGs. DOD disagreed with this suggestion. GAO believes EPA needs additional authority to ensure timely and proper cleanup at such sites.

View [GAO-10-348](#) or [key components](#). For more information, contact John Stephenson at (202) 512-3841 or stephensonj@gao.gov.

SUPERFUND

Interagency Agreements and Improved Project Management Needed to Achieve Cleanup Progress at Key Defense Installations

What GAO Found

EPA and DOD use different terms and metrics to report cleanup progress; therefore, the status of cleanup at Fort Meade Army Base, McGuire Air Force Base (AFB), and Tyndall AFB is unclear. EPA reports that cleanup at all three installations is in the early investigative phases, while DOD's data suggest that cleanup is further along and, in some cases, in mature stages. EPA and DOD have differing interpretations of cleanup progress because they describe and assess cleanup differently. In particular, while both agencies divide installations into smaller cleanup projects, DOD divides them into units generally smaller than EPA's; therefore, DOD measures its progress in smaller increments. Further, because DOD did not obtain EPA's approval for key cleanup decisions, EPA does not recognize them. Unless key cleanup decisions are justified, documented, and available to the public for review and comment, they are not sufficient under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and once an IAG is in place, some DOD cleanup work may have to be redone. When an agency refuses to enter into an IAG and cleanup progress lags, because of statutory and other limitations, EPA cannot take steps—such as issuing and enforcing orders—to compel CERCLA cleanup as it would for a private party.

A variety of obstacles have delayed cleanup progress at these installations. First, DOD's persistent failure to enter IAGs, despite reaching agreement with EPA on the basic terms, has made managing site cleanup and addressing routine matters challenging at these installations. For example, in the absence of IAGs, DOD may fund work at other sites ahead of these NPL sites. Second, DOD failed to disclose some contamination to EPA and the public in a timely fashion, including lead shot on a playground, delaying cleanup and putting human health at risk. Third, the extensive use of performance-based contracts at these installations has created pressure to operate within price caps and fixed deadlines. In some cases, these pressures may have contributed to installations not exploring the full range of cleanup remedies, or relying on nonconstruction remedies, such as allowing contaminated groundwater to attenuate over time rather than being cleaned up. In particular, Tyndall AFB's long-standing lack of full compliance with environmental cleanup requirements, such as notification of hazardous releases and EPA's 2007 administrative order, has been an obstacle to verifiable cleanup of that installation.

Lead Shot on School Playground at Tyndall Air Force Base in June 2009



Source: EPA.

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Abbreviations

AFB	Air Force Base
ATSDR	Agency for Toxic Substances Disease Registry
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DOJ	Department of Justice
E.O.	executive order
EPA	Environmental Protection Agency
IAG	interagency agreement
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
OU	operable unit
PA/SI	preliminary assessment and site inspection
PBC	performance-based contract
PCB	polychlorinated biphenyls
PCE	tetrachloroethylene
RCRA	Resource Conservation and Recovery Act
RI/FS	remedial investigation and feasibility study
ROD	record of decision
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SMP	site management plan
TCE	trichloroethylene
VOC	volatile organic compound

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United States Government Accountability Office
Washington, DC 20548

July 15, 2010

The Honorable Frank R. Lautenberg
Chairman
Subcommittee on Transportation Safety,
Infrastructure Security, and Water Quality
Committee on Environment and Public Works
United States Senate

The Honorable Robert Menendez
United States Senate

The Honorable Bill Nelson
United States Senate

The Honorable Benjamin L. Cardin
United States Senate

Before federal environmental legislation was enacted in the 1970s and 1980s regulating the generation, storage, treatment, and disposal of hazardous waste, Department of Defense (DOD) activities and industrial facilities contaminated millions of acres of soil and water on and near DOD properties in the United States and its territories. DOD properties released hazardous substances to the environment primarily through industrial operations to repair and maintain military equipment, and the manufacturing and testing of weapons at ammunition plants and proving grounds. From 1986 to 2008, DOD spent \$29.8 billion on environmental cleanup and restoration activities at its properties in response to such hazardous releases.¹ Furthermore, in its most recent annual report to Congress, DOD expressed its commitment to full and sustained compliance with federal, state, and local environmental laws and regulations that protect human health and preserve natural resources.

¹The environmental restoration expenditures total does not include program management and other support costs. Under its Defense Environmental Restoration Program, DOD's authority for environmental cleanup includes each facility or site owned by, leased to, or otherwise possessed by the United States and under the jurisdiction of DOD, as well as those that were as such at the time of actions leading to contamination by hazardous substances or other hazards prior to October 17, 1986. DOD notes that this jurisdiction extends to governmental entities that are the legal predecessors of DOD or the components—Army, Navy, Marine Corps, and Air Force.

To address the cleanup of hazardous releases at both private and government facilities nationwide, in 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), better known as “Superfund.”² Under CERCLA, as amended, the Environmental Protection Agency (EPA) has certain oversight authorities for cleaning up releases of hazardous substances, pollutants, or contaminants on federal properties. As of April 2010, 1,620 Superfund sites were on EPA’s National Priorities List (NPL), which identifies some of the most seriously contaminated sites in the nation, of which 141 or almost 9 percent were DOD properties.³ As of February 2009, 11 of these properties did not have an interagency agreement (IAG)⁴ despite CERCLA’s requirement that federal agencies enter into IAGs with EPA within a certain time frame to clean up sites on the NPL.⁵ DOD and EPA signed IAGs for 7 of these installations between March 2009 and January 2010, but as of June 2010, DOD had not signed IAGs for 4 of these properties, even though they are required under CERCLA.

You asked us to review activities at selected DOD installations on the NPL that lacked IAGs as of February 2009. Accordingly, this report examines (1) the status of DOD cleanup of hazardous substances at selected DOD installations that lacked IAGs and (2) obstacles, if any, to progress in cleanup at these selected installations and the causes of such obstacles.

To select installations for review,⁶ from the 11 without IAGs at the start of our review, we focused on the 4 that received EPA administrative cleanup orders—Air Force Plant 44 in Arizona, Fort Meade Army Base in Maryland,⁷ McGuire Air Force Base (AFB) in New Jersey, and Tyndall AFB

²Pub. L. No. 96-510 (1980), codified as amended at 42 U.S.C. §§ 9601-9675 (2010).

³The NPL is composed of 1,279 final sites and 341 deleted sites. There are an additional 61 proposed sites.

⁴GAO, *Superfund: Greater EPA Enforcement and Reporting Are Needed to Enhance Cleanup at DOD Sites*, [GAO-09-278](#) (Washington, D.C.: Mar. 13, 2009).

⁵CERCLA, Pub. L. No. 96-510 § 120(e), as amended by the Superfund Amendments and Reauthorization Act, Pub. L. No. 99-499 (1986); codified at 42 U.S.C. § 9620(e) (2010).

⁶For purposes of this report, the term “installation” refers generally to a property under the jurisdiction of DOD, and for which it has cleanup responsibility, or specifically to one of the three properties under review. DOD has other definitions for the term.

⁷We refer to Fort George G. Meade as “Fort Meade” throughout this report.

in Florida.⁸ EPA and DOD agreed that one of these—Air Force Plant 44⁹—was near completion of the ordered cleanup and we therefore eliminated it from our selection of installations. To determine the status of DOD cleanup of hazardous substances at the three remaining installations, we reviewed numerous technical documents and interviewed officials from DOD, EPA, the Agency for Toxic Substances and Disease Registry (ATSDR)—created by CERCLA to help determine the public health consequences of the worst hazardous waste sites—and DOD contractors. To identify any obstacles to progress in cleanup at the selected installations and the causes of such obstacles, we reviewed federal contracting guidelines and technical documents developed by DOD installations and EPA regions, and interviewed officials from DOD, EPA, ATSDR, the Fish and Wildlife Service, and the Architect of the Capitol as well as state officials from Florida, Maryland, and New Jersey. We also reviewed relevant laws, regulations, and policies. Appendix I includes additional information about our selection criteria, scope, and methodology. We conducted this performance audit from January 2009 to July 2010 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

This section discusses key aspects of relevant laws and history related to the implementation of Superfund and the reporting and cleanup of hazardous substances and hazardous waste at DOD installations.

⁸Each of the four installations received administrative orders where an imminent and substantial endangerment to health and the environment may exist under the authority of the Resource Conservation and Recovery Act or under the authority of the Safe Drinking Water Act.

⁹Although Air Force Plant 44 is near completion of the cleanup required under the Safe Drinking Water Act, the IAG remains unsigned.

Relevant Laws and Executive Orders

Resource Conservation and Recovery Act

In 1976, Congress passed the Resource Conservation and Recovery Act (RCRA), establishing requirements, as well as giving EPA regulatory authority, for the generation, transportation, treatment, storage, and disposal of hazardous waste.¹⁰ Section 7003 authorizes EPA to issue administrative cleanup orders where an imminent and substantial endangerment to health and the environment may exist;¹¹ if a nonfederal recipient fails to comply, EPA can enforce the order, including fines, by requesting that the Department of Justice (DOJ) file suit in federal court. RCRA also authorizes citizen and state suits, including those to enforce an administrative cleanup order.

Comprehensive Environmental Response, Compensation, and Liability Act

The passage of CERCLA in 1980 gave the federal government the authority to respond to actual and threatened releases of hazardous substances, pollutants, and contaminants that may endanger public health and the environment. EPA's program implementing CERCLA is better known as "Superfund" because Congress established a trust fund that is used to pay for, among other things, remedial actions at nonfederal installations on the NPL. Federal agencies cannot use the Superfund trust fund to finance their cleanups and must, instead, use their own or other appropriations.

CERCLA does not establish regulatory standards for the cleanup of specific substances, but requires that remedial actions—which are long-term cleanups—comply with "applicable or relevant and appropriate requirements."¹² These requirements may include a host of federal and state standards that generally regulate exposure to contaminants. CERCLA also establishes authorities for removals, including expeditious response actions by EPA and DOD to reduce dangers to human health, welfare, or the environment such as an emergency response required within hours or

¹⁰Pub. L. No. 94-580 (1976), amending the Solid Waste Disposal Act, codified as amended at 42 U.S.C. §§ 6921 – 6992k (2010).

¹¹Section 2 of RCRA added section 7003 to the Solid Waste Disposal Act, but the imminent hazard authority is nonetheless often referred to as "RCRA Section 7003." See 42 U.S.C. § 6973 (2010).

¹²Applicable or relevant and appropriate requirements include standards promulgated under any federal environmental law, in addition to standards promulgated under certain state laws or regulations that are more stringent than corresponding federal law and are identified to the entity leading the cleanup in a timely manner. See National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Pt. 300 (2010).

days to address acute situations involving actual or potential threat to human health, the environment, or real or personal property due to the release or threatened release of a hazardous substance.¹³ Generally, removals are quicker, short-term responses to reduce risks, while remedial actions are the culmination of the full CERCLA process to provide long-term protection of human health and the environment.

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) outlines procedures and standards for implementing the Superfund program. The NCP designates DOD as the lead agency for cleanup at defense installations. CERCLA requires DOD to comply with the law and the NCP to the same extent as a nonfederal entity; thus, the same process and standards for cleanup apply. Where there has been a release of a hazardous substance where DOD is the lead agency, CERCLA section 103 requires DOD to report such releases above reportable quantities as soon as it has knowledge of such release to the National Response Center,¹⁴ and section 111(g) requires DOD to notify potentially injured parties of such release, and promulgate regulations pertaining to notification. In addition, DOD must carry out its responsibilities consistent with EPA's oversight role under section 120 of CERCLA, including EPA's final authority to select a remedial action at NPL installations if it disagrees with DOD's proposed remedy.

CERCLA section 120 establishes specific requirements governing IAGs between EPA and federal agencies. The contents of the IAGs must include at least the following three items: (1) a review of the alternative remedies considered and the selection of a remedial action by the agency head and EPA (or, if unable to reach agreement, selection by EPA); (2) the schedule for completing the remedial action; and (3) arrangements for long-term operations and maintenance at the installation.¹⁵ Federal agencies and EPA are required to enter into an IAG within 180 days of the completion of EPA's review of the remedial investigation and feasibility study (RI/FS) at

¹³For purposes of this report, we refer to "removals" as defined in the NCP and EPA's Superfund Program Implementation Manual, and as distinct from the other steps such as the remedial investigation and feasibility study (RI/FS). However, EPA notes that in some contexts, the agency considers removals to include all phases of work from preliminary assessment through the RI/FS.

¹⁴The National Response Center is the sole federal point of contact for reporting all hazardous substances and oil spills that trigger federal notification requirements under several laws. Information reported to the Center is disseminated to other agencies, such as EPA, as well as to states.

¹⁵42 U.S.C. §§ 9620(e)(4) (2010).

an installation. An RI/FS is performed at the site, typically after a site is listed on the NPL. The RI serves as the mechanism for collecting data to characterize site conditions; determine the nature of the waste; assess risk to human health and the environment; and conduct treatability testing to evaluate the potential performance and cost of the treatment technologies that are being considered. The FS is the mechanism for the development, screening, and detailed evaluation of alternative remedial actions. Because such study culminates in a record of decision (ROD), EPA has interpreted this requirement as triggered by the first ROD at an NPL site with multiple cleanup activities. EPA and federal agencies often enter IAGs earlier so the agreement may guide the study process as well.

IAGs between EPA and DOD¹⁶ include a site management plan, which is an annually amended document providing schedules and prioritization for cleanup of the installation, addressing all response activities and associated documentation, as well as milestones. IAGs also specify requirements for documents throughout the cleanup process, addressing DOD's submission, EPA's review, and DOD's response to EPA's comments. For "primary" documents, such as the site management plan, RI/FS work plans and reports, RODs, final remedial action designs, and remedial action work plans, the IAG establishes a review and comment process intended to result in no further comment—essentially agency agreement on the document; if either agency disagrees, it can submit the issue to dispute resolution procedures. Hence, for purposes of this report we consider that formal EPA approval is effectively required for these key steps. IAGs do not subject removals to formal EPA approval, although submission of certain documents is required (unless shown impracticable) before an action is taken to allow EPA to comment.¹⁷ Removals are intended to prevent, minimize, or mitigate a release or threat of release, and are not subject to required cleanup goals, whereas a remedial action is intended to implement remedies that eliminate, reduce, or control risks to human health and the environment and generally involve establishing

¹⁶As we explain in this report, by agreement of the agencies, all IAGs between EPA and DOD entered after February 2009 follow as a template the IAG executed in March 2008 by the Army and EPA for Fort Eustis, Va. Our general description of IAGs is based on the Fort Eustis template, although some features were also included in IAGs predating this template. For example, site management plans have been included in IAGs since 1999.

¹⁷The key difference is that for these and other secondary documents there is no provision for dispute resolution, and thus DOD need not address all EPA comments to EPA's satisfaction. For purposes of this report, we refer to the approvals subject to dispute resolution as formal EPA approval.

Superfund Amendments and Reauthorization Act

numerical cleanup goals. Removals do not relieve DOD of completing additional steps—such as RI/FS completion—or the full cleanup process for the site with formal EPA approval, if required to ensure long-term protection of human health and the environment.¹⁸ In some cases, however, a removal action does fully address the threat posed by the release, and additional cleanup is not necessary.

In 1986, the Superfund Amendments and Reauthorization Act (SARA) added provisions to CERCLA—including section 120—specifically governing the cleanup of federal facilities. Under section 120 of CERCLA, as amended, a preliminary site assessment is to be completed by the responsible agency for each property where the agency has reported generation, storage, treatment, or disposal of hazardous waste. This preliminary assessment is reviewed by EPA, together with additional information, to determine whether the site poses a threat to human health and the environment or requires further investigation or assessment for potential proposal to the NPL.

SARA's legislative history explains that, while the law already established that federal agencies are subject to and must comply with CERCLA, the addition of section 120 provides the public, states, and EPA increased involvement and a greater role in assuring the problems of hazardous substance releases at federal facilities are dealt with by expeditious and appropriate response actions.¹⁹ The relevant congressional conference committee report establishes that IAGs provide a mechanism for (1) EPA to independently evaluate the other federal agency's selected cleanup remedy, and (2) states and citizens to enforce federal agency cleanup

¹⁸ Any removal action should, to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or threatened release concerned. 42 U.S.C. § 9604(a)(2) (2010). For example, the IAG for McGuire AFB establishes that the agreement does not affect the Air Force authority under CERCLA section 104 to conduct removals. Under the IAG, removal-related documents such as Non-Time Critical Removal Action Plans and Removal Action Memoranda, are secondary documents. While the IAG provides that the Air Force and EPA have certain obligations regarding submission, review, and response to comments for such documents, these documents are not expressly subject to dispute resolution unless they are feeder or input documents to a primary document, such as a remedial action. According to DOD officials, this distinction means that the federal facility may conduct a removal action without formal concurrence from EPA. Nonetheless, EPA officials stated that due to its authorities for remedy selection, it has an interest in ensuring, at a minimum, that a removal action does not interfere with a remedial action work plan, as included in the Fort Eustis IAG template.

