The Challenge of Cleaning Up Military Wastes When U.S. Bases Are Closed

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CONTENTS

Introduction .................................................... 866
I. Scope of the Problem ........................................ 870
   A. Cleanup Problems at Home and Abroad .............. 870
      1. Jefferson Proving Ground, Madison, Indiana ... 870
      2. McClellan Air Force Base, Sacramento, California ............................................. 871
      3. Rhein-Main Air Base and Mannheim Army Base, Germany .................................. 872
   B. Length and Price of Cleanup ........................... 875

II. Domestic Military Facilities: Cleanup and Closure ...... 879
   A. The Base Closure Process .............................. 879
   B. The Cleanup Regime for Military Facilities ...... 882
      1. Application of CERCLA, RCRA, and State Requirements .................................. 882
      2. Coverage of Military Activities and Facilities .............................................. 884
      3. The DOD Environmental Remediation Process ...................................................... 886
         a. Preliminary Assessment .......................... 887
         b. Site Inspection .................................. 887
         c. Remedial Investigation/Feasibility Study .... 888
         d. Remedial Design/Remedial Action .......... 889
   C. Problems in Fulfilling Restoration Obligations at Military Facilities .................... 890
      1. Remedy Selection ..................................... 891
         a. Tailoring ......................................... 891
         b. Containment ..................................... 894
         c. Cleanup Standards ................................ 896

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d. Presumptive Remedies .......................... 897
2. Statutory Coordination; Enhanced State and
   Local Role .................................... 898
3. Funding ........................................ 902
   a. Trends ....................................... 902
   b. Funding Priority—Site Selection .......... 906
   c. Funding Priority—Remedy Selection ...... 908
   d. Funding Priority—“Too Dirty To Close” .... 909
D. Problems in Transferring Military Facilities to State
   or Local Control ............................... 910
   1. The Parcelization Process .................... 911
      a. Overview ................................... 911
      b. Clarifying CERFA’s Ambiguous
         Definitions ................................. 913
      c. State and Local Participation .......... 914
      d. Buffer Zones To Protect Parcelized
         Properties .................................. 915
   2. Leasing ....................................... 916
   3. Liability and Indemnification ............... 918
   4. Fast-Track Cleanups and Below Market Rate
      Transfers .................................... 921
III. Overseas Military Facilities: Cleanup and Closure ...... 923
   A. Who Should Pay? .............................. 928
   B. Which Standards Govern? .................... 935
      1. Compliance Policy .......................... 937
      2. Cleanup Policy .............................. 938
      3. Consistent Approach Needed ............... 941
Conclusion ....................................... 943

INTRODUCTION

Near the end of the 1980’s, as the Cold War drew to a close, the
Department of Defense (DOD) operated more than 5500 military
bases, supply depots, and other major facilities in the United States
and around the world.1 The Army, Navy, Air Force, and Marines
collectively spent more than $78 billion per year to run these facilities,
and the land territory they occupied consisted of more square mileage
than the entire State of Indiana.2 As the threats to the Nation’s secu-

1. See ANDREW C. MAYER & DAVID E. LOCKWOOD, CONGRESSIONAL RESEARCH
SERV., MILITARY BASE CLOSURES: ISSUES FOR THE 103D CONGRESS CRS-1 (1993); DE-
PARTMENT OF DEFENSE, BASE CLOSURE AND REALIGNMENT REPORT 227 (1993) [herein-
after BASE CLOSURE AND REALIGNMENT REPORT].

Stat. 2270 (1988) (providing operation and maintenance funding for the Army, Navy, Air
Force, Marines, and defense agencies for fiscal year 1989); see also 139 CONG. REC. S11,358
rity receded, defense expenditures of this magnitude became much more difficult to justify.

Beginning in 1988, Congress and the Pentagon initiated a process to identify and eventually close military facilities that had outlived their usefulness. Over the past 6 years, three rounds of review have taken place, and in the process, nearly 250 domestic bases have been designated for closure.\(^3\) The closures are projected to reduce the Nation's domestic base infrastructure by approximately 15% and to result in defense savings of more than $5.5 billion per year once the closure process is complete.\(^4\) In addition, the U.S. military plans to close or realign nearly 40% of its overseas facilities by 1996. Senior officials in the federal government view the comprehensive base closure program as an effort "of historic proportions"\(^5\) that will gather additional force in 1995 when the fourth round of closure decisions goes forward.\(^6\)