¹⁹ H.R. Rep. No. 99-253, pt. 1 at 95 (1985).

Defense Environmental Restoration Program

obligations, memorialized in IAGs, in court.²⁰ Specifically, the report states that while EPA and the other federal agency share remedy selection responsibilities, EPA has the additional responsibility to make an independent determination that the selected remedial action is consistent with the NCP and is the most appropriate remedial action for the affected facility. The report also observes that IAGs are enforceable documents just as administrative cleanup orders are under RCRA and, as such, are subject to SARA's citizen suit and penalties provisions. Thus, IAGs can provide for the assessment of penalties against federal agencies for violating terms of the agreements. However, at installations without IAGs, EPA effectively has only a limited number of enforcement tools to use in compelling a recalcitrant agency to comply with CERCLA; similarly, states and citizens also lack a key mechanism to enforce CERCLA.²¹

Section 211 of SARA established DOD's Defense Environmental Restoration Program (DERP), providing legal authority and responsibility to DOD for cleanup activities at DOD installations and properties, including former defense sites.²² The statute requires DOD to carry out the program subject to and consistent with CERCLA section 120. Among other things, the DERP provisions require the Secretary of Defense to take necessary actions to ensure that EPA and state authorities receive prompt notice of the discovery of a release or threatened release, the associated extent of the threat to public health and the environment, proposals to respond to such release, and initiation of any response.²³

²⁰H.R. Conf. Rep. No. 99-962 at 242 (1986).

²¹CERCLA's citizen suit provision, codified at 42 U.S.C. § 9659, authorizes such suits to enforce any standard, regulation, condition, requirement, or order, including any provision of an IAG, effective under CERCLA. At a federal NPL site without an IAG, this provision would grant a right to sue where a federal agency has violated, for example, a ROD, to the extent it contains an enforceable standard, condition, or requirement; however, judicial review regarding choice of a remedy could not occur until after all activities in the ROD were completed. Moreover, as discussed later in this report, sites without IAGs may not achieve RODs, and/or may take many years to achieve RODs, thus limiting the role of citizen suits as a pragmatic enforcement mechanism for such sites. At such sites, a federal agency could either delay cleanup or IAGs indefinitely, without risk of a citizen suit or conduct removals without RODs.

²²Formerly used defense sites are located on properties that were under the jurisdiction of DOD and owned by, leased to, or otherwise possessed by the United States prior to October 17, 1986, but have since been transferred to states, local governments, other federal entities, or private parties. See 10 U.S.C. § 2701(c)(1)(B) (2010); see also footnote 1.

²³10 U.S.C. § 2705(a) (2010) ("Expedited notice").

Executive Order 12580

Executive Order (E.O.) 12580, Superfund Implementation,²⁴ was issued in 1987 to respond to SARA. E.O. 12580 delegates to EPA certain regulatory authorities that the statute assigns to the President, while delegating to DOD authority for removal and remedial actions at its facilities, subject to section 120 and other provisions of CERCLA. The E.O. also constrains EPA's authorities under CERCLA section 106(a) to issue cleanup orders and under section 104(e)(5)(A) to issue compliance orders for access, entry, and inspections by the requirement that the Attorney General, DOJ concur in such actions. In practice, EPA told us it has requested DOJ concurrence approximately 15 times on unilateral section 106 orders to federal agencies and, to date, DOJ has concurred only once, when the recipient federal agency did not object.

Federal Law and Policy Affecting EPA Judicial Actions Against Other Federal Agencies

CERCLA authorizes the filing of civil actions to assess and collect penalties for certain violations—such as failing to provide notice of a release—and section 120 makes each federal department subject to the full procedures and substance of CERCLA. RCRA similarly authorizes the filing of civil actions to enforce—including by assessing fines—orders issued under its imminent and substantial endangerment provision. Nonetheless, as a practical matter, court action is not an available enforcement tool to EPA against another federal agency. Federal law generally reserves the conduct of litigation in which the United States is a party exclusively to DOJ.²⁵ EPA officials told us the agency has not sought DOJ assistance for such actions because it is DOJ's policy that one department of the executive branch will not sue another in court.²⁶

²⁴E.O. No. 12580, 52 Fed. Reg. 2923 (Jan. 23, 1987).

²⁵The E.O. reflects this, stating that “[t]he conduct and control of all litigation arising under [CERCLA] shall be the responsibility of the Attorney General.” Exec. Order No. 12,580 § 6(a).

²⁶See Environmental Compliance by Federal Agencies: Hearing Before the Subcommittee on Oversight and Investigations of the House Committee on Energy and Commerce, 100th Congress 668, 675 (1987) (memorandum from John Harmon, Assistant Attorney General, Office of Legal Counsel, to Michael J. Egan, Associate Attorney General, June 23, 1978) (stating DOJ view that allowing EPA to sue another agency would violate established principle that “no man can create a justiciable controversy against himself”).

Federal Facility Compliance Act

The Federal Facility Compliance Act of 1992,²⁷ which amended RCRA, authorizes EPA to initiate RCRA administrative enforcement actions against a federal agency for the cleanup of contaminated properties, among other things, as well as subjects federal agencies to RCRA's existing fines and penalties provisions. The act directs EPA to initiate administrative enforcement actions against federal agencies as it would against a private party.

History of Disputes Related to IAGs and Administrative Orders

In March 2009, we issued a report that suggested Congress may wish to consider expanding EPA's enforcement authority to give the agency more leverage to better satisfy statutory responsibilities with agencies that are unwilling to enter into IAGs where required under CERCLA.²⁸ The report was issued following DOD's February 2009 agreement with EPA that appeared to resolve a long dispute by determining that the 11 IAGs outstanding at the time would be completed using an IAG between the Army and EPA for Fort Eustis, Virginia, as a template. In addition, EPA agreed to rescind each administrative cleanup order upon the effective date of an installation's IAG.

Soon after this approach for resolving outstanding disputes was agreed to by EPA and DOD leadership, some progress was made in signing IAGs. For example, the Army signed an IAG for Fort Meade Army Base in June 2009. Likewise, the Air Force signed IAGs for McGuire AFB, Brandywine Defense Reutilization and Marketing Office Salvage Yard, Langley AFB, and Hanscom Field AFB, by November 2009.

In the absence of the required IAGs, DOD, at some installations, took a few actions toward cleanup and, at others, proceeded with some cleanup activities—including investigations, removals, and remedial actions—without EPA approvals, according to EPA officials.²⁹ To address continued challenges, EPA issued administrative cleanup orders at four DOD

²⁷Pub. L. No. 102-386.

²⁸[GAO-09-278](#).

²⁹DOD notes that when it proceeded with removals for which it has authority to proceed without formal EPA approval, it did so in order to protect human health and the environment. These types of actions typically are used to reduce immediate risks, and do not replace the full CERCLA process which ensures long-term protectiveness and is subject to formal EPA approval via RODs and other documents.

installations, either under EPA's RCRA authority,³⁰ or under EPA's Safe Drinking Water Act authority.³¹ According to EPA officials, the agency took the unusual step of issuing the orders because it needed them to fulfill EPA's cleanup oversight responsibilities at the sites in the absence of IAGs. These administrative cleanup orders were issued as final in 2007 and 2008. In response, DOD challenged the validity of the administrative cleanup orders and asked DOJ to resolve certain questions in dispute between DOD and EPA over the terms of the IAGs and the circumstances under which EPA may issue administrative cleanup orders at such NPL installations. In December 2008, DOJ issued a letter upholding EPA's authority to issue administrative cleanup orders at DOD NPL installations in general, without discussing whether the facts supported these specific orders. DOJ's letter also supported including provisions in IAGs, such as the types of provisions that EPA regularly includes in its cleanup agreements with private parties, in addition to those specifically in CERCLA, while stating the opinion that DOD does not necessarily have to agree to all extra-statutory terms.³²

After DOJ's letter, the Fort Meade Army Base recognized EPA's 2007 administrative cleanup order under RCRA and gave formal notice to EPA that the Army would comply with the order. However, at about the same time, the state of Maryland filed a lawsuit in December of 2008 against the Army "to force the Army to investigate fully and remediate soil and groundwater contamination resulting from years of mismanagement of hazardous substances, solid waste, and hazardous waste," and to enforce EPA's 2007 administrative cleanup order. In November 2009, the state voluntarily withdrew the suit after the Army, EPA, and two other federal agencies signed an IAG for Fort Meade. By the terms of the IAG, EPA withdrew the administrative cleanup order in October 2009.

³⁰RCRA provides EPA with the authority to issue administrative enforcement orders to address solid and hazardous wastes that may present an imminent and substantial endangerment to public health or the environment.

³¹The Safe Drinking Water Act provides EPA with authority to take action to protect human health from contamination present or likely to enter a public water system which may present an imminent and substantial endangerment.

³²DOJ stated that EPA may require DOD to agree in the IAG to follow, "in the same manner and to the same extent" as they apply to private parties, any "guidelines, rules, regulations, and criteria" established by EPA and made applicable to nonfederal facilities under CERCLA, noting that EPA's model agreements for federal facilities and for private parties may inform the content of such terms.

In contrast, Air Force officials at Tyndall AFB and McGuire AFB did not give formal notice of intent to comply with EPA's administrative cleanup orders and never complied with the terms of the orders. For example, the Air Force stated in a May 2008 letter to EPA regarding the Tyndall order, "the Air Force continues to challenge this Order as lacking legal and factual basis...I have directed my staff and Tyndall AFB to continue to conduct cleanup actions under [CERCLA] using our lead agency functions, authorities and responsibilities delegated to DOD."³³ The Air Force continues to assert that the IAG proposed by EPA does not match the agreed-to template, whereas EPA asserts the IAG does follow the template; both EPA and DOD officials told us the dispute over the IAG relates to the appendices listing the areas to be investigated and, if required, cleaned up. McGuire AFB's IAG was since signed and became effective December 2009, and EPA's 2008 administrative cleanup order was withdrawn. While Tyndall remains without an IAG and its administrative cleanup order is still in effect, the Air Force counsel has asserted they are continuing "substantive compliance" with the administrative cleanup order using the CERCLA process—although EPA's order specifically requires Tyndall to use the RCRA process.³⁴ EPA officials stated that the agency cannot on its own impose penalties or otherwise compel compliance with the administrative cleanup order at Tyndall; to do so would require concurrence from DOJ to proceed with court action against another federal agency, which is contrary to federal policy.

A summary of the current status of IAGs is provided in Table 1. In summary, seven IAGs have been signed and have become effective. There are also four installations that do not yet have signed IAGs as of June 2010. These installations have continued to lack the IAGs required by CERCLA for an extended time frame, and include three Air Force installations and one Army base: Air Force Plant 44 in Arizona, Andrews AFB in Maryland, Tyndall AFB in Florida, and Redstone Arsenal in Alabama. For summary information on the source of contamination and status of cleanup at these 11 NPL installations, see appendix II.

³³Letter, William C. Anderson, Assistant Secretary for Installations, Environment and Logistics, Department of the Air Force, to Granta Nakayama, Assistant Administrator for Office of Enforcement and Compliance Assurance, EPA, May 28, 2008.

³⁴While the cleanup processes under CERCLA and RCRA have many analogous steps, there are distinctions between the two regulatory processes. DOD notes that in other RCRA contexts, such as closure of a RCRA-permitted waste facility, EPA has recognized cleanup work conducted under CERCLA, consistent with EPA guidance.

Table 1: Status of IAGs for 11 DOD NPL Installations Lacking IAGs as of February 2009

State	Installation	Status of IAG	Date added to the NPL	Date IAG signed	Effective date of IAG
Ala.	Redstone Arsenal (Army)	Under negotiation	05/31/94	^a	^b
Ariz.	Air Force Plant 44 Air Force Base (Tucson Int'l Airport Area)	Under negotiation	09/08/83	^c	^b
Fla.	Naval Air Station Whiting Field	Signed and in effect	05/31/94	03/09/09	07/10/09
Fla.	Tyndall Air Force Base	Under negotiation	04/01/97	^c	^b
Hawaii	Naval Computer Telecommunication Area Administrative Master Station	Signed and in effect	05/31/94	03/24/09	07/28/09
Mass.	Hanscom Field (Air Force)	Signed and in effect	05/31/94	09/18/09	12/02/09
Md.	Fort Meade (Army)	Signed and in effect	07/28/98	06/19/09	10/06/09
Md.	Andrews Air Force Base	Under negotiation	05/10/99	^a	^b
Md.	Brandywine Defense Reutilization and Marketing Office Salvage Yard (Air Force)	Signed and in effect	05/10/99	11/25/09	3/30/10
N.J.	McGuire Air Force Base	Signed and in effect	10/22/99	09/15/09	12/01/09
Va.	Langley Air Force Base	Signed and in effect	05/31/94	09/30/09	12/21/09

Source: GAO analysis of EPA data.

^aSigned by EPA; awaiting DOD signature.

^bNot in effect.

^cNot signed.

Notes:

GAO found in a prior report that as of February 2009, these installations lacked IAGs. Since February 2009, EPA has added another DOD property, Fort Detrick Area B Ground Water in Maryland, to the NPL; see 74 Fed. Reg. 16126 (2009). See GAO, *Superfund: Greater EPA Enforcement and Reporting Are Needed to Enhance Cleanup at DOD Sites*, [GAO-09-278](#) (Washington, D.C.: Mar. 13, 2009).

CERCLA § 120 provides that within 6 months of a federal property's listing on the NPL, the lead agency shall commence an RI/FS. 42 U.S.C. § 9620(e)(1) (2010). Then, within 180 days following EPA's review of the RI/FS report, the head of the lead department "shall enter into an interagency agreement with the Administrator for the expeditious completion by such department...of all necessary remedial action at such facility." 42 U.S.C. § 9620(e)(2) (2010). As noted previously, since the RI/FS culminates in a ROD, EPA has interpreted the IAG trigger as the first signed ROD at a federal property, but seeks IAGs as early as practicable, so as to guide all steps in the cleanup process.

Because of Differing EPA and DOD Performance Metrics and DOD's Failure to Obtain EPA Approvals, Status of DOD Cleanup Is Unclear

Because EPA and DOD use different terminology and metrics to report investigative and remedial work at defense installations, determining the status of cleanup at Fort Meade, McGuire AFB, and Tyndall AFB is challenging. EPA's data suggest that DOD's progress at these installations was limited primarily to the early study or investigative phase, whereas DOD's data suggest that some work in the later remedial action or cleanup phase has taken place at these installations. As DOD did not obtain EPA's concurrence with some of the cleanup actions it took at these installations, it may need to conduct additional work even on reported completed actions as a result of EPA requirements.

Cleanup Work Has Begun, but EPA's and DOD's Differing Performance Metrics and Reporting Practices Result in Differing Interpretations of Progress

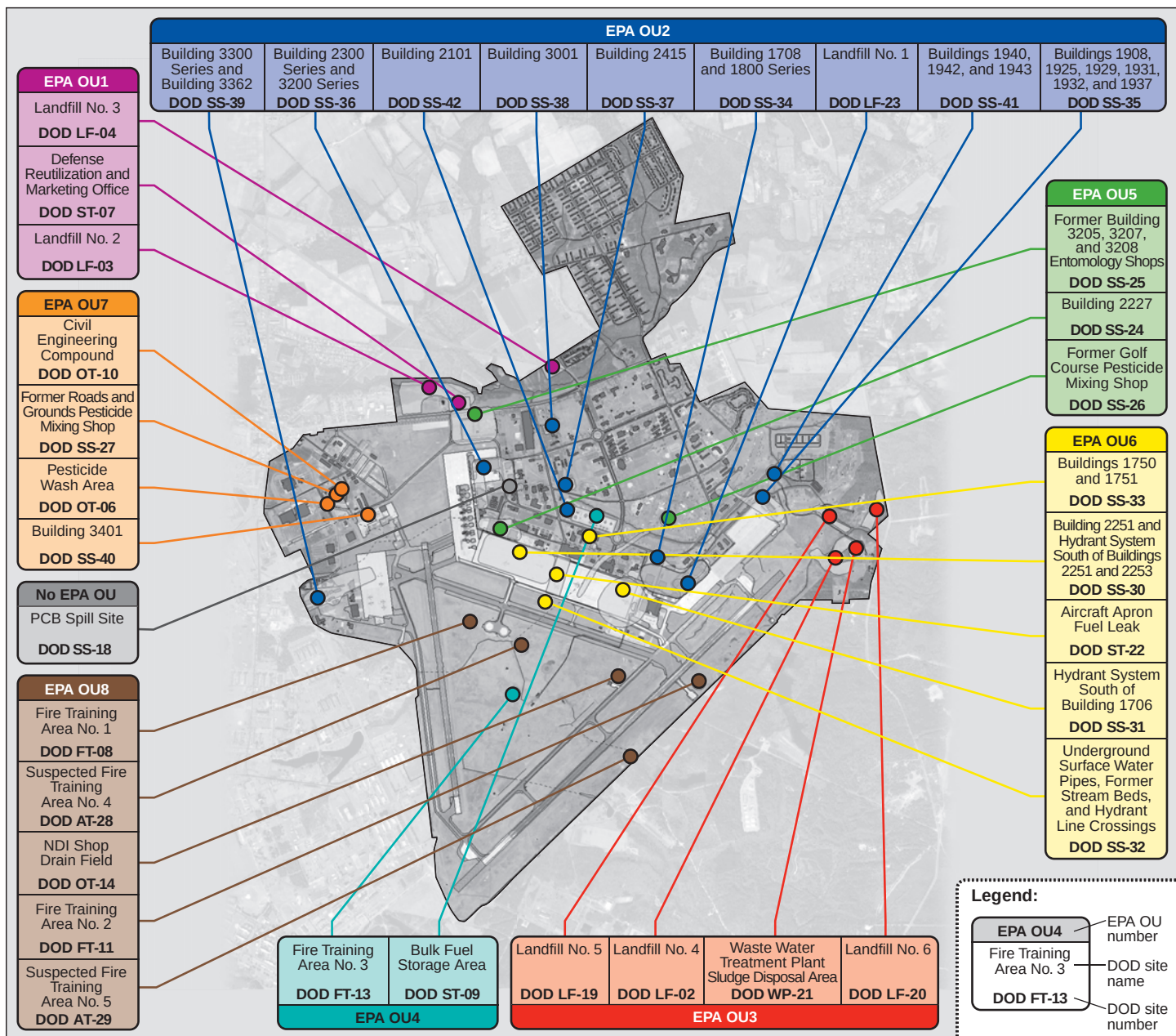
Twenty or more years after contamination was first reported at Fort Meade, McGuire AFB, and Tyndall AFB, EPA reports that environmental cleanup generally remains in the early, investigative phases of the CERCLA process, with little progress in achieving long-term remediation of contaminated sites at these installations. While DOD's data suggest that some remedial action work has taken place, EPA and DOD have differing interpretations of the level of cleanup achieved at these installations, in part because the agencies use different terminology and performance metrics to assess cleanup. EPA's terminology and metrics are based on the Superfund program, including some that are unique to federal facilities, while DOD's terminology and metrics are based on the DERP program, which DOD is directed to conduct in accordance with CERCLA. Specifically:

- EPA divides installations into numbered "operable units" (OU), which may represent the type of action to be taken, such as the removal of drums and tanks from the surface of an installation; the geographic boundaries of the contamination; or the medium that is contaminated, such as groundwater.
- DOD divides installations into smaller geographic areas of contamination called "sites." These sites are typically scoped narrowly to allow for targeting work on actions that can be accomplished efficiently—for example, a building or waste disposal area where a potential or actual release of hazardous substances, pollutants, or contaminants may have occurred may be considered a "site," while adjacent buildings with similar operations are considered as separate sites. DOD's sites are sometimes smaller than EPA's OUs; therefore there may be multiple DOD sites in one EPA OU.

The differing nomenclature can make it difficult to interpret and compare the information DOD reports annually to Congress with what EPA lists in its Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database on the status of environmental cleanup at NPL sites.³⁵ For example, as seen in figure 1, EPA reports the progress of cleanup at McGuire AFB by tracking advancements achieved at the installation's 8 EPA OUs, while DOD reports progress according to advancements achieved at 36 DOD sites. EPA, as the regulator under CERCLA, must track progress made under the statute, and EPA officials said that units in program regulations must have precedence over DOD's internal system of measuring progress.

³⁵ CERCLIS is the database and data management system that EPA uses to track activities at Superfund sites.

Figure 1: Map of McGuire AFB depicting EPA's and DOD's Designations of Cleanup Areas



Sources: EPA, DOD, and GAO.

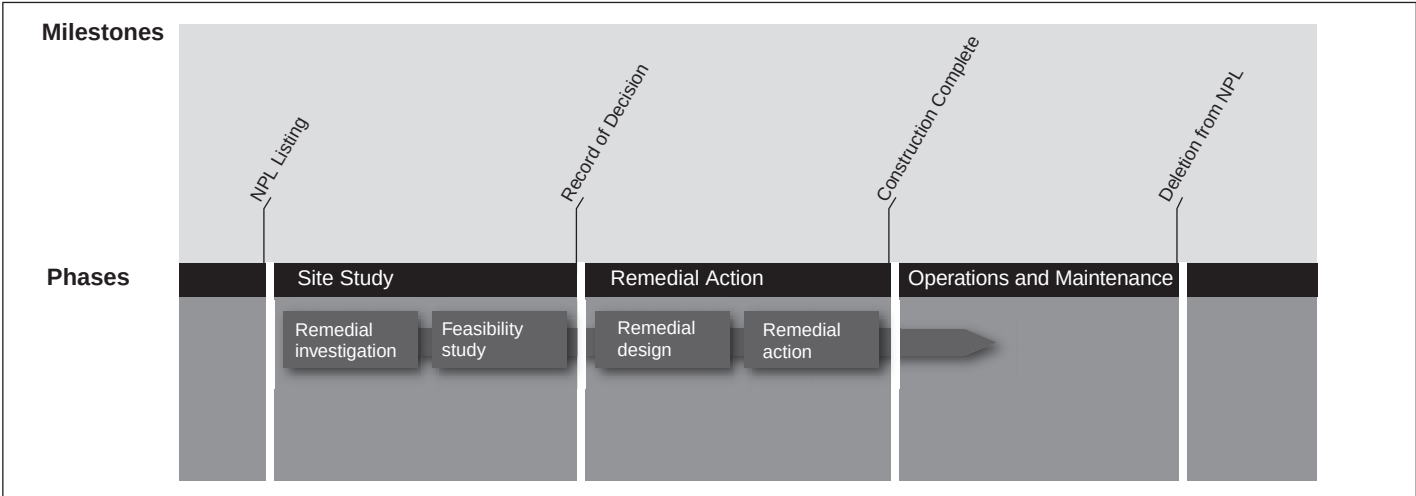
Notes:

DOD Site Identification Codes: AT – All Training; FT – Fire Training; LF – Landfill; OT – Other; SS – Spill Site; ST – Storage; WP – Waste Pits.

EPA and DOD assign separate designations to the contaminated areas being cleaned up under CERCLA at DOD installations on the NPL. As seen in figure 1, EPA assigns names and consecutive numbers to the contaminated areas, which it refers to as “operable units” (OU). DOD delineates the same contaminated areas into smaller parts that they refer to as “sites.” These sites are given both a title and a number by DOD. One EPA OU is often composed of several DOD sites. Figure 1 demonstrates the overlap and confusion caused by the various terms used to describe the same contaminated areas.

According to EPA data, most of the OUs at Fort Meade, McGuire AFB, and Tyndall AFB are in the RI/FS phase of environmental cleanup, which as seen in figure 2 occurs early in the CERCLA cleanup process. While the RI/FS phase historically has an average duration of 5.2 years for EPA OUs at federal facility sites on the NPL, many EPA OUs at these three bases have already been in the RI/FS phase for twice that long and are not yet complete. In fact only 3 of a total 37 OUs at these three installations have completed the RI/FS phase of the CERCLA process; those 3 EPA OUs are located at Fort Meade, and none of the OUs at McGuire AFB or Tyndall AFB have completed the RI/FS phase according to EPA.

Figure 2: Environmental Cleanup Process for NPL Sites



Source: GAO analysis based upon EPA data.

Note: This figure shows the general progression of steps in the NCP process under CERCLA that occur during the environmental cleanup of DOD and other sites on the NPL.

DOD, on the other hand, reports that cleanup is further along at all three of these installations. For example, officials at Fort Meade said that environmental cleanup at their installation is at a very mature stage. In a

2008 report to Congress,³⁶ DOD reported that Fort Meade had achieved response complete at 61 percent of its 54 sites.³⁷ The achievement of “response complete,” a DOD term, occurs either late in the CERCLA process after the remedy selected in the RI/FS phase is implemented, or at any time when DOD deems cleanup goals have been met and no further action is required at the site. As we previously reported,³⁸ we are concerned about the lack of clarity in DOD’s use of this term to describe sites that have been administratively closed, with no physical cleanup.

In addition, EPA and DOD report dissimilar pictures of cleanup progress because each agency reports cleanup progress in a different way. For example, DOD reports on removals, which CERCLA defines as short-term and emergency actions to reduce risk, and for which EPA’s formal approval is not required unless specified in an enforceable agreement. These actions are not necessarily designed to provide long-term protectiveness of human health and the environment, and sites where a removal has been conducted are still subject to the full CERCLA process, until no further action is appropriate. EPA tracks removals through its CERCLIS database, which also shows the remaining steps in the full CERCLA process; a removal may be the first response action taken, although one can occur at any time during the process.

Furthermore, EPA tracks approved cleanup actions under CERCLA that have been completed or are under way for an entire EPA OU, and records these cleanup actions by EPA OU in the CERCLIS database, where key information is made available to the public on EPA’s Web site.³⁹ Also, EPA’s current reporting system does not show cleanup progress unless the

³⁶U.S. Department of Defense. *Fiscal Year 2008 Defense Environmental Programs Annual Report to Congress*. (Washington, D.C., July 16, 2009).

³⁷DOD’s term “response complete” means the remedy is in place and required remedial action operations, if any, have been completed. DOD categorizes as “response complete” sites where the agency has determined no cleanup remedy is required, as well as sites where a cleanup remedy has been fully implemented. See also DOD DERP Guidance (2001).

³⁸GAO, *Military Munitions Response Program: Opportunities Exist to Improve Program Management*, [GAO-10-384](#) (Washington, D.C.: Apr. 9, 2010); *Environmental Contamination: Cleanup Actions at Formerly Used Defense Sites*, [GAO-01-557](#) (Washington, D.C.: July 31, 2001).

³⁹In addition, EPA provided us with a copy of other documents developed by the installations, such as cleanup schedules, which also included planned actions anticipated in the near future.

action has been achieved at all DOD sites within that OU. In contrast, DOD tracks cleanup by site through various cleanup phases as defined in the DERP, which generally aligns with CERCLA but includes additional milestones, and then reports the number of sites in each cleanup phase in its annual report to Congress.⁴⁰ For example, Tyndall AFB includes 12 EPA OUs with 12 DOD sites, with an additional 39 other sites that are not contained within any EPA OU. These additional sites are still in stages of preliminary investigation under CERCLA, according to EPA officials; DOD officials said that a number of these are regulated completely as petroleum sites under a separate program that is administered by the state of Florida, but EPA officials said they want to evaluate all of them under CERCLA, to ensure that any non-petroleum contamination that may exist is accounted for and cleaned up under CERCLA. According to EPA officials, Tyndall AFB has achieved no completed cleanup actions at the base, and it recognizes only one RI/FS action as ongoing. In contrast, DOD reported in fiscal year 2008 that Tyndall staff had completed 36 of 51 study actions for sites at Tyndall AFB, amounting to 71 percent of the study phase complete at the base.⁴¹ The fact that DOD measures progress in smaller increments can lead to differing interpretations of cleanup. As we said earlier, DOD counts as progress the completion of each contaminated DOD site located within an EPA OU, although EPA does not count progress until action is taken at all DOD sites in that OU.⁴²

In June 2009, EPA and DOD formed a working group to review and harmonize both agencies' environmental cleanup goals and metrics, with the goal of better communication between the agencies regarding cleanup progress at DOD installations on the NPL. DOD officials said they hope that the working group will minimize the inconsistencies between DOD's and EPA's goals and metrics. EPA officials said they believe the recommendations of the working group will ultimately result in fewer misunderstandings and surprises between parties that can stall cleanup

⁴⁰The DERP statute directs DOD to carry out its hazardous substances cleanup program in accordance with CERCLA, and CERCLA is DOD's preferred framework for environmental restoration.

⁴¹DOD's Annual Report to Congress for Fiscal Year 2008 defines the "study" phase as comprised of three investigation phases: preliminary assessment, site inspection, and RI/FS.

⁴²According to EPA officials, DOD developed its own environmental reporting metrics without consulting EPA.

actions in the future. The proposed timeline for the working group suggests the drafting of proposed recommendations in June 2011.

Status of Cleanup at These Installations Is Unclear Because DOD Did Not Obtain EPA Concurrence with Some Cleanup Actions and May Need to Do Additional Work

EPA and DOD also report very different cleanup progress at defense installations because some of DOD's reported claims of completed cleanup phases were never approved by EPA, and therefore EPA does not recognize them. In addition, where DOD has already taken actions, EPA has in some cases found that DOD's supporting documentation in the record is insufficient for EPA to approve the cleanup actions that DOD has already taken. Specifically at Tyndall, after a change in personnel at EPA, the new project manager reviewed the files and found the documentation was insufficient to support many of the previous decisions made at the base. EPA officials told us that once IAGs are in place at these installations, any unilateral cleanup actions previously taken are likely to be revisited and EPA may require work to be redone.

According to EPA officials, DOD and EPA have long agreed that, because EPA has ultimate authority under CERCLA for remedies at DOD NPL installations, EPA approval of key steps toward remedy selection is required. In practice, according to EPA officials, it is difficult for a federal facility to obtain EPA concurrence on its cleanup decisions in the absence of a signed IAG for several reasons.⁴³ First, from a project management perspective, EPA lacks assurance that it has had adequate involvement in key steps in the process. Second, from a compliance standpoint, EPA told us it must incorporate, among other things, an enforceable schedule and arrangements for long-term management of a remedy into a ROD, in order to approve the selected remedy at a federal facility without an IAG.⁴⁴

At least one installation has gained EPA's concurrence with cleanup actions without an IAG through effective interagency cooperation. However, two of the three DOD installations we examined for this report—Tyndall AFB and Fort Meade—moved forward with cleanup actions, including remedies, without a signed IAG or ROD. For example,

⁴³In commenting on this report, DOD stated that it believes it is difficult to obtain EPA concurrence on cleanup decisions at such sites because of lack of resources, delays in review, and sometimes disagreement over issues specific to the ROD.

⁴⁴See 42 USC § 9620(e)(4)(B)-(C) (2010) (providing that IAGs shall contain "[a] schedule for the completion of each such remedial action [and a]rrangements for long-term operation and maintenance of the facility").

EPA's records for Tyndall AFB show that DOD made decisions at a number of sites without the required concurrence of EPA.

Despite the lack of IAGs, DOD submitted a variety of documents for EPA review at each of the three selected installations. However, without an IAG, there are no agreed-upon time frames for review and comment and no overall work plan to provide predictable schedules for DOD or EPA. With an IAG, EPA's typical primary document review times would be 60 days; however, DOD officials told us that EPA reviews sometimes take longer, with or without an IAG. As a result, DOD officials said that, in some cases, DOD moved forward without EPA concurrence, while in other cases DOD may have delayed planned actions. For example, EPA provided comments on a preliminary assessment of munitions sites at Tyndall AFB that included concerns about how the munitions at these sites could affect other nearby hazardous substances sites. However, EPA took approximately 4 months after receiving the assessment from DOD to submit the comments. As a result, DOD officials told us they finalized the preliminary assessment before receiving EPA's comments because they wanted to close out the contract.⁴⁵ On the other hand, without the predictable schedules provided by an IAG, EPA officials told us they could not predict the flow of documents from DOD they would have to review. EPA officials told us that DOD at times submitted few documents for review, while at other times, an overwhelming number of documents, making it difficult for EPA to allocate resources for review and comment.⁴⁶ We could not verify long-term trends in the volume of document submission and in document review times because neither EPA nor DOD maintains a consistent, verifiable, and long-term management system for tracking documents submitted or reviewed. For example, DOD said that the three installations have only maintained document tracking systems for the last 2 to 4 years.

DOD officials told us they received EPA approval of some cleanup actions in informal meetings—referred to as partnering meetings—but could not provide documentation. EPA officials noted that these meetings were never intended to replace the formal process mandated by CERCLA and

⁴⁵DOD responded to EPA comments in a letter approximately 1 year later.