Before military bases can be converted to productive local reuse, however, the Defense Department faces the formidable task of cleaning up the contamination of land and water resources that exists at many of these facilities.\(^7\) This contamination stems from decades of loosely controlled ordnance testing, hazardous materials usage, fuel oil disposal, and other similar past practices. More than 500 contaminated sites have been identified at the domestic bases included in the

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4. Id. The General Accounting Office (GAO) believes, however, that the DOD's cost savings estimates "may be too optimistic," based on the fact that closures to date have produced savings that are significantly less than the amount originally projected. See GAO, Pub. No. NSIAD-94-210, Future Years Defense Program: Optimistic Estimates Lead to Billions in Overprogramming 5 (1994).


first two base closure rounds. Overall, twenty-five of the domestic bases on the closure lists are so badly contaminated that they have been included on the Environmental Protection Agency’s (EPA’s) National Priorities List (NPL)—the national roster of hazardous waste sites that pose the most serious threats to human health and the environment.

The Pentagon has stated that the problem of cleaning up toxic and hazardous waste sites at military facilities is its “largest challenge.” In mid-1993, President Clinton proposed a 5-year $5 billion cleanup program to help the Pentagon meet this challenge when bases are closed. However, the recent shift in political control of Congress has led to suggestions that military environmental programs be sharply curtailed, and there are now serious concerns about whether the Pentagon will be given the funding that it needs for its cleanup programs. Delays in cleaning up bases in the United States have impeded the ability of local communities to effectively reuse these bases; only 3% of the potentially contaminated sites on the initial 1988 base closure list have been completely cleaned up, a discouraging statistic for states and municipalities hoping to ease economic disloca-


9. Id.


11. See Department of Defense, Revitalizing Base Closure Communities (1993) [hereinafter Revitalizing Base Closure Communities]. President Clinton’s 5-year “fast track” program called for spending $2.2 billion on cleanup activities directly and $2.8 billion to enable the DOD to help communities deal with the economic dislocation stemming from the closures. Id.

12. See GOP Senators Would Abolish Defense Environmental Programs, Def. Env't Alert (Inside Wash. Pub., Wash., D.C.), Dec. 14, 1994, at 11 (suggesting that the change in leadership may “deal a huge blow” to DOD environmental programs). Shortly after the November 1994 election, two senior Members of the Senate Armed Services Committee circulated a “Dear Colleague” letter in which they proposed transferring or eliminating $930 million in DOD and DOE/defense environmental programs for fiscal year 1995, and $5 billion over the next 5 years. Id. This letter coincided with a recommendation by the Pentagon’s Comptroller that major cuts should occur in military cleanup funding over the next 2 fiscal years. See DOD Comptroller Slashes $530 Million from Cleanup, Compliance Request, Def. Env't Alert (Inside Wash. Pub., Wash., D.C.), Dec. 8, 1994, at 1.

13. CBO, Environmental Cleanup Issues, supra note 8, at 3; see also GAO, Pub. No. NSIAD-94-133, Environmental Cleanup: Too Many High Priority Sites Impede DOD’s Program 4-5 (1994) [hereinafter Environmental Cleanup: Too Many High Priority Sites] (showing that, out of 2521 potentially contaminated sites at closing bases, response action was complete at 80 sites).
tion caused by the base closures. This problem can be expected to worsen if Congress does not provide adequate funding for domestic military cleanup programs.

Overseas, cleanup efforts are often hindered by concerns about whose environmental standards will apply (the relatively strict standards that govern cleanups in the United States, or the standards of the host country that may be much weaker). There are also major questions about which country will bear the necessary costs of environmental remediation when U.S. bases are closed abroad.\(^\text{15}\) When these issues are not resolved, America's relations with her allies can become strained, as illustrated by the complaints about DOD cleanup efforts lodged directly with President Clinton during his recent visit to the Philippines.\(^\text{16}\)

This article reviews the process that governs cleanup when military bases are closed and recommends specific changes in environmental laws and departmental practices. If the share of the DOD budget devoted to cleanup is decreased—or even if it is held to present levels—it will be essential to spend prudently whatever cleanup funds are made available, and to utilize cost-efficient approaches to the maximum extent possible. The recommendations contained in this article are designed to help DOD policymakers achieve these goals.