⁴⁶In commenting on this report, DOD acknowledged that the volume of submissions may vary substantially over time, but stated that schedules prepared for other purposes—such as DOD agreements with states—typically identify time frames for submittal of many of these documents.

that such decisions were not formally documented, as needed for EPA to approve the proposed remedy selection and as required for the administrative record. CERCLA requires the lead agency, in this case DOD, to establish an administrative record upon which DOD bases the selection of a response action. This record (1) serves as the basis for judicial review of the adequacy of the response action and (2) acts as a vehicle for public participation, since it must be made available for public inspection and comment during appropriate comment periods.⁴⁷

A Variety of Obstacles Have Delayed Cleanup Progress

Several obstacles have delayed cleanup at the three selected DOD installations in our review. First, the lack of IAGs has made managing installation cleanup and addressing routine matters challenging for both EPA and DOD. DOD contract management issues at some installations have affected how the work at these installations has been scoped and conducted and placed effective and efficient use of the public's resources at risk, further undermining cleanup progress. In addition, at Fort Meade Army Base, a lack of coordination with EPA and incomplete record reviews resulted in DOD personnel occupying housing at risk of contamination until they were evacuated. Further, the Air Force has failed to disclose some contamination risks at Tyndall AFB promptly, resulting in delays in taking cleanup action. We also found particular problems at Tyndall AFB, where long-standing noncompliance regarding environmental cleanup and notification has contributed to the lack of cleanup progress. Finally, EPA's ability to address noncompliance by federal facilities is limited by provisions in law, executive order, and executive branch policy.

⁴⁷ CERCLA requires specific community involvement activities that must occur at certain points throughout the cleanup process. These activities include, but are not limited to, public meetings, requests for public comment, and availability of Superfund decision documents. 42 U.S.C. §§ 9613(k), 9620(e)(2), 9617(a)-(b), 9620(f), 9621(f)(1) (2010).

Lack of IAGs Has Made Managing Installation Cleanup and Addressing Routine Matters Challenging, thus Delaying EPA-approved Cleanup Progress

The lack of IAGs has contributed to delays in cleanup progress at the three installations in our review. Without an IAG, EPA lacks the mechanisms to ensure that cleanup by an installation proceeds expeditiously, is properly done, and has public input, as required by CERCLA. For example, DOD officials said that EPA reviewed the proposed remedial action and provided written agreement for the Army's decision to use monitored natural attenuation—relying on natural processes to reduce the contamination in soil or groundwater without human intervention—as the remedy for groundwater contamination at the Ordnance Demolition Area at Fort Meade, which had been historically used for the demolition of unexploded munitions. However, Fort Meade did not have EPA's signature on the ROD and did not seek formal public comment. EPA officials said that additional documentation was needed to support the use of that remedy and advised Fort Meade that it was exceeding its authority. The IAG for Fort Meade provided that Fort Meade withdraw this decision document and submit a new one for EPA's review, which could result in the Army being required to carry out additional cleanup actions for that site.

Whereas an IAG would provide for negotiated deadlines designed to reflect the specific complexities at an installation, DOD's national cleanup goals may drive installations to take actions without EPA approval to meet deadlines. In particular, DOD recently set a cleanup goal for reducing risk or achieving remedy in place or response complete by 2014 for sites under DOD's Installation Restoration Program at active installations, including those at NPL-listed installations. The Air Force set an even more stringent deadline of 2012 for its sites, which Air Force officials have said is a "stretch goal" imposed to ensure that the 2014 goal is met. These deadlines were not based on evaluations of field conditions, and therefore do not necessarily reflect remaining required cleanup actions. However, DOD's use of these deadlines has acted as an incentive for DOD to proceed with actions that have not been fully vetted with EPA and the public, according to EPA officials. For example, EPA officials said that, under the pressure of the 2012 deadline, McGuire AFB has proposed monitored natural attenuation, which EPA has not approved, as a remedy for contaminated groundwater at the installation despite not having performed required analyses. EPA typically only approves monitored natural attenuation as a remedy when certain conditions exist, such as a low potential for contaminant migration and a time frame comparable to other methods of remediation. EPA said DOD did not provide evidence of these conditions to EPA, which is necessary for EPA to concur in the remedy selection, as required by CERCLA. One consequence of this gap is that the public lacks assurance that human health and the environment are adequately protected by DOD's remedy.

At installations with IAGs, the Site Management Plans include detailed schedules and become part of the IAG, thus providing a legal basis for when DOD must complete the work. Moreover, with IAGs to provide an enforceable cleanup schedule, DOD must move forward with cleanup or there will be consequences, such as penalties, for violating the terms of the agreements. These legal obligations are a key factor in DOD's sequencing of cleanup activities for funding. DOD officials told us that, in the early 1990s, the installations that had IAGs were moved to the top of the list for funding, while other installations were considered a lower priority. Also, DOD headquarters makes its funding decisions from budget requests submitted by installations; therefore, if an installation does not have an IAG and does not submit a request for funding for a particular contaminated area, DOD does not consider it in its national funding decisions.

DOD Contract Management Issues Have Undermined Cleanup Progress

DOD contracting management issues have affected how the cleanup work at the selected installations was scoped and conducted, placing effective and efficient use of the public's resources at risk, and further undermining cleanup progress. Specifically, two of the installations, Tyndall and Fort Meade, have relied extensively on performance-based contracts (PBC) to clean up installations. The third, McGuire, in 2008 awarded a PBC for 21 sites. However, PBCs can create pressure on contractors to operate within price caps and meet deadlines, which may conflict with regulatory review times and encourage DOD to take shortcuts. Both EPA and DOD officials told us that PBCs may frequently be inappropriate for some Superfund cleanup work—particularly in the investigative stages—since there can be a great deal of uncertainty in these phases. For example, initial sampling during a site investigation may lead to the need for extensive follow-up sampling that was not anticipated and therefore not provided for in the contract incentives.

While the federal government has advocated the use of PBCs in recent years for procurement of most services, federal acquisition regulations generally requiring the use of PBCs specifically exclude engineering services from this requirement.⁴⁸ DOD policy directs the services to use PBCs whenever possible—establishing the goal that PBCs be used for 50 percent of service acquisitions—but acknowledges that not all acquisitions

⁴⁸ 48 C.F.R. 37.102(a)(1)(i) (FAR) (2010).

for services can be conducted using PBCs.⁴⁹ According to federal guidelines, PBCs are not generally appropriate for work that involves a great deal of uncertainty concerning the parameters of the work to be performed. For example, Air Force guidance establishes the first step in using PBCs is to screen the particular project for suitability, noting that in general, a PBC may not be the right approach when the site is poorly characterized or the project would pose inordinately high risk to contractors, among other characteristics.⁵⁰ PBCs are generally better suited to work that has highly prescribed goals, such as the provision of food service or janitorial services. The general intent of PBCs is to allow contractors to determine the best way to achieve specific goals within a certain time frame for a fixed cost. When used in appropriate circumstances, PBCs can reduce costs by allowing contractors flexibility in how they provide the services.

EPA officials cited a number of problems resulting from the use of PBCs for cleanup at these three installations.⁵¹ One problem cited is that, when PBCs are used, the contractor typically may not explore the full range of alternatives during the remedial investigation and feasibility study due to the pressure of PBC price caps to reduce the costs involved in developing these alternatives. In addition, EPA officials said, the remedies or proposals put forward by the PBCs tend to be those that do not require construction, such as monitored natural attenuation for groundwater contamination, in order to save money on the contract. For example, EPA officials said that the sole PBC contractor for 21 DOD-designated sites at McGuire AFB proposed in its contract a remedy of “no further action” for soil, sediment, and groundwater for nearly all 21 sites, along with monitored natural attenuation for groundwater at many of the sites; these approaches to address contamination at the sites were proposed prior to

⁴⁹DOD Guidebook (2000), available at <https://www.acquisition.gov/SevenSteps/library/DODguidebook-pbsa.pdf>. (last accessed May 26, 2010).

⁵⁰Air Force Center for Environmental Excellence, Environmental Restoration Performance Based Contracting (PBC) Concept of Operations (February 2007), p. 12-14.

⁵¹EPA issued a memorandum in 2006 regarding EPA’s role and responsibilities with respect to federal agencies’ use of PBCs for federal facility cleanups. See OSWER Guidance 9272.0-21. The memorandum reflects the federal government preference for PBCs, while observing that federal agencies using PBCs may tend to provide less oversight of contractors than they had using traditional contracts, among other concerns. The memorandum also states that PBCs should clearly define performance objectives, and that general objectives such as “work with regulators to obtain approval” are not appropriate.

completing the remedial investigation, which would include a human and ecological risk assessment, feasibility study, proposed plan, public meeting, and ROD. In addition, EPA has specific guidelines on the selection of monitored natural attenuation as a remedy.

Other problems that EPA cited with using PBCs for environmental cleanup work include

- contractor's inability to carry out cleanup-related work required by EPA or other stakeholders that was not contained in the original PBC contract, such as installing monitoring wells, without contract amendment;
- unrealistic time frames for cleanup work that have not been agreed to by EPA or other stakeholders and that create an incentive for rushed work, resulting in possible rework later on;
- poor quality of documents submitted to EPA, including lack of legal review and routine failure of the installation to perform quality reviews of contractors' work, which EPA officials said were due to pressure to meet the fixed price aspect of these contracts, and which result in significant redrafting by EPA's legal staff; and
- PBC contractors—rather than DOD officials—acting as project managers to the point of decision making, rather than supporting DOD, when critical cleanup decisions require interaction between EPA and DOD officials.

In responding to a draft of this report, DOD noted that the department believes it has successfully used PBCs for some environmental remediation and munitions response activities. According to DOD, the PBCs include identifiable and measurable costs, schedules, and outcomes, such as acceptance by DOD and the regulatory agencies. DOD stated PBCs can benefit DOD by

- providing flexibility of scope, rather than prescriptive methods;
- allowing DOD to benefit from the expertise and emerging technologies of the private sector in solving problems during various phases of the cleanup process;
- ensuring cost control with known outcomes at the completion of the contract; and
- encouraging contractors to look for ways to reduce time and cost.

Nonetheless, Tyndall AFB officials told us that after shifting toward PBCs for cleanup work in 2004, they are now migrating away from them because there is too much uncertainty in the cleanup work needed at the base. Conversely, the Army told us that in its view, PBCs are better suited for complex work because they foster innovation from the private sector.

Poor Coordination with Regulators and Incomplete Record Reviews Resulted in DOD Personnel Occupying Base Housing at Risk of Methane Contamination until Being Evacuated at Fort Meade

At Fort Meade Army Base, a lack of coordination with EPA and incomplete record reviews led to the necessity to evacuate military personnel from housing that was at risk of methane contamination due to its construction near a dump. A contractor for Fort Meade building military housing on the base—as part of the Army’s new national privatized housing construction effort—in 2003 discovered an old dump site in the area of the new housing and near an existing elementary school. Prior to construction, the Army Corps of Engineers prepared an environmental baseline survey, but it was later determined that the Corps apparently did not review key historical maps in the possession of Fort Meade indicating a former dump and incinerator in the area. The Corps, in conducting the survey, also apparently failed to use a relevant EPA report, which provided an interpretation of historical aerial photographs to identify potential hazards. According to Fort Meade documentation, once the dump was discovered, the housing contractor attempted to determine the limits of the dump and continued with construction, avoiding building directly on top of the dump site. However, according to EPA officials, Fort Meade did not involve EPA in these assessments prior to construction after the dump was discovered. Nonetheless, EPA, which had an on-site manager at the Fort Meade installation, was aware of the discovery of the dump and did not assert a role in decisions about where to locate housing. For example, EPA did not provide any written advice concerning the matter to Fort Meade. After construction was completed and the housing was occupied, methane fumes were found in 2004 below the ground in soils adjacent to the 20 houses that were built nearest the dump site and elementary school. The Army installed and operated a methane abatement system but in 2005 determined that methane was reaching the homes, and families were evacuated. These houses remain empty, and DOD is monitoring both the houses and the school for methane gas intrusion into indoor air. Thus far methane gas has not been found at an unacceptable level in the school. In addition to methane, Fort Meade has documented other contamination at the dump site, including volatile organic

compounds⁵² (VOC) in the groundwater, and heavy metals, polychlorinated biphenyls⁵³ (PCB), and VOCs in soil. Fort Meade has since prepared a preliminary assessment and site inspection⁵⁴ (PA/SI) and a draft RI, which EPA has reviewed. While the Army has a policy requiring that the environmental conditions of properties be assessed,⁵⁵ it is unclear whether local Fort Meade officials were adequately involved in the preconstruction assessment, which was performed by a contractor to the Corps under the Army's national housing privatization initiative. While the Army has acknowledged that the preconstruction assessment apparently missed evidence pointing to the incinerator and dump, the Army has not explained the source of the omission—for example whether lack of adherence to policy or shortcomings in coordination and review were contributing factors. As such, it is unclear how the Army could prevent a recurrence of this situation in which review of key documents available to the Army may have averted construction of housing near a waste site.

Tyndall AFB's Long-standing Noncompliance Regarding Environmental Cleanup and Notification Contributed to the Lack of Cleanup Progress

Of the three installations we selected to review, only Tyndall AFB remains without an IAG. Furthermore, Tyndall has delayed cleanup progress by generally demonstrating a pattern of not complying with federal laws and regulations concerning environmental cleanup. In addition, Tyndall has on multiple occasions delayed disclosures about newly found contaminants or associated risks for months or failed to disclose them entirely, furthering delay of cleanup.

⁵²VOCs are emitted as gases from certain solids or liquids. VOCs include substances—some of which may have short- and long-term adverse health effects—such as benzene, toluene, methylene chloride, and methyl chloroform.

⁵³PCBs belong to a broad family of synthetic organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until their manufacture was banned in 1979. PCBs have been demonstrated to cause a variety of adverse health effects, including cancer and other serious non-cancer effects.

⁵⁴The PA/SI is used by EPA as well as the lead agency to evaluate whether the site may pose a threat to public health or the environment and whether there is any potential need for removal action, and to collect data to evaluate the release of hazardous substances from a site.

⁵⁵AR 200-1 § 15-5 (2007).

The Air Force's Failure to Sign an IAG and Pattern of Noncompliance with Federal Laws and Regulations Concerning Environmental Cleanup Have Delayed Cleanup Progress at Tyndall

After 13 years on the NPL, Tyndall AFB stands out as the only one of the three installations that received EPA administrative cleanup orders for sitewide cleanup and has not signed an IAG even though IAGs are required under CERCLA. Following DOD's issuance in February 2009 of a letter to EPA indicating its willingness to sign IAGs for the 11 installations that did not have them, most of the other installations have resolved differences with EPA and signed IAGs or are close to signing them.

As previously noted, in the absence of a signed IAG, Tyndall has delayed cleanup progress by generally demonstrating a pattern of not complying with federal laws and regulations concerning environmental cleanup under CERCLA. For example, Tyndall

- proceeded with remedies with which EPA had not concurred,
- did not seek required public input,
- failed to disclose contamination risks in a timely fashion, and
- refused to comply with the terms of the EPA-issued administrative cleanup order.

EPA officials told us DOD proceeded with cleanup remedies without EPA's written concurrence—such as signed RODs or other form of documented agreement—to protect human health and the environment, despite knowing that the work may need to be redone. Whereas the CERCLA process requires regulator oversight at federal NPL properties during cleanup activities to provide assurance of such protection, DOD officials said they relied on quarterly partnering meetings with EPA in lieu of written approvals. Tyndall has also issued contracts for work for which EPA hasn't formally concurred, potentially resulting in rework and jeopardizing public resources. For example, Tyndall authorized a PBC in June 2006 that included selecting and putting a remedy in place at a DDT-contaminated bayou within 5 years without having obtained EPA concurrence on how to proceed with the work. At an informal meeting in April 2003 that included officials from Tyndall, the Army Corps of Engineers, Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration, but at which EPA officials were not present, Tyndall reportedly reached the initial decision to leave the DDT-contaminated sediment in place, with the rationale that having the DDT trapped in the sediment would be preferable to a release that could result from removing the sediment. In January 2009, Tyndall officials put forth the option to EPA officials of dredging the DDT-contaminated sediments

The Air Force Failed to Identify or Disclose Some Contamination Risks at Tyndall in a Timely Fashion, which Delayed Cleanup Action

from the bayou with the highest concentrations of contamination, proposing to carry out this ecologically sensitive and potentially risky action as a removal action for which Tyndall would not need concurrence from EPA. EPA said that a human and ecological risk assessment—which would estimate how threatening a hazardous waste site is to human health and the environment—would be needed for EPA to evaluate the proposed Air Force removal action and to determine whether it would protect the local population who catch and eat fish from the bayou. Without this information, the adequacy and protectiveness of the response action is in question.