The opening section of the article outlines the scope of the cleanup challenge facing the U.S. military at its facilities in the United States and around the world. The second section traces the development of cleanup requirements that apply to military bases located in the United States, and then considers the difficulties that federal and

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14. *Hearings on the DOD Envtl. Program Supplemental Appropriation Request Before the DOD Envtl. Restoration Program of the House Comm. on Armed Servs.*, 102d Cong., 2d Sess. 5 (1992) (statement of James Werner, Natural Resources Defense Council). There are also concerns about the sufficiency of funds for cleanup of ongoing facilities in the military's Defense Environmental Restoration Account (DERA). The Air Force, for example, has set a goal of cleaning up all its bases by the year 2000. *DOD Authorization for Appropriations for Fiscal Year 1994 and the Future Years Defense Program: Hearings Before the Senate Comm. on Armed Servs.*, 103d Cong., 1st Sess. 416 (1993) [hereinafter *1993 Senate Armed Servs. Hearings*] (testimony of Alan P. Babbitt, Deputy for Hazardous Material and Waste, Deputy Assistant Secretary of the Air Force (Env't, Safety & Occupational Health)). However, to meet this goal, the Air Force has told Congress that it would need significantly more than its current share of the DERA. *Id.* at 417. The Navy also has concerns about a funding "shortfall." *See id.*

15. *See infra part III.A.*

state governments have encountered in implementing the cleanup program. It also considers the problems that have been encountered in transferring outmoded military facilities to local control and suggests reforms in current policy that would improve DOD cleanup efforts at home. These are designed to accelerate the cleanup process, make it more affordable and flexible, and increase the roles that state and local authorities play in the process.

The third section of the article examines the complex problems encountered in the cleanup of closing U.S. military facilities located outside the United States, and reviews the ongoing efforts by Congress to deal with these problems. It considers how to reconcile the different cleanup standards that apply in the United States and overseas, and proposes how to allocate cleanup costs between the United States and host countries in a fair and equitable manner. The article concludes with a brief summary of proposed reforms that would facilitate cleanup of bases at home and abroad.

I

SCOPE OF THE PROBLEM

A. Cleanup Problems at Home and Abroad

Over the past several years, the scope of the cleanup challenge facing the U.S. military has become increasingly apparent. Several examples serve to illustrate the dimensions of this problem, both at home and abroad.

1. Jefferson Proving Ground, Madison, Indiana

The Army decided to include its Jefferson Proving Ground (JPG) facility in the initial round of base closures, but the full scope of environmental hazards that existed at the base was not known at the time. Since World War II, the JPG had served as a major weapons testing facility for the Army, resulting in densely contaminated proving grounds. More than one hundred square miles of southeastern Indiana (an area equivalent in size to Manhattan Island and the District of Columbia combined) became crammed with 1.5 million rounds of unexploded ordnance and an additional 6.9 million bombs, mines, and artillery shells, many of which still have explosive potential. In addition to ordnance, the JPG’s facilities have been contaminated by...
low level radioactive waste, toxic sludge, and pesticide residue.\textsuperscript{20} Of the JPG’s 55,000 acres, only 2000 are regarded as uncontaminated.\textsuperscript{21}

The Base Closure Commission originally estimated that closing the JPG would cost only $30 million, a figure that would provide for decontamination of the principal buildings at the base.\textsuperscript{22} But to remove all bombs and other unexploded ordnance from the JPG, the Army would have to strip the entire facility to a depth of thirty feet, using specially armored bulldozers to do so; the Army estimates this task could cost $5 to $10 billion,\textsuperscript{23} and other estimates suggest as high as $13 billion.\textsuperscript{24} The Army does not have this kind of money to spend, nor is Congress likely to provide it. Thus, the Army is faced with the prospect of declaring the JPG a “national sacrifice zone” and walling off the one hundred square miles from virtually all human contact for the foreseeable future. Even if the Army exercises this option, it would still be necessary to monitor the facility indefinitely and to take whatever future action may be required to prevent toxic compounds from leaching or migrating into surrounding areas.

2. McClellan Air Force Base, Sacramento, California

McClellan Air Force Base had a distinguished career during World War II and in the years following as the air logistics headquarters for the Air Force.\textsuperscript{25} The base’s size and stature has been reduced considerably in recent years, and the Air Force recommended McClellan for inclusion on the 1993 base closure list.\textsuperscript{26} At the present time the base serves as a maintenance facility for some of the Nation’s most sophisticated aircraft, including the F-117A Stealth fighter plane.\textsuperscript{27}