Tyndall AFB delayed disclosures about newly found contaminants or associated risks for months or failed to disclose them entirely. The DERP provisions of SARA require defense installations to promptly notify EPA and state regulatory agencies of the discovery of releases or threatened releases of hazardous substances, as well as the extent of the associated threat to public health and the environment.⁵⁶ However, we found that Tyndall failed to make such reports. Tyndall was also required to immediately report releases of hazardous substances to EPA according to the RCRA administrative cleanup orders,⁵⁷ but did not do so. It also did not provide potentially affected individuals with information on such releases in a timely manner, despite the requirement in CERCLA. Because Tyndall AFB failed to notify EPA of newly discovered releases, cleanup was delayed or conducted without regulatory agency oversight in recent incidents, potentially putting human health and the environment at risk.

An example of Tyndall's failure to notify EPA concerns the presence of lead—a hazardous substance under CERCLA—at the Tyndall Elementary School. Tyndall's actions have included failing to promptly report to regulators key information about the lead and its threat to public health; failing to take action to prevent children's exposure to lead shot; and potentially representing inaccurately its actions related to a cleanup, as detailed below:

- In 1992, children discovered lead shot in their playground at Tyndall Elementary School. Despite the discovery and the SARA requirement,

⁵⁶10 U.S.C. § 2705(a) (2010) ("Expedited notice").

⁵⁷Paragraph 66(b) of the order states that "[i]n the event of any release of a hazardous substance from the facility, [Tyndall AFB] shall immediately notify" the EPA RPM, EPA Region 4, and the National Response Center, and submit a written report within 7 days.

Tyndall AFB officials did not notify EPA. Instead, Tyndall officials worked with county health officials to collect soil samples and Tyndall officials assured the public that the area was safe for children.

- From 1997 to 2000, ATSDR⁵⁸ conducted a health assessment, which was triggered by Tyndall's listing on the NPL. According to ATSDR officials, ATSDR examined Tyndall records that said the lead shot was removed and clean sand was deposited. As such, ATSDR based its assessment solely on the soil sampling results from 1992, found the contamination below levels of concern, and concurred with Tyndall taking no further action.⁵⁹ Tyndall did not conduct any follow-up surveying or sampling of the school area.
- In 2007, Tyndall issued a base-wide report—the Comprehensive Site Evaluation Phase I—that, based on a records search and visual site survey, identified inactive areas of the base where munitions, munitions constituents,⁶⁰ and unexploded munitions may have been released.⁶¹ The report noted that Tyndall Elementary School is located on a portion of a former target range.⁶²
- In 2008, Tyndall initiated the next phase of work, commencing with a site walk. Tyndall representatives observed lead shot and clay target debris on

⁵⁸The U.S. Department of Health and Human Services ATSDR is a federal public health agency that is charged by CERCLA to assess the presence of health hazards at Superfund sites and to provide information about risks relevant to the need to reduce further exposure to those hazards. This requirement is not limited to the threshold reportable quantities established in CERCLA regulations.

⁵⁹For copies of ATSDR's reports for Tyndall, see:
<http://www.atsdr.cdc.gov/HAC/PHA/HCPHA.asp?State=FL>

⁶⁰Munitions constituents are defined as any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions (10 U.S.C. § 2710 (e)(4) (2010)).

⁶¹The Phase I report identified the Stationary Target Range as one such area, and noted that the Tyndall Elementary School is located on a portion of the former range. The report further stated that lead shot was observed on the ground in some places, and that lead shot had previously been found at the school, but did not state specifically whether the school property was inspected.

⁶²The CSE Phase 1 Report was provided to EPA in mid-2007, but Tyndall proceeded before receiving EPA's review, which was provided later in 2007, or concurrence.

the ground surface of the playground,⁶³ but Tyndall did not notify EPA of this information and did not take any other action to ensure protection of the health of the children attending the school. In March 2009, officials from the Air Force Center for Engineering and the Environment (AFCEE) visited the base and became aware of the situation and pressed Tyndall to expedite sampling that would assess potential risks. As a result, sampling of the school yard was included in the next phase of work.

- Once these samples were taken in May 2009, they showed elevated lead in the soils exceeding state standards. The base did not notify EPA until 22 days later—in contrast to the DERP statute’s requirement of prompt notification of a threat, as well as the RCRA order’s requirement, which states that the EPA must be notified immediately of any release of a hazardous substance.
- Once notified, EPA officials said they called for Tyndall to take appropriate action, including an emergency removal to reduce risk and notifying students’ parents. Tyndall officials told us they initiated funding for a removal action before notifying EPA of sampling results and discussing the action with EPA.
- In 2009, ATSDR also became involved at the site again, and is currently conducting a health consultation. According to ATSDR officials, EPA requested the consultation in June 2009. Following the request, ATSDR notified its Air Force liaison, who then initiated the formal request on July 7, 2009.

When asked about these events, Tyndall officials stated they had always known lead shot could be there, and said they believed EPA also knew of this potential. Tyndall officials told us they did not conduct a cleanup following the 1992 discovery, although they agree that lead shot was found in the playground in 1992 and Tyndall officials subsequently assured parents that the area was safe.⁶⁴ Furthermore, Tyndall representatives

⁶³According to EPA, Tyndall’s contractor told EPA they observed lead shot and clay target debris on the playground during a kickoff site walk in August 2008, but the contractor denied this when questioned by GAO. While the officials did not enter the school property during the site walk, they were adjacent to the property and could see the ground through or over a chain link fence at the property boundary. Further, by AFCEE’s March 2009 visit, Tyndall representatives acknowledged they had recently observed lead shot at the school.

⁶⁴According to Air Force Center for Engineering and the Environment officials, Tyndall AFB is responsible for any hazardous substances response at the school, even though it is leased to the county.

disagreed with ATSDR's account that the lead shot had been removed and clean sand placed in the area – information upon which ATSDR relied in focusing its 2000 review on lead in soil exclusively and concluding the site did not pose a health hazard. In 1992, CERCLA and the DERP statute were in effect and well-established, and since lead is a CERCLA hazardous substance, DOD was legally required to conduct any response in accordance with CERCLA and its standards. Thus, Tyndall officials either left the lead shot in place with essentially no response other than to reassure parents of the schoolchildren, or conducted a response outside of CERCLA. While Tyndall officials now state that the lack of response with respect to the lead shot itself was based on its belief that ATSDR found the lead shot not to pose a health hazard, the ATSDR report was not issued until 2000 while Tyndall decided not to conduct a response action years earlier, in 1992.

Regarding Tyndall's lack of action on the discovery of lead shot, Tyndall officials did not take steps until 2009 to protect children from potential exposure, despite their statements that they knew from 1992 forward that lead shot could be present at the school, because they did not believe there were any health risks.⁶⁵ Tyndall officials further stated that they believed the ATSDR health assessment found no health risk from the lead shot. However, because ATSDR understood the lead shot had been removed, the ATSDR assessment was based solely on the soil lead levels reported by the Air Force to have been found in 1992 and did not address any subsequent risks from the presence of lead shot after 1992 (e.g., from direct contact and the possibility of increased soil levels from leaching).⁶⁶ Moreover, the ATSDR assessment had a narrow objective—to evaluate the potential human health effects associated with exposure to certain environmental conditions at several areas on the base—and was not intended as a substitute for the CERCLA process, which provides for investigations to determine whether a remedial action is required based on both human health and the environment. For example, as ATSDR focused on the likely exposure of children, it discounted certain soil samples with lead levels above its screening values because the agency determined

⁶⁵In contrast, Fort Meade officials conducted periodic surveys to ensure that the Army identified any unexploded ordnance at the surface of the Patuxent National Wildlife Refuge.

⁶⁶In commenting on this report, DOD disagreed with GAO's characterization of the ATSDR report, and asserts that the report found that the lead shot did not present a health hazard. However, ATSDR officials based the health assessment on their understanding that no ongoing exposure to the shot itself was occurring.

children were unlikely to play in those areas; however, those samples are relevant for CERCLA purposes.

Finally, while Tyndall officials have not denied knowledge of the presence of lead shot in the playground prior to June 2009 (when Tyndall reported high lead levels in the soil), they were unable to identify or document when base officials or contractors became aware of the lead shot and clay target debris on the ground surface of the playground. Because Tyndall failed to promptly notify EPA of the release observed prior to March 2009, as required by the administrative cleanup order as well as the DERP provisions of SARA, EPA did not have the information needed to ensure Tyndall's actions were protective of the health of the schoolchildren.⁶⁷ Only at the urging of the Air Force Center for Engineering and the Environment did the base conduct sampling, and only when the results showed high levels of lead in soils did the base inform EPA of the lead shot. In summary, the base failed to take appropriate action to prevent lead exposure until June 2009—months after discovering the debris at the surface during the school year, when children were potentially exposed to lead in this material.⁶⁸ Figure 3 shows how visible the lead shot was on the school playground.

⁶⁷DOD notes that according to ATSDR guidance, EPA should have received a copy of the 2000 ATSDR report, and asserts that this should have alerted EPA to the presence of lead pellets at the school.

⁶⁸EPA officials stated that a preliminary assessment, and potentially a removal action, was indicated based on the data Tyndall AFB had in 1992. Similarly, once Tyndall officials observed the lead shot on the playground at some time prior to March 2009, Tyndall should have undertaken further investigation right away, which would have led to soil sampling and the removal as were eventually conducted, as well as short-term measures to prevent children's exposure. ATSDR officials told us that if they knew that lead shot remained in the playground after 1992, they would have assessed its risk in their 2000 assessment.

Figure 3: Lead Shot on School Playground at Tyndall Air Force Base in June 2009



Source: EPA.

Tyndall's failure to disclose the lead at the schoolyard is not an isolated failure to disclose contamination risks.

- In late 2007, Tyndall discovered the Mississippi Road Landfill but delayed a year before reporting the discovery to EPA in October 2008.
- Tyndall discovered discarded smoke signal flares, which are hazardous waste under RCRA, in late October 2009 and delayed reporting this to EPA for about a month until November 2009.

EPA Is Limited in How It May Respond to Noncompliance by Federal Facilities

EPA's ability to pursue enforcement actions against federal agencies is limited by provisions of law, executive order, and executive branch policy. Specifically, EPA may issue CERCLA orders seeking information, entry, inspection, samples, or response actions from federal agencies only with DOJ's concurrence.⁶⁹ In practice, EPA told us it has requested DOJ concurrence approximately 15 times on unilateral section 106 orders to

⁶⁹E.O. No. 12580 § 4(e) (1987).

federal agencies and, to date, DOJ has concurred only once, when the recipient federal agency did not object. Moreover, under federal law, DOJ—and not EPA—is the sole representative authorized to conduct litigation on behalf of the federal government in judicial proceedings, including those arising under CERCLA. This provision, in conjunction with a long-standing DOJ policy against one federal agency suing another in court, has effectively precluded EPA judicial actions against sister federal agencies. However, EPA retains whatever enforcement provisions are contained within an IAG, such as stipulated penalties that may be established within a penalty provision in the agreement. For those installations without an IAG, EPA effectively has no enforcement tools available, without DOJ concurrence, to compel agency compliance with CERCLA.⁷⁰

Conclusions

Cleaning up the most seriously contaminated DOD installations is a daunting task, especially when these properties are in ongoing use by DOD components. We recognize that DOD's primary mission is ensuring the nation's defense, and that DOD is currently focused on ensuring its components' readiness for wars in Iraq and Afghanistan. Nonetheless, the environmental problems at the three installations addressed in this report have persisted for more than 20 years since laws requiring their cleanup were enacted. DOD and its components have environmental responsibilities to EPA as well as responsibilities to the public and the military personnel stationed at its installations. Despite some progress in the early investigative stages made by the installations we reviewed, we believe that DOD, the Air Force, and the Army are not fully upholding these responsibilities at the three installations.

DOD has expressed its commitment to full and sustained compliance with federal, state, and local environmental laws and regulations that protect human health and preserve natural resources. However, until the current challenges—including the lack of uniform measures for DOD and EPA to

⁷⁰In commenting on this report, DOD noted that the requirement for DOJ concurrence provides a check on EPA authority which DOD asserts is analogous to a private party's right to challenge an EPA order in court—a mechanism not available to federal agencies for the same reasons that EPA cannot bring a federal agency into court to enforce an order. DOD further notes that EPA has “informal tools” such as political pressure and interagency dispute mechanisms. However, GAO believes that in some instances—such as the three sites studied here, where DOD has failed to enter IAGs for over a decade—these tools are insufficient given EPA's special role as the regulator—rather than a response agency—under CERCLA.

report cleanup progress, the absence of IAGs at some installations, the failure to disclose newly discovered contamination at some installations as required by provisions in SARA, and the continued disagreement over proposals for the use of monitored natural attenuation and other nonconstruction remedies, and over DOD's use of PBCs—are addressed, delays in cleaning up these three installations will likely persist.

Section 120 of CERCLA was enacted in 1986 amidst concerns that federal facilities on the NPL were taking too long to get cleaned up and contained key provisions aimed at eliminating stalemates, such as those that were occurring over IAGs. Yet, the IAGs required by law are still outstanding at several NPL installations after more than a decade of effort. While EPA is charged with regulating cleanup of federal NPL sites, without IAGs and lacking independent authority to enforce CERCLA, EPA has little leverage to facilitate compliance at such sites. While EPA ultimately issued administrative cleanup orders at these three installations under other environmental laws, the agency is nonetheless limited in its ability to enforce these orders because DOJ policy generally precludes bringing suit on behalf of one federal agency against another.

In the absence of the IAGs, EPA attempted to work with the services over the past decade by offering technical support and in many cases participating in informal meetings with DOD officials, while the services provided numerous documents to EPA. However, we believe that these interactions, while well intentioned, contributed to a less rigorous approach that interfered with the collection of documents such as formal approvals for the administrative record, and led to insufficient communication between the agencies on significant issues such as risk and approvals. Further, without the more predictable time frames as would be provided with an IAG, EPA and DOD resorted to less formal document review processes—including a lack of clarity on document review times and on whether agreements had been reached on key decisions—leading DOD to sometimes move forward in the cleanup process without EPA's concurrence. Together, these informal approaches contributed to disagreements between the agencies, further delayed cleanup, and resulted in a lack of transparency and accountability to Congress and the public.

Recommendations for Executive Action

We are making six recommendations, as follows:

To provide greater assurance that cleanup progress is being measured accurately and consistently, and to build off of the existing DOD and EPA working group's initial efforts, we recommend that the Secretary of Defense and Administrator of EPA develop a plan with schedules and milestones to identify and implement a uniform method for reporting cleanup progress at the installations and allow for transparency to Congress and the public.

To ensure that outstanding CERCLA section 120 IAGs are negotiated expeditiously, should the agencies continue to be unable to execute a signed IAG within 60 days of this report, we recommend the Administrator of EPA pursue amendments to E.O. 12580 to (1) delegate to EPA unconditionally the independent authority to issue unilateral administrative orders under section 106(a) to executive agencies, and (2) cause the existing delegation of CERCLA remedial action authorities at NPL-listed sites to DOD to be conditional on, for example, the existence of a signed IAG or on DOD's submission of detailed monthly reports to CEQ and Congress concerning the status of IAG negotiations at such sites.

To ensure that DOD promptly reports new hazardous releases to EPA and other stakeholders (including potentially injured parties, the National Response Center, and the states), we recommend that the Secretary of Defense develop guidance for components concerning the proper notification when a new release is discovered or significant new information about a previously known release is obtained. The guidance should at a minimum address timing and contents of such notice, as well as meet the requirements of CERCLA § 103(a) and 111(g) and 10 U.S.C. § 2705(a).⁷¹

⁷¹Where there has been a release of a hazardous substance where DOD is the lead agency, CERCLA section 103(a) requires DOD to report such releases above reportable quantities to the National Response Center. CERCLA section 111(g), as delegated by E.O. 12580 § 8(b), requires DOD to promulgate rules and regulations regarding notification of potentially injured parties of such release, and until such promulgation, requires reasonable notice to potential injured parties by publication in local newspapers serving the affected area. Finally, 10 U.S.C. § 2705(a) requires the Secretary of Defense to take necessary actions to ensure that EPA and state authorities receive prompt notice of the discovery of a release or threatened release, the associated extent of the threat to public health and the environment, proposals to respond to such release, and initiation of any response.

To improve project management at DOD NPL sites regarding the use of contractors, we recommend that the Secretary of Defense ensure that the services make a determination of appropriateness, using Office of Management and Budget criteria and service guidance, before using PBCs for Superfund cleanup.

To ensure that DOD NPL sites utilize monitored natural attenuation as the sole remedy at contaminated sites only when it is documented to meet remediation objectives that are protective of human health and the environment, we recommend that the Secretary of Defense direct the services to document compliance with relevant EPA guidance when selecting monitored natural attenuation.

To ensure that the document review process is used effectively and to facilitate oversight and transparency between DOD and EPA, even where there are no IAGs in effect, we recommend that the Administrator of EPA establish a record-keeping system for DOD NPL sites, consistent across all regions, to accurately track documents submitted for review, including the status of approvals.