McClellan is also home to some of the Nation’s worst toxic waste contamination; the base ranks eighth on EPA’s list of the most polluted DOD facilities in the country and has the highest hazard ranking score of any Air Force base.\textsuperscript{28} By the early 1980’s, the Air Force had

\begin{itemize}
\item \textsuperscript{20} Id. at 4-5.
\item \textsuperscript{21} Id. at 5.
\item \textsuperscript{22} Id.
\item \textsuperscript{23} ENVIRONMENTAL CLEANUP: Too Many High Priority Sites, supra note 13, at 8.
\item \textsuperscript{24} SHULMAN, supra note 17, at 6.
\item \textsuperscript{25} Id. at 83-84.
\item \textsuperscript{26} GAO, Pub. No. NSIAD-93-173, MILITARY BASES: ANALYSIS OF THE DOD’s RECOMMENDATIONS AND SELECTION PROCESS FOR CLOSURES AND REALIGNMENTS 23 (1993) [hereinafter MILITARY BASES: ANALYSIS OF THE DOD’S RECOMMENDATIONS]. The Defense Department, however, did not include McClellan in its list of recommended closures for 1993 because of the potential economic impact of closure. See id. at 20-22.
\item \textsuperscript{27} SHULMAN, supra note 17, at 84.
\item \textsuperscript{28} DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL CLEANUP PROGRAM ANNUAL REPORT A-11 to A-168 (1994) [hereinafter DOD, 1994 ENVIRONMENTAL CLEANUP REPORT] (comparing hazard ranking scores for all DOD installations on the National Priorities List (NPL)); GAO, Pub. No. NSIAD-95-8, ENVIRONMENTAL CLEANUP: CASE
identified 170 contaminated sites at the facility, many of these resulting from the routine dumping of solvents, degreasers, waste oils containing polychlorinated biphenyls (PCB's), and electroplating wastes containing cyanide and other toxins. Two of the most persistent contaminants at McClellan are trichloroethylene (TCE) and dichloroethylene (DCE), chemicals that have been shown in numerous animal studies to cause nervous system, liver, and kidney damage, and a variety of tumors. TCE has been found in groundwater at McClellan at levels more than 4500 times the maximum level permitted by EPA, while DCE has been found in monitoring wells at an average level of at least one hundred times the applicable standard. As a result of this contamination, a number of wells in the area have been forced to close, including one that served as a source of water for 23,000 nearby residents.

Although the Air Force has developed a good relationship with the surrounding community, and is now working diligently to remedy environmental problems at McClellan, significant cleanup still remains to be done. As of late 1993, cleanup efforts had been completed at only thirty-six sites while the number of contaminated sites at McClellan had grown from 170 to 177, with eighty-one additional areas still being studied for potential designation. McClellan's environmental director estimates that the soil at the base is contaminated to a depth of 100 feet, and that the overall cleanup effort could take 40 years to complete. Furthermore, cost estimates for the entire cleanup are daunting: the Air Force's official estimate is $1.7 billion, but McClellan's officials believe it will cost a "prohibitive $10 billion" to clean up the facility by the Air Force's target date of 2000 if currently existing technology is used.

3. Rhein-Main Air Base and Mannheim Army Base, Germany

Since 1990, the United States has proceeded to close 62% of all U.S. Army facilities in Germany and 70% of all Air Force facilities in that country, yet U.S. military reports indicate that many of these

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29. SHULMAN, supra note 17, at 83-92.
30. Id. at 87.
31. Id. at 86.
32. Id.
34. Id. at tbl. B-1; SHULMAN, supra note 17, at 89.
35. See CASE STUDIES OF SIX HIGH PRIORITY INSTALLATIONS, supra note 28, at 35; see also SHULMAN, supra note 17, at 89; DOD, 1994 ENVIRONMENTAL CLEANUP REPORT, supra note 28, at A-108, B-1-84.
bases have environmental problems.\textsuperscript{37} As of 1992, the U.S. Army had identified more than 350 contaminated sites at its facilities in Germany and found that polluted wastes from these facilities had "begun to threaten the health of thousands of U.S. and German citizens."\textsuperscript{38} Just as with the DOD's domestic sites, problems at overseas facilities stem from improper disposal of jet fuel, degreasing solvents, PCB's, paint sludges, heavy metals, and unexploded munitions.\textsuperscript{39}

The U.S. military's experience at the Air Force's Rhein-Main Base and the Army's Mannheim Base is illustrative. At Rhein-Main, more than 300,000 gallons of jet fuel have leaked from an underground pipeline into the primary groundwater aquifer that provides drinking water for the city of Frankfurt.\textsuperscript{40} The Air Force has spent $10 million thus far in an attempt to stem the problem.\textsuperscript{41} Similarly at the Mannheim Army base, the use of cleaning solvents such as TCE threatens the main source of drinking water for 350,000 citizens living in the area.\textsuperscript{42}

Base closure cleanup issues could become a significant irritant in U.S.-German relations. The United States fears the "potential political ramifications" if it discloses the cleanup problems to its German hosts.\textsuperscript{43} An internal Air Force memo states: "[I]f they identify sites, do nothing and the Germans find out, they have problems. If they don't do anything and the Germans identify [that] the pollution exists, they have problems."\textsuperscript{44} Local officials in turn recognize that they may be left with substantial cleanup costs when the United States closes its facilities. The Mayor of Mannheim, for example, believes that when the United States leaves, "it is increasingly clear that it will be the Germans who pay for [needed cleanup]."\textsuperscript{45}

These examples demonstrate quite vividly the magnitude of the task that lies ahead. In the domestic sphere, legislators have noted that serious environmental problems exist at nearly every base slated for closure. In California alone, "all of the 28 bases proposed for clo-

\textsuperscript{37} The United States has more than 30 major military bases in Germany, far more than exist in any other country. See id. at 21.

\textsuperscript{38} Michael Satchell, The Mess We've Left Behind, U.S. NEWS & WORLD REP., Nov. 30, 1992, at 28, 30 [hereinafter Satchell, The Mess We've Left Behind]. German cities and towns are particularly vulnerable to groundwater contamination because most German drinking water comes from aquifers rather than reservoirs. Id. at 28; see also Shulman, supra note 17, at 110.

\textsuperscript{39} Satchell, The Mess We've Left Behind, supra note 38, at 28.

\textsuperscript{40} Shulman, supra note 17, at 110.

\textsuperscript{41} Id.

\textsuperscript{42} Satchell, The Mess We've Left Behind, supra note 38, at 30.

\textsuperscript{43} Shulman, supra note 17, at 111.

\textsuperscript{44} Id.

\textsuperscript{45} Id. at 112. A former chief of the Army's environmental law division put this somewhat more caustically: "The costs are going to be very high. We are screwing our friends big time." Satchell, The Mess We've Left Behind, supra note 38, at 29.
sure are heavily contaminated,” with ten of the twenty-eight bases included on the National Priorities List. In the DOD’s most recent report to Congress on its domestic environmental cleanup program, it listed more than 10,400 sites at 1722 installations in the United States as “active” (the Pentagon’s term for a potentially contaminated site) and as requiring further intensive study and/or remediation. Every state in the country has at least one of these sites located within its borders; the list of states with the largest number of contaminated sites is headed by California, Texas, Pennsylvania, and Virginia.

At 60% of these sites, the pollution consists of fuel and solvents; 30% of the sites contain toxic and hazardous waste; 8% of the sites contain unexploded bombs and artillery shells; and 2% of the sites have low level nuclear waste. In the view of one close observer, the breadth of contamination that exists at military facilities (including nuclear weapons production plants under the Energy Department’s jurisdiction) represents “the largest and most serious environmental threat this country faces.”

Significant contamination also exists at overseas bases. For instance, when the Navy and the Air Force closed their facilities in the Philippines in the early 1990’s, they left behind substantial quantities of toxic chemicals as a result of decades of careless hazardous materials usage. In Europe, the Air Force concedes that the soil and

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47. DOD, 1994 ENVIRONMENTAL CLEANUP REPORT, supra note 28, at 45. These figures include both operating Defense Department facilities and those slated for closure. The GAO reports that at the bases slated for closure, more than 2500 sites at 149 installations are regarded as active. ENVIRONMENTAL CLEANUP: TOO MANY HIGH PRIORITY SITES, supra note 13, at 4-5.
49. 1993 Senate Armed Servs. Hearings, supra note 14, at 375 (statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.)).
groundwater may be polluted at all of its airfields.\(^5\) It is difficult, however, to comprehensively assess the extent and scope of the contamination at overseas bases because the military has been reluctant to fully disclose this information; it fears that “release of the totality of the information would jeopardize our relationships” with other countries.\(^5\) Consequently, information about overseas contamination tends to be more anecdotal than in the domestic sphere, although considerable data exists for selected facilities and particular regions.