Matter for Congressional Consideration

While EPA is charged with regulating cleanup of federal NPL sites, it has little leverage to facilitate compliance at such sites. Specifically, when a federal agency refuses to enter an IAG at an NPL site or to comply with an administrative cleanup order issued pursuant to RCRA's imminent hazard provision, EPA cannot take steps to enforce the law, such as initiating a court action to assess fines, as it would do in the case of a private party. As we suggested in 2009,⁷² Congress may want to consider amending section 120 of CERCLA to authorize EPA—after an appropriate notification period—to administratively impose penalties to enforce cleanup requirements at federal facilities. This review provides further reason to emphasize such authorities to facilitate more timely and efficient compliance at federal facilities.

Agency Comments and Our Evaluation

We provided a draft of this report to the EPA Administrator and the Secretary of Defense for their review and comment. In written comments, EPA's Assistant Administrator for the Office of Solid Waste and Emergency Response and Assistant Administrator for the Office of

⁷²GAO-09-278.

Enforcement and Compliance Assurance indicated agreement with the three recommendations directed at EPA and discussed actions that EPA is taking to address one of them. EPA indicated general agreement with our findings and conclusions, noting in particular that our observations are consistent with its experience at Tyndall AFB. EPA also provided technical comments, which we addressed, as appropriate. EPA's written comments are included in appendix VI.

In written comments, the Deputy Under Secretary of Defense agreed with all recommendations directed to the Secretary of Defense, noting that our report raises several good points, some of which DOD has already implemented. The Deputy Under Secretary also commented on our recommendations directed at EPA, disagreeing with one of them as well as with our Matter for Congressional Consideration. In its disagreement with our recommendation that EPA pursue amendments to Executive Order 12580 if outstanding CERCLA section 120 IAGs are not negotiated expeditiously, DOD suggested that we incorrectly characterized the entire IAG process as flawed due to five outstanding site agreements that represent more complex cleanup issues than most sites. However, we disagree because while we acknowledge that IAGs have successfully been entered into at most DOD NPL sites, DOD's refusal to enter into IAGs — required by CERCLA section 120—for more than a decade at four of the five sites nonetheless suggests, in our view, that there is a significant problem requiring additional attention by the Administration. DOD disagreed with our Matter for Congressional Consideration that Congress consider amending section 120 of CERCLA to provide additional enforcement authority to EPA because it believes EPA has adequate existing means—including informal tools such as interagency dispute mechanisms, and statutory authorities—to enforce cleanup requirements at federal facilities without a negotiated IAG. However, we disagree with DOD's position for a number of reasons. For example, despite the informal tools pursued by EPA, a decade passed without negotiated IAGs at the three installations. EPA then resorted to more formal means to attempt to compel cleanup at these installations. Nonetheless, even when EPA attempted to use its RCRA authority, DOD initially refused to comply with RCRA cleanup orders issued by EPA at the three installations and is still in noncompliance at one installation. Moreover, while EPA has remedy selection authority under CERCLA, it has no enforceable schedule to ensure DOD installations make progress on the technical steps leading up to a remedy decision. We therefore believe it is critically important that Congress consider additional EPA enforcement authority to ensure that cleanup is being pursued properly at federal facility NPL sites. In addition,

DOD provided technical comments, which we addressed, as appropriate. DOD's written comments and our responses are included in appendix VII.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to the appropriate congressional committees, the Secretary of Defense, the Administrator of EPA, and other interested parties. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>

If you or your staffs have any questions about this report, please contact me at (202) 512-3841 or stephensonj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix VIII.

A handwritten signature in black ink, reading "John B. Stephenson". The signature is fluid and cursive, with a long horizontal stroke at the end.

John B. Stephenson
Director, Natural Resources
and Environment

Appendix I: Objectives, Scope, and Methodology

We were asked to determine (1) the status of Department of Defense (DOD) cleanup of hazardous substances at selected DOD installations subject to administrative orders and (2) obstacles, if any, to progress in cleanup at these selected sites and the causes of such obstacles.

To select installations for more detailed study from the 11 installations that were out of compliance with the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLA) in February 2009 because they did not have interagency agreements (IAG), we reviewed the 4 that were issued additional Environmental Protection Agency (EPA) cleanup orders under the Resource Conservation and Recovery Act (RCRA) or under the Safe Drinking Water Act (SDWA). These 4 installations are Air Force Plant 44 in Arizona, Fort Meade Army Base in Maryland, McGuire Air Force Base (AFB) in New Jersey, and Tyndall AFB in Florida. EPA and DOD agreed that one of these—Air Force Plant 44, the only 1 of the 4 installations that was issued the SDWA order—was near cleanup completion and we therefore eliminated it from our selection of installations.

To determine the status of DOD cleanup of hazardous substances at the three selected installations, we toured the three installations; interviewed officials from DOD, EPA, DOD contractors, and the Public Employees for Environmental Responsibility, a public interest group; and attended an installation's Restoration Advisory Board meeting. We reviewed numerous laws, guidance, and technical documents, including CERCLA, RCRA, DOD Defense Environmental Restoration Program (DERP) guidance and annual reports to Congress, decision documents, and correspondence between EPA and DOD. We reviewed and analyzed information on cleanup progress from EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) information system, the three EPA regions that monitor cleanup at the installations, and from the individual DOD installations.

To identify any obstacles to progress in cleanup at the selected installations and the causes of such obstacles, we interviewed officials from DOD, EPA, the Agency for Toxic Substances Disease Registry (ATSDR), the Fish and Wildlife Service, and the Architect of the Capitol, as well as state officials from Florida, Maryland, and New Jersey, and the Public Employees for Environmental Responsibility. We reviewed numerous laws, guidance, orders, and technical documents, including EPA guidance on the appropriate selection of cleanup remedies; decision documents; correspondence between EPA and DOD; internal EPA and

DOD documents; ATSDR reports; federal contracting guidelines; and GAO reports on government contracting and project management.

We conducted this performance audit from January 2009 to July 2010 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Cleanup Progress (according to EPA) at DOD Sites Lacking IAGs in Early 2009

In February 2009 DOD sent EPA an e-mail indicating its renewed willingness to accept the Fort Eustis Federal Facility Agreement as the model for DOD's remaining site agreements under CERCLA. At that time EPA reported there were 12 DOD installations on the National Priorities List (NPL) without agreed-upon IAGs, as required under CERCLA. (Since then, DOE and EPA acknowledge there are only 11 installations without IAGs for which DOD is responsible. They exclude the Middlesex Sampling Plant, which is the responsibility of the Army Corps of Engineers.) For a detailed list of the 11 DOD installations, see table 2.

EPA told us that since February 2009, progress has been made and IAGs were signed and made effective for Fort Meade in Maryland, Naval Computer and Telecommunications Area Master Station in Hawaii, and Whiting Field in Florida. In addition, as of June 2010 the remaining four installations that lack signed IAGs include Andrews AFB in Maryland, Tyndall AFB in Florida, Redstone Arsenal in Alabama, and Air Force Plant 44 in Arizona.

Table 2: IAG Status and Other Details for 11 DOD Installations on the NPL that Lacked IAGs as of February 2009

Installation name and state	Discovery date	Final listing on the NPL	IAG status	EPA operable units	DOD sites ^a	Completed cleanup progress installation-wide	Ongoing cleanup progress installation-wide	Examples of known contaminants
Andrews Air Force Base (Md.)	6/1/1981	5/10/1999	Signatures expected soon	14	29	7 RI/FS actions, 7 RODs, 3 remedial designs, 3 remedial actions	7 RI/FS actions, 1 remedial design, and 1 remedial action	Lead, mercury, chromium, cadmium, VOCs, semi-VOCs, polynuclear aromatic hydrocarbons, and PCBs
Brandywine Defense Reutilization and Marketing Office (DRMO) (Md.)	7/24/1991	5/10/1999	Signed and effective	3	3	1 removal, 1 RI/FS, 1 ROD, 1 remedial design	1 removal, 1 remedial action	PCBs, semi-VOCs, VOCs, PCE, TCE, and iron
Fort George G. Meade (Md.)	12/1/1979	7/28/1998	Signed and effective	17	54	7 removals, 3 RI/FS actions, 3 RODs, 1 remedial design	13 RI/FS actions	VOCs, pesticides, explosive compounds, PCE, TCE, and pesticides

**Appendix II: Cleanup Progress (according to
EPA) at DOD Sites Lacking IAGs in Early
2009**

Installation name and state	Discovery date	Final listing on the NPL	IAG status	EPA operable units	DOD sites ^a	Completed cleanup progress installation-wide	Ongoing cleanup progress installation-wide	Examples of known contaminants
Hanscom Field/Hanscom Air Force Base (Mass.)	6/1/1981	5/31/1994	Signed and effective	2	22	Construction complete		Chlorinated solvents, jet fuel, , PCBs, VOCs, and other petroleum compounds
Langley Air Force Base/NASA Langley Research Center (Va.)	10/17/1989	5/31/1994	Signed and effective	29	66	4 removals, 16 RI/FS actions, 18 RODs, 18 remedial designs, 9 remedial actions	1 removal, 4 RI/FS actions, 1 remedial design, 7 remedial actions	PCBs, PCTs, photofinishing wastes, solvents, lubricating oils, hydraulic fluids, mercury, and pesticides
McGuire Air Force Base (N.J.)	11/1/1974	10/22/1999	Signed and effective	8	36	4 removals	8 RI actions	VOCs, PCBs, inorganic hazardous substances, nickel, and mercury
Naval Computer and Telecommunications Area Master Station Eastern Pacific (Hawaii)	5/1/1987	5/31/1994	Signed and effective	5	30	6 RI/FS, 2 RODs, 2 remedial designs, 2 remedial actions	2 RI/FS. 4 RODs	PCBs, creosote, mercury, chlorinated and nonchlorinated solvents, hydraulic fluid, paint thinners, and TCE
Tucson International Airport Area of Air Force Plant #44 (Ariz.)	12/1/1979	9/8/1983	Not signed, in negotiation	2	13	7 removals, 2 RI/FS actions, 4 RODs, 2 remedial designs, 5 remedial actions	1 remedial action	TCE, chromium, arsenic, chloroform, lead, PCBs, and VOCs
Tyndall Air Force Base (Fla.)	2/12/1988	4/1/1997	Not signed, in negotiation	12	51	In dispute	In dispute	DDT, TCE, lead, arsenic, chromium, munitions constituents, and jet fuels

Appendix III: Profile of Fort G. Meade Army Installation in Maryland/EPA Region 3

Installation name and state	Discovery date	Final listing on the NPL	IAG status	EPA operable units	DOD sites ^a	Completed cleanup progress installation-wide	Ongoing cleanup progress installation-wide	Examples of known contaminants
US ARMY/NASA Redstone Arsenal (Ala.)	11/16/1988	5/31/1994	Not signed, in negotiation	17	271	6 removals, 12 RI/FS actions, 11 RODs, 1 remedial design, 1 remedial action	27 RI/FS actions, 2 remedial actions	DDT, arsenic, mercury, perchlorate, and TCE
Whiting Field Naval Station (Fla.)	2/12/1988	5/31/1994	Signed and effective	27	47	5 removals, 22 RI/FS actions, 22 RODs, 17 remedial actions	3 RI/FS actions	TCE, arsenic, barium, copper, lead, mercury, waste solvents, fuels, and machine fluids

Source: EPA.

Note: DDT = dichlorodiphenyltrichloroethane; PCB = polychlorinated biphenyls; PCE = tetrachloroethylene; RI/FS = remedial investigation and feasibility study; ROD = record of decision; TCE = trichloroethylene; VOC = volatile organic compound.

^aNumber of sites is as of the end of 2008.

Background on Installation

The Fort Meade Army Installation is located approximately halfway between Baltimore, Maryland, and Washington, D.C., near Odenton, Maryland, and has been a permanent United States Army Installation since 1917. Fort Meade once occupied approximately 13,500 acres of land, but currently occupies approximately 5,142 acres after parcels of land were transferred to the U.S. Department of the Interior, the U.S. Architect of the Capitol, and Anne Arundel County, Maryland. Fort Meade's mission is to provide base operations support for activities of over 80 partner organizations from all four Department of Defense (DOD) military services and several federal agencies. Some of the major tenant agencies include the National Security Agency, the Defense Information School, the U.S. Army Intelligence and Security Command, the Naval Security Group Activity, the 70th Intelligence Wing (Air Force), the 902nd Military Intelligence Group (Army), and the U.S. Environmental Protection Agency (EPA).

NPL Listing History and Known Contaminants

The EPA placed Fort Meade on the National Priority List (NPL) on July 28, 1998, after an evaluation of contamination due to past storage and disposal of hazardous substances at the Defense Reutilization and Marketing Office, Closed Sanitary Landfill, Clean Fill Dump, and Post Laundry Facility. Contamination at these sites included solvents, pesticides, polychlorinated biphenyls (PCB), heavy metals, waste fuels, and waste oils. Moreover, elevated levels of volatile organic compounds (VOC), pesticides, and explosives compounds have been detected in underlying aquifers and low levels of VOCs, including tetrachloroethylene (PCE) and trichloroethylene (TCE), and pesticides have been detected in residential wells located off-base in Odenton, Maryland.

Issuance of RCRA 7003 Order

On August 27, 2007, EPA issued a unilateral Administrative Order under the Resource Conservation and Recovery Act (RCRA) section 7003 for Fort Meade under its authority to address solid and hazardous wastes that may present an imminent and substantial endangerment to health or the environment. The RCRA Order requires the Army to assess the nature and extent of contamination, determine appropriate corrective measures, and implement those measures. The Order was motivated by the absence of a signed interagency agreement (IAG) between EPA and DOD, as required by section 120 of CERCLA, and which would establish a framework for EPA's involvement. EPA and the Army could not come to an agreement on the IAG due to several issues. For many years, the Army maintained the position that since EPA took only four sites into consideration for listing Fort Meade on the NPL, it would negotiate an IAG for only those four sites.¹ EPA's position on the other hand has been that the 14 Areas of Concern on the Fort Meade property and 3 Areas of Concern on the adjacent transferred property should be included in the language of the IAG. Another major disagreement centers on groundwater contamination issues at the base, a common problem on DOD installations. The RCRA Order consequently required the Army to move forward with cleanup of all these hazardous waste sites. Fort Meade officials accepted the order in December 2008.

¹As previously mentioned these four sites include the Defense Reutilization and Marketing Office, Closed Sanitary Landfill, Clean Fill Dump, and Post Laundry Facility.

Recent Developments in IAG Negotiation

While as of March 2009, Fort Meade was out of compliance with the RCRA Order, in June of 2009, DOD and EPA reached an agreement and an IAG for Fort Meade was signed by all parties.² The IAG became effective in October of 2009, after the required public comment period. Per the terms of the IAG, the EPA has rescinded the RCRA Order at Fort Meade.

²The signatories of the Federal Facility Agreement/IAG for Fort Meade include EPA Region 3, the Army, Department of the Interior, and Architect of the Capitol.

Appendix IV: Profile of McGuire Air Force Base in New Jersey/EPA Region 2

Background on Installation

McGuire Air Force Base (AFB) is located in south-central New Jersey near the town of Wrightstown, which is approximately 20 miles southeast of Trenton, and occupies about 3,536 acres within the boundaries of the Pinelands National Reserve. McGuire AFB began operations in 1937 functioning under the control of the U.S. Army until 1948 when the facility's jurisdiction was transferred to the Air Force. McGuire AFB is home to five units of command, including the 87th Air Base Wing (the host wing), 108th Air Refueling Wing, 305th Air Mobility Wing, 514th Air Mobility Wing, and 621st Contingency Response Wing. McGuire AFB's mission is to provide joint installation support for McGuire AFB, Fort Dix (Army), and the Naval Air Engineering Station Lakehurst. McGuire AFB is the Department of Defense's (DOD) first and only joint base to consolidate Air Force, Army, and Navy installations. The base provides airlift capabilities to place military forces into combat situations.

NPL Listing History and Known Contaminants

The Environmental Protection Agency (EPA) placed McGuire AFB on the National Priorities List (NPL) on October 22, 1999. The initial sites responsible for McGuire AFB's inclusion on the NPL include: (1) Zone 1 Landfills (comprised of Landfill Nos. 4, 5, and 6; (2) Landfill No. 2; (3) Landfill No. 3; and (4) the Defense Reutilization and Marketing Office. Examples of contaminants found on McGuire AFB sites include volatile organic compounds; polychlorinated biphenyls; trichloroethylene; semivolatile organic compounds; polycyclic aromatic hydrocarbons; total petroleum hydrocarbons; pesticides; and metals, such as nickel and mercury. There are 42 contamination sites¹ in total at McGuire AFB, where 36 sites are located on the base and 6 sites, which are not included in McGuire AFB's NPL listing, are located at the Boeing Michigan Aeronautical Research Center Missile Facility. According to McGuire AFB officials, the sites that have the greatest priority for cleanup include the landfill sites, which were responsible for McGuire AFB's listing on the NPL, the Bulk Fuel Storage Area, the Triangle area, the Defense Reutilization and Marketing Office site, the C-17 Hangar site, the Fuel Hydrant Area, and the Pesticide Shop Area.

Issuance of RCRA 7003 Order

On July 13, 2007, EPA issued a RCRA Administrative Order under section 7003 for McGuire AFB, which became effective on November 26, 2007. EPA issued the order under its RCRA authority to address solid and

¹The number of sites is as of the end of 2008.

hazardous wastes that may present an imminent and substantial endangerment to health or the environment. The RCRA Order requires McGuire AFB to assess the nature and extent of contamination, determine appropriate corrective measures, and implement those measures. The Order was motivated by the absence of an IAG between EPA and DOD at McGuire AFB, according to EPA officials.

Recent Developments in IAG Negotiation

On December 7, 2007, the Air Force notified EPA by letter that it considered the RCRA Order for McGuire AFB to be invalid. The Air Force officials said that the contamination sites listed in the Order, which were also included in a draft IAG for the base, had not been updated since 2001. According to EPA, the RCRA Order was based on site information from McGuire AFB's outdated documents, since those were the only sources of the information available to EPA at the time. In addition, the officials at McGuire AFB believed that EPA's issuance of the RCRA Order was politically motivated and that it slowed cleanup progress at the base. For example, they believed that EPA did not approve McGuire AFB's site management plan (SMP)—related to cleanups under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—because the RCRA Order was in place. However, prior to the issuance of the RCRA Order, McGuire AFB had not submitted an SMP and only provided EPA with individual fact sheets for contamination sites on the base. McGuire AFB submitted a revised draft SMP in July 2009. Officials from the Air Force said that the Air Force would continue to exercise its CERCLA responsibilities at McGuire AFB to accomplish the substantive cleanup work that EPA sought to impose in the RCRA Order. However, this did not stop EPA's involvement with the cleanup activities at McGuire AFB, as EPA continued to work with Air Force officials on the RCRA Facility Investigation phase at McGuire AFB. According to EPA officials, McGuire AFB was not in compliance with the RCRA Order as it had not complied with deadlines set forth in the Order and refused to follow the outlined cleanup process. It is EPA's opinion that only after EPA's issuance of the RCRA Order did McGuire AFB begin submitting the required documentation. However, McGuire AFB overwhelmed EPA's document review process by submitting the required documents all at once. Following DOJ's letter upholding EPA authority to issue the RCRA Order, as a matter of law, DOD asserted that fulfilling CERCLA requirements fulfilled the Order's RCRA requirements. Nonetheless, progress was made on the IAG negotiations at McGuire AFB. In October 2009, an IAG was signed by all the appropriate parties for McGuire AFB and it became effective on December 1, 2009, following a public comment period.

Appendix V: Profile of Tyndall Air Force Base in Florida/EPA Region 4

Background on Installation

Tyndall Air Force Base (AFB) occupies approximately 29,000 acres on a peninsula near Panama City, Florida. The base was initially activated in 1941 as a gunnery school for the Army Air Corps, then as an air tactical training school in 1946, and finally designated as an Air Force base in 1947. Currently, Tyndall AFB contains the 325th Fighter Wing, which has a mission of pilot and maintenance training for the F-15 Eagle and F-22 Raptor fighter jet squadrons, weapons system controllers training, and the 601st Air Operations Center activities. Tyndall AFB is also part of the Air Education and Training Center.

NPL Listing History and Known Contaminants

The Environmental Protection Agency (EPA) placed Tyndall AFB on the National Priorities List (NPL) on April 1, 1997, primarily due to DDT contamination in the sediment of Shoal Point Bayou. Shoal Point Bayou is a tidal creek used as a waterway for barges and small ships to deliver petroleum, oil, lubricant products, and building supplies to the base. In October 1985, the U.S. Fish and Wildlife Service conducted sediment sampling throughout St. Andrew Bay, including Shoal Point Bayou, and found the presence of DDT and DDT metabolites. Then in 1990, the same contaminants were detected in fish, soil, and sediment throughout the Bayou. After multiple investigations, a remedial investigation (RI) was completed for this site in 2002 by the Department of Defense (DOD); however, EPA later deemed the investigation insufficient. Additional investigations have been completed, which found higher concentrations of DDT and metabolites than previously determined. However EPA officials report that the new information on the contamination at Shoal Point Bayou was never integrated into the previous RI findings. Other areas of contamination at Tyndall AFB include the flight line and aircraft maintenance areas, oil/water separators, landfills, fire training pits, petroleum release sites, and munitions testing, disposal, and burial areas. The other contaminants of concern in soil, sediment, surface water, and groundwater at Tyndall AFB include petroleum, DDT, chlordane, TCE, vinyl chloride, pesticides, lead, benzene, arsenic, chromium, barium, and munitions constituents. DOD officials claim that Tyndall AFB currently has 16 active contamination sites after beginning its Installation Restoration Program with 39 sites.

Tyndall AFB has many cleanup challenges due to its geography and topography, which cover approximately 110 miles of coastal shoreline with a maximum elevation of less than 30 feet above mean sea level. In addition, approximately 40 percent of the land on Tyndall AFB is wetlands and there are three underlying groundwater aquifers on the base. Tyndall AFB is proceeding at many of the sites by employing a cleanup remedy of natural

attenuation. One challenge is that the groundwater at the installation is highly susceptible to contamination and is used as a drinking water source on base. Another challenge is protecting Tyndall AFB's extensive wetlands and bayous, which includes protecting over 40 species of threatened and endangered plant and animal species. Finally, it is a challenge to control civilian, military, visitor, and trespasser access to areas of contamination on the base. For example, Tyndall AFB has over 110 miles of uncontrolled shoreline where recreational boaters and trespassers may gain access and be exposed to contamination. Furthermore, military and civilian workers may access areas of contamination throughout Tyndall AFB because the installation does not have a land use controls program or physical barriers, such as fences, to prevent unacceptable exposures.

Issuance of RCRA 7003 Order

Tyndall AFB cleanup and remedial investigation activities have continued in the absence of a signed IAG and without EPA concurrence. On November 21, 2007, EPA issued an Administrative Order under RCRA section 7003 for Tyndall AFB to provide EPA with an instrument to enforce cleanup and which EPA hoped would lead to a signed IAG. EPA issued the Order, which was finalized in May 2008, under its Resource Conservation and Recovery Act (RCRA) authority to address solid and hazardous wastes that may present an imminent and substantial endangerment to health or the environment. The RCRA Order requires Tyndall AFB to assess the nature and extent of contamination, determine appropriate corrective measures, and implement those measures. Tyndall AFB has maintained progress schedules for individual sites, but EPA officials say that Tyndall AFB has not submitted an integrated site cleanup schedule as part of a larger site management plan (SMP) for the entire base.

Recent Developments in IAG Negotiation

EPA officials stated that outside of their goal to reach an agreed-upon IAG, one of their other priorities is to get Tyndall AFB to submit a draft SMP in the near future. Tyndall AFB submitted one in the past, but according to EPA officials it was deficient, lacked integrated schedules, and only addressed approximately 30 contaminants on the base. However, according to EPA, Tyndall AFB is currently out of compliance with the deadlines and scope of work requirements as defined in the RCRA Order. In addition EPA officials said the Air Force has denied the Order's legitimacy by calling it a "potential Order." As of June 2010, Tyndall AFB still does not have a signed IAG.

Appendix VI: Comments from the Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 23 2010

Mr. John B. Stephenson
Director
Natural Resources and Environment
U.S. Government Accountability Office
Washington, DC 20548

Re: EPA comments on June 2010 Draft GAO Report titled, *Interagency Agreements and Improved Project Management Needed to Achieve Cleanup Progress at Key Defense Installations* GAO-10-348.

Dear Mr. Stephenson:

Thank you for the opportunity to review GAO's draft report entitled *Interagency Agreements and Improved Project Management Needed to Achieve Cleanup Progress at Key Defense Installations* (GAO)-10-348. GAO reviewed the status of Department of Defense (DoD) cleanup of hazardous substances at three installations – McGuire Air Force Base in New Jersey, Tyndall Air Force Base in Florida, and Fort George G. Meade in Maryland – which, at the time of your study, lacked interagency agreements required under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

GAO observed that Interagency Agreements (IAGs) are now in place at McGuire Air Force Base and Fort Meade, but that Tyndall Air Force Base “has delayed cleanup progress by generally demonstrating a pattern of not complying with federal laws and regulations concerning environmental cleanup” (draft, pp. 28-29). In addition, Tyndall officials “...delayed disclosures about newly found contaminants or associated risks for months or failed to disclose them entirely” (draft, p. 30). These findings are consistent with EPA's experience at this site, which remains out of compliance with a 2007 imminent and substantial endangerment order under the Resource Conservation and Recovery Act. GAO went on to observe that “...[i]n the absence of IAGs, EPA attempted to work with the services over the past decade by offering technical support and in many cases participating in informal meetings with DOD officials” that “while well intentioned, contributed to a less rigorous approach” (draft, p. 37). GAO concluded that “these informal approaches contributed to disagreements between the agencies, further delayed cleanup and resulted in a lack of transparency and accountability to Congress and the public” (draft, pp. 37-38).

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In light of these and other observations, GAO made three recommendations to EPA (draft, pages 38-39):

1) *"To provide greater assurance that cleanup progress is being measured accurately and consistently, and to build off of the existing DOD and EPA working group's initial efforts, we recommend that the Secretary of Defense and Administrator of EPA develop a plan with schedules and milestones to identify and implement a uniform method for reporting cleanup progress at the installations and allow for transparency to the Congress and the public."*

EPA agrees with this recommendation, and we are pursuing it through the goal harmonization project supported by DOD and EPA. Schedules and milestones for the EPA/DoD Goal Harmonization Workgroup could provide stronger cross agency support, collaboration toward performance results, and greater transparency in setting goals for cleanup milestones.

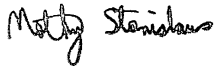
2) *"To ensure that outstanding CERCLA Section 120 interagency agreements are negotiated expeditiously, should the agencies continue to be unable to execute a signed IAG within 60 days of this report, we recommend the Administrator of EPA, pursue amendments to Executive Order 12580 to (1) condition the delegation of CERCLA authorities to DOD for its NPL-listed sites on the existence of a signed IAG, and (2) delegate to EPA unconditionally the independent authority to issue unilateral administrative orders under section 106(a) to executive agencies."*

EPA agrees that providing EPA with independent order authority under CERCLA Section 106 would strengthen EPA's ability to take appropriate enforcement against federal agencies consistent with the law's direction to apply the statute "in the same manner and to the same extent" to federal entities.

3) *"To ensure that the document review process is used effectively and to facilitate oversight and transparency between DOD and EPA, even where there are no IAGs in effect, we recommend that the Administrator of EPA establish a record-keeping system for DOD NPL sites, consistent across all regions, to accurately track documents submitted for review, including the status of approvals."*

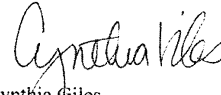
We agree that to promote proper oversight and ensure transparency, EPA needs an improved record keeping system, particularly for the status of approvals. EPA will examine a range of implementation options for accomplishing this goal.

Again, thank you for the opportunity to comment. Please contact me if I can be of assistance, or your staff may call Bobbie Trent in EPA's Office of the Chief Financial Officer at 202 566-0983.



Mathy Stanislaus
Assistant Administrator
Office of Solid Waste and
Emergency Response

Sincerely,



Cynthia Giles
Assistant Administrator
Office of Enforcement and
Compliance Assurance

Enclosures (2)

Appendix VII: Comments from the Department of Defense

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

Mr. John B. Stephenson
Director, Natural Resources and Environment
U.S. Government Accountability Office (GAO)
441 G Street, N.W.
Washington, D.C. 20548

JUL 05 2010

Dear Mr. Stephenson:

This is the Department of Defense (DoD) response to the GAO Draft Report, GAO-10-348, "SUPERFUND: Interagency Agreements and Improved Project Management Needed to Achieve Cleanup Progress at Key Defense Installations," dated June 2010 (GAO Code 361033). Our detailed responses to the GAO recommendations and the matter for Congressional consideration are provided in enclosure 1. Enclosure 2 summarizes additional substantive issues that DoD has with the GAO draft report, and enclosure 3 provides our technical comments.

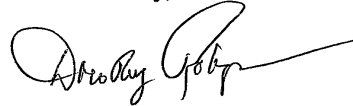
The Department concurs with GAO's recommendations to the Secretary of Defense. We are committed to signing negotiated Federal Facilities Agreements (FFAs) at all 141 of our facilities listed on the National Priorities List (NPL). We have signed FFAs at 136 facilities to date, and we are actively negotiating with the Environmental Protection Agency (EPA) Regions to sign the remaining five FFAs. Following the DoD-EPA agreement to use the Fort Eustis template FFA, we signed seven of the 11 agreements that were more than 10 years overdue, and we continue to work to get agreement on the remaining four plus another more recent agreement.

Your report raises several good points, and we have already implemented solutions to many of the problems it highlights. (The report identifies some actions taken by Tyndall Air Force Base (AFB) that we are going to investigate and assess the need for further action.) Additionally, the report points out that we have proceeded with some cleanup actions even without EPA approval. We have generally done this either because the actions did not require EPA approval or because EPA did not provide comments within a reasonable timeframe and we felt it was critical for us to proceed in order to protect human health and the environment. Moreover, some of the issues raised in the report are specific to Tyndall AFB and Fort Meade and are not representative of all DoD installations.

The Department does not concur with GAO's suggestion that Congress consider amending section 120 of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to authorize EPA to administratively impose penalties to enforce cleanup requirements at federal facilities without a negotiated CERCLA interagency agreement. EPA has enforcement tools under existing environmental statutes, such as CERCLA section 109, the Resource Conservation and Recovery Act, and the Safe Drinking Water Act. Moreover, DoD has made significant progress in the last year. Thus, congressional action is not necessary, in our view.

Thank you for the opportunity to provide the Department's views.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dorothy Robyn', with a long horizontal flourish extending to the right.

Dorothy Robyn
Deputy Under Secretary of Defense
(Installations and Environment)

Enclosures:
As stated

ENCLOSURE 1
GAO DRAFT REPORT DATED JUNE 2010
GAO-10-348 (GAO CODE 361033)

**“SUPERFUND: Interagency Agreements and Improved Project
Management Needed to Achieve Cleanup Progress at Key Defense
Installations”**

**DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATIONS**

RECOMMENDATION 1: The GAO recommends that the Secretary of Defense, and the Administrator of the Environmental Protection Agency, develop a plan with schedules and milestones to identify and implement a uniform method for reporting cleanup progress at the installations and allow for transparency to the Congress and the public. (See page 38/GAO Draft Report.)

See comment 1.

DoD RESPONSE: DoD concurs. DoD agrees that it is vitally important to track cleanup progress at our installations and to make that information available to Congress and the public in a manner that is transparent and easily understandable. DoD acknowledges that this is a challenge because DoD and EPA currently use different terms and metrics to report progress. For example, DoD tracks progress at discreet areas known as sites, while EPA tracks progress at operable units (OUs).

See comment 1.

That is why in June 2009, DoD began actively working with EPA through a federal working group to improve communication and better correlate reporting of cleanup progress using existing performance measures at NPL installations. If the working group decides that a common metric is essential, the measure must meet certain criteria, including the evaluation of progress at DoD’s site level rather than at OUs. In the late 1980’s, DoD considered measuring progress at the OU level. Based on a pilot test, DoD decided measuring progress at the site level provided the fidelity and precision that DoD required to most efficiently manage cleanup.

RECOMMENDATION 2: The GAO recommends that the Administrator of EPA pursue amendments to Executive Order 12580 to (1) condition the delegation of CERCLA authorities to DoD for its NPL-listed sites on the existence of a signed interagency agreement (IAG), and (2) delegate to EPA unconditionally the independent authority to issue unilateral administrative orders under section 106(a) to executive agencies.

See comment 2.

DoD RESPONSE: DoD nonconcur. DoD disagrees that Executive Order 12580 should be amended to address CERCLA IAGs, especially since 136 of 141 DoD-EPA IAGs have been finalized and only 5 remain in negotiation. The signed IAGs represent great progress. It would be inappropriate to characterize the entire IAG process as flawed based on the 5 remaining agreements under negotiation, which address more complex cleanup issues. Additionally, keeping lead agency authority with DoD allows DoD to continue executing cleanup actions pending resolution of any IAG issues, which supports protection of human health and the environment. DoD looks forward to working with EPA to sign the remaining 5 IAGs using the agreed on Fort Eustis template, as GAO references on pages 10 and 44 of their draft report.

RECOMMENDATION 3: The GAO recommends that the Secretary of Defense develop guidance for components concerning the proper notification when a new release is discovered or significant new information about a previously known release is obtained. The guidance should at a minimum address timing and contents of such notice, as well as meet the requirements of CERCLA 103(a) and 10 U.S.C. 2705(a). (See page 38/GAO Draft Report.)

See comment 3.

DoD RESPONSE: DoD concurs. DoD agrees that the identified statutes provide mandatory notification and that proper notification of new releases that exceed statutory limits and significant new information about a previously known release is necessary. That is why DoD has issued the following guidance on the subject:

- DoD Instruction entitled *Environmental Compliance*, dated April 1996 (GAO extracted the document from the DENIX web site)
- *DoD Safe Drinking Water Act Compliance Guidance*, dated September 1999
- *Management Guidance for the Defense Environmental Restoration Program (DERP)*, dated September 2001 (provided to GAO on July 21, 2008 and February 12, 2009)
- Final Rule of the Munitions Response Site Prioritization Protocol (32 CFR Part 179), dated October 2005 (GAO extracted the document from the DENIX web site)

See comment 3.

Currently, the DoD Components must notify OSD of significant environmental events involving compliance with environmental statutes, environmental enforcement actions, and chemical emergencies or spills. Furthermore, the DoD Components must notify the public if a public water system does not meet the Safe Drinking Water Act standards. If the DoD Components obtain new information about a previously known release, they are already required to review and evaluate

any potential impacts to the cleanup process in consultation with relevant stakeholders, to include regulators.

RECOMMENDATION 4: The GAO recommends that the Secretary of Defense ensure that the Services make a determination of appropriateness using Office of Management and Budget criteria and Service guidance, before using performance-based contracts (PBCs) for Superfund cleanup. (See page 39/GAO Draft Report.)

See comment 4.

DoD RESPONSE: DoD concurs. In June 2007, OSD released the internal publication entitled *Performance-Based Acquisition of Environmental Restoration Services*, which addresses the suitability of PBCs. The handbook specifically states that PBCs “may not be appropriate for all environmental restoration projects,” especially site characterization. It identifies risk and uncertainty as the primary considerations in determining the suitability of a project for PBC and elaborates on these issues.

RECOMMENDATION 5: The GAO recommends that the Secretary of Defense direct the Services to document compliance with relevant EPA guidance when selecting monitored natural attenuation to ensure that DoD NPL sites utilize monitored natural attenuation as the sole remedy at contaminated sites only when it is documented to meet remediation objectives that are protective of human health and the environment. (See page 39/GAO Draft Report.)

See comment 5.

DoD RESPONSE: DoD concurs. DoD provided guidance on remedy selection and monitored natural attenuation in the *Management Guidance for the DERP*, dated September 2001 (provided to GAO on July 21, 2008 and February 12, 2009). The DERP guidance requires the DoD Components to consider appropriate treatment technologies, permanent solutions, containment strategies, land use controls, and alternate water supplies when evaluating groundwater remedial alternatives during the Feasibility Study phase. Monitored natural attenuation (MNA) may be selected as the preferred remedial alternative only if the site conditions support MNA as a viable remedy. The DoD Components document the preferred remedial alternative in a proposed plan, along with a brief description of the remedial alternatives evaluated. Regulators and the public review and comment on the proposed plan. Once a remedial action is selected, the DoD Component prepares a Record of Decision (ROD). The ROD defines the remedial action objectives and describes how the selected remedy is protective of human health and the environment. At NPL sites, EPA must sign the ROD, and thus concur that the remedy is protective of human health and the environment.

RECOMMENDATION 6: The GAO recommends that the Administrator of EPA establish a record-keeping system for DOD NPL sites, consistent across all

regions, to accurately track documents submitted for review, including the status of approvals.

DoD RESPONSE: DoD concurs. DoD agrees that accurate data and effective documentation management is critical to EPA's ability to provide oversight of cleanup at NPL installations. As part of the joint effort to improve communication and better correlate reporting of cleanup progress (see DoD's response to Recommendation 1), DoD and EPA are currently reviewing information in and the capabilities of existing databases.

Matter for Congressional Consideration: The GAO recommends that Congress may want to consider amending section 120 of CERCLA to authorize EPA—after an appropriate notification period—to administratively impose penalties to enforce cleanup requirements at federal facilities.

DoD RESPONSE: DoD nonconcur. DoD does not agree that Congress should consider amending section 120 of CERCLA to authorize EPA to administratively impose penalties to enforce cleanup requirements at federal facilities without a negotiated CERCLA IAG for the following reasons:

- EPA currently has existing statutory enforcement tools, such as imminent and substantial endangerment orders under RCRA or the SDWA.
- EPA has authority to negotiate administrative penalties in IAGs under CERCLA. DoD-EPA IAGs have included stipulated penalties for a number of years. Providing EPA the authority to issue CERCLA penalties at facilities without an IAG may prove to be a disincentive to EPA *negotiating* these interagency agreements.
- EPA has significant authority at NPL installations without administrative orders and penalties. EPA has remedy selection authority at NPL installations regardless of whether the installation has a signed IAG.

We are pleased to note that 136 of 141 DoD-EPA FFAs have been finalized and only 5 remain in negotiation. DoD is committed to continuing its progress on negotiating FFAs with EPA under the current framework.

See comment 6.

The following are GAO's comments on the Department of Defense's letter, dated July 5, 2010.

GAO Comments

1. For this recommendation DOD agreed that it is vitally important to track cleanup progress at its installations and to make that information available to Congress and the public in a manner that is transparent and easily understandable. DOD also discussed working actively with EPA through a federal working group. However, DOD indicated that if the working group decides a common metric is essential, DOD would require that the metric meet DOD criteria, such as continuing use of DOD's site level measure as compared to EPA's operating unit level of measure, suggesting the agencies are unlikely to implement a uniform method for reporting cleanup progress at the installations. We continue to believe that such uniformity is essential to provide greater assurance that cleanup progress is being measured accurately and consistently across all Superfund sites, and to provide for transparency to Congress and the public. An agency may need more detailed information for management purposes, but information comparable to other Superfund sites is essential to providing adequate transparency.
2. DOD disagreed with our recommendation that EPA pursue amendments to Executive Order 12580 to condition delegation of CERCLA authorities to DOD on the existence of a signed IAG. DOD stated that because all but 5 of the 141 IAGs remain in negotiation, DOD should maintain lead agency CERCLA authority so it can continue executing cleanup actions pending resolution of any IAG issues and indicated its intention to sign the remaining 5 IAGs using as a template an IAG between the Army and EPA for Fort Eustis, Virginia, as has been agreed upon by the agencies. However, given that 4 remaining agreements have been pending for over a decade, we continue to believe that outstanding CERCLA Section 120 IAGs need to be negotiated expeditiously and that amendments to Executive Order 12580 could facilitate such action.
3. For this recommendation, the Deputy Under Secretary agreed that proper notification of new releases that exceed statutory thresholds and significant new information about previously known releases is necessary. DOD noted that DOD guidance on this issue is already in existence; however, GAO reviewed these documents during the engagement and found them to lack adequate specificity for use by installation personnel, particularly in the area of new information about previous releases. Although the Deputy Under Secretary notes that when DOD personnel obtain new information about a previously known release they are already required to review and evaluate any

potential impacts to the cleanup process in consultation with relevant stakeholders, to include regulators, we found several instances where DOD personnel did not share such information with regulators in a timely fashion. When we asked why, installation personnel stated they were not required to provide regulators with such information. For example, our report highlights an example of Tyndall's failure to notify EPA about the presence of lead—a hazardous substance under CERCLA—at the Tyndall elementary school, and failure to take action to prevent children's exposure to lead shot, among other issues.

4. For this recommendation, DOD agreed and referenced its policy. However, our review found inconsistencies in how this policy was interpreted. While federal guidelines indicate that performance-based contracts (PBC) are not generally appropriate for work that involves a great deal of uncertainty, officials from the Army told us that in their view, PBCs are better suited for complex work because they foster innovation from the private sector. DOD policy directs the services to use PBCs whenever possible—establishing the goal that PBCs be used for 50 percent of service acquisitions. Nonetheless, Tyndall AFB officials told us that after shifting toward PBCs for cleanup work in 2004, they are no longer using them for new contracts because of the uncertainty in the cleanup work needed at the base.
5. For this recommendation, DOD agreed and referenced its DERP guidance, which outlines the process for developing and proposing remedies. The guidance, however, does not provide specific requirements regarding monitored natural attenuation. As DOD notes, when DOD selects monitored natural attenuation as its remedy, DOD is to present the basis for its selection in a ROD or proposed plan. However, DOD and its contractors are not uniformly demonstrating that EPA's specific criteria for selection of monitored natural attenuation are met before selecting such a remedial alternative, according to EPA. These criteria require that certain conditions exist such as a low potential for contaminant migration and a time frame comparable to other methods of remediation.
6. The Deputy Under Secretary of Defense disagreed with our Matter for Congressional Consideration, in which we suggested that Congress should consider amending section 120 of CERCLA to authorize EPA to administratively impose penalties to enforce cleanup requirements at federal facilities without a negotiated CERCLA interagency agreement. DOD presented several reasons for its position, including its belief that EPA has existing statutory enforcement tools under the Resources Conservation Recovery Act (RCRA) and the Safe Drinking Water Act (SDWA). However, there is little evidence that these other mechanisms have been effective. For example, in 2007 EPA issued administrative

cleanup orders under RCRA at all three installations that the services disagreed with and they all initially refused to comply while DOD sought DOJ review of the orders' validity. The orders stated that an imminent and substantial endangerment from contamination may be present on the sites and required DOD to notify EPA of its intent to comply and clean up. The Air Force and Army did not notify EPA of their intent to comply with the order within the time frame required and stated they would continue to clean up the sites under their CERCLA removal and lead agency authority. After DOJ issued a letter stating its opinion that EPA had the authority to issue the orders, as a matter of law, the Army informed EPA of its intent to comply and initiated work under RCRA at Fort Meade, while the Air Force did not take similar actions for its installations. Subsequent negotiations between DOD and EPA resulted in IAGs at Fort Meade and McGuire AFB. However, at Tyndall AFB, where there is still no signed IAG, DOD continues to refuse to comply with the RCRA order. In regards to SDWA, we recognize there can be installations with contamination that do not threaten a public water supply, and therefore SDWA would not apply. DOD also commented that EPA has authority to negotiate administrative penalties in IAGs under CERCLA and that existing IAGs include stipulated penalties. However, as we stated previously, several of the most challenging sites do not yet have IAGs, including Tyndall AFB. For more than a decade DOD has failed to enter into IAGs required by CERCLA section 120 to clean up DOD National Priorities List (NPL) sites. As we note in our report, without an IAG EPA lacks the mechanisms to ensure that cleanup by an installation proceeds expeditiously, is properly done, and has public input, as required by CERCLA. We disagree that providing EPA with the authority to issue CERCLA penalties at facilities without an IAG will be a disincentive to EPA's negotiating interagency agreements. EPA has stated on numerous occasions its commitment to complete negotiations for such agreements. Finally, DOD noted that EPA has remedy selection authority at NPL installations regardless of whether the installation has a signed IAG. Despite having authority for choosing a final cleanup remedy, EPA has not been able to force progress toward remedy selection because it has no enforceable schedule to ensure DOD installations make progress on the technical steps leading up to the ROD, which documents the remedy selected for cleanup. Hence, as at the three installations reviewed in this report, installations may not complete cleanup for a decade or more without an IAG. We believe our report demonstrates that EPA has experienced considerable difficulty employing its existing enforcement authorities and that DOD has resisted EPA's use of such authority to compel DOD to enter into IAGs at NPL sites. Hence, we continue to assert that an expansion in EPA's enforcement authority is warranted.

Appendix VIII: GAO Contact and Staff Acknowledgments

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Staff Acknowledgments

In addition to the contact named above, Diane B. Raynes, Assistant Director; Elizabeth Beardsley; Pamela Davidson; Michele Fejfar; Justin Mausel; Alison D. O'Neill; Ilga Semeiks; and Amy Ward-Meier made major contributions to this report. Vasiliki Theodoropoulos also made key contributions.

Glossary

This glossary is provided for reader convenience. It is not intended as a definitive, comprehensive glossary of all aspects of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process for the cleanup of environmental contamination at Superfund sites.

Site discovery	When a federal agency identifies an actual or suspected release or threatened release to the environment on a federal site, it notifies EPA, which then lists the site on its Federal Agency Hazardous Waste Compliance Docket. The docket is a listing of all federal facilities that have reported hazardous waste activities under RCRA or CERCLA. RCRA and CERCLA require federal agencies to submit to EPA information on their facilities that generate, transport, store, or dispose of hazardous waste or that has had some type of hazardous substance release or spill. EPA updates the docket periodically.
Preliminary assessment	The lead agency (DOD, in this case) conducts a preliminary assessment of the site by reviewing existing information, such as facility records, to determine whether hazardous substance contamination is present and poses a potential threat to public health or the environment. EPA regions review these preliminary assessments to determine whether the information is sufficient to the likelihood of a hazardous substance release, a contamination pathway, and potential receptors. EPA regions are encouraged to complete their review of preliminary assessments of federal facility sites listed in EPA's CERCLA database within 18 months of the date the site was listed on the federal docket. EPA may determine the site does not pose a significant threat to human health or the environment and no further action is required. If the preliminary assessment indicates that a long-term response may be needed, EPA may request that DOD perform a site inspection to gather more detailed information.
Site inspection	The lead agency (DOD, in this case) samples soil, groundwater, surface water, and sediment, as appropriate, and analyzes the results to prepare a report that describes the contaminants at the site, past waste handling practices, migration pathways for contaminants, and receptors at or near the site. EPA reviews the site inspection report and, if it determines the release poses no significant threat, EPA may eliminate it from further consideration. If EPA determines that hazardous substances, pollutants, or contaminants have been released at the site, EPA will use the information collected during the preliminary assessment and site inspection to calculate a preliminary HRS score.
Hazard Ranking System scoring	If EPA determines that a significant hazardous substance release has occurred, the EPA region prepares an HRS scoring package. EPA's HRS assesses the potential of a release to threaten human health or the environment by assigning a value to factors such as (1) the likelihood that a hazardous release has occurred; (2) the characteristics of the waste, such as toxicity and the amount; and (3) people or sensitive environments affected by the release.
National Priorities List	If the release scores an HRS score of 28.50 or higher, EPA determines whether to propose the site for placement on the NPL. CERCLA requires EPA to update the NPL at least once a year.

Glossary

Remedial investigation and feasibility study	Within 6 months after EPA places a site on the NPL, the lead agency (DOD, in this case) is required to begin a remedial investigation and feasibility study to assess the nature and extent of the contamination. The remedial investigation and feasibility study process includes the collection of data on site conditions, waste characteristics, and risks to human health and the environment; the development of remedial alternatives; and testing and analysis of alternative cleanup methods to evaluate their potential effectiveness and relative cost. EPA, and frequently the state, provides oversight during the remedial investigation and feasibility study and the development of a proposed plan, which outlines a preferred cleanup alternative. After a public comment period on the proposed plan, EPA and the federal facility sign a record of decision (ROD) that documents the selected remedial action cleanup objectives, the technologies to be used during cleanup, and the analysis supporting the remedy selection.
Interagency agreement	Within 6 months of EPA's review of DOD's remedial investigation and feasibility study, CERCLA, as amended, requires that DOD enter into an IAG with EPA for the expeditious completion of all remedial action at the facility. (EPA's policy however, is for federal facilities to enter into an IAG after EPA places the site on the NPL.) The IAG is an enforceable document that must contain, at a minimum, three provisions: (1) a review of remedial alternatives and the selection of the remedy by DOD and EPA, or remedy selection by EPA if agreement is not reached; (2) schedules for completion of each remedy; and (3) arrangements for the long-term operation and maintenance of the facility.
Remedial design and remedial action	During the remedial design and remedial action process, the lead agency (DOD, in this case) develops and implements a permanent remedy on the site as outlined in the record of decision and IAG.
Monitoring	Long-term monitoring occurs at every site following construction of the remedial action. This includes the collection and analysis of data related to chemical, physical, and biological characteristics at the site to determine whether the selected remedy meets CERCLA objectives to protect human health and the environment. For NPL or non-NPL sites where hazardous substances, pollutants, or contaminants were left in place above levels that do not allow for unlimited use and unrestricted exposure, every 5 years following the initiation of the remedy, the lead agency (DOD, in this case) must review its sites. The purpose of a 5-year review, similar to long-term monitoring, is to assure that the remedy continues to meet the requirements contained in the record of decision and is protective of human health and the environment.

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