B. Length and Price of Cleanup

Even though the DOD has made significant strides in identifying and investigating the level of contamination at domestic base sites, the pace of actual cleanup has been quite slow. As the General Accounting Office (GAO) recently found, “most of the time and money has been spent studying the problem.”\(^5\) DOD officials have acknowledged this and expressed concern that by concentrating on investigations rather than actual cleanup, the program has been afflicted by “paralysis by analysis.”\(^5\) The numbers seem to bear this out. Remedial cleanups are actually in place at “very few” sites—permanent remedies have been installed thus far at only 335 of the Pentagon’s 10,400 most hazardous sites.\(^5\)

The most recent DOD progress report on its cleanup program cites several cases that show how lengthy the groundwater cleanup process can be.\(^5\) At the Army’s Twin Cities Ammunition Plant in Minnesota, for example, contamination of groundwater was discovered in 1981, yet the preliminary assessment of the site was not completed until 1988, and a feasibility study was not finished until 1993.\(^5\) The Army targets the year 2000—nineteen years after the contamination was first identified—as the date by which the final cleanup rem-

\(^{52}\) Cunningham, U.S. Foreign Base Closure, supra note 36, at 14-17. The Air Force expects to find at least 10 or 20 contaminated sites at each of its overseas installations. Shulman, supra note 17, at 109-10.

\(^{53}\) Hazardous Waste Problems at Dep’t of Defense Facilities: Hearings Before the Subcomm. on Env’t, Energy & Natural Resources of the House Comm. on Gov’t Operations, 100th Cong., 1st Sess. 81 (1987) (testimony of Carl Schafer, Deputy Assistant Secretary of Defense (Env’t)).

\(^{54}\) Environmental Cleanup: Too Many High Priority Sites, supra note 13, at 2-3.

\(^{55}\) 1993 Senate Armed Servs. Hearings, supra note 14, at 375 (testimony of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Env’t Sec.)).


\(^{57}\) Id. at 36-42.

This example is not unusual. EPA data suggest that the average Superfund site takes 15 years to progress from initial discovery of contamination to the stage where remedial measures are fully in place. Furthermore, remediation at sites such as the Air Force's McClellan facility may take several decades to complete, while the much-publicized cleanups at the Army's Rocky Mountain Arsenal or the Energy Department's Hanford Nuclear Reservation (used for nuclear weapons production) may never be completed.

In order to address the concern about paralysis by analysis, the Pentagon has used interim actions, in which environmental contamination is contained, and potentially diminished, but not fully addressed. In fiscal year 1994, however, the DOD hoped to shift its emphasis from investigations to actual cleanup; for the first time, the DOD expected that more of its funds would be committed to the remedial phase rather than the study phase at contaminated sites.

In addition to the problematic pace of cleanup, cleanup costs pose another major challenge for the Defense Department. In the past decade, overall cost estimates for domestic base cleanups have risen dramatically. In 1985, when many of the environmental problems at DOD facilities first began to surface, the DOD estimated that the cost to remediate its installations would be between $5 and $10 billion. Three years later, it raised this projection between $9

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59. DOD, 1994 ENVIRONMENTAL CLEANUP REPORT, supra note 28, at A-158; see also 1993 DERP REPORT, supra note 58, at B-94.
60. Administration of the Federal Superfund Program: Hearings Before the Subcomm. on Investigations & Oversight of the House Comm. on Pub. Works & Transp., 102d Cong., 1st Sess. 197 (1991) (testimony of Dr. Jan Paul Acton, Assistant Director, Natural Resources & Commerce Div., Congressional Budget Office); see also CBO, 1995 ISSUES AND OPTIONS, supra note 56, at 21 (indicating that the average DOD cleanup requires 14 years and the average nondefense NPL cleanup takes 13 to 15 years).
61. See SHULMAN, supra note 17, at xi-xv, 73, 100-03; see also HANFORD TANK WASTE PROGRAM, supra note 50, at 27 (stating that, at current cleanup rates, vitrification of Hanford waste will likely not be completed for more than 100 years).
62. The Defense Department's most recent report to Congress indicates that interim actions have been completed or are underway at 1232 sites, or nearly 12% of the total number of active sites. DOD, 1994 ENVIRONMENTAL CLEANUP REPORT, supra note 28, at 45-46. This figure represents an increase of approximately one-third from the number of interim actions complete or underway at military installations at the end of fiscal year 1992. See 1993 DERP REPORT, supra note 58, at 8.
64. GAO, PUB. No. T-RCED-92-82, FEDERAL FACILITIES: ISSUES INVOLVED IN CLEANING UP HAZARDOUS WASTE 5 (1992) [hereinafter FEDERAL FACILITIES].
CLEANING UP MILITARY WASTES

and $14 billion. Current official estimates of overall cleanup costs are now $30 billion, a threefold to sixfold increase since the original estimate. A major reason for these higher cost projections is that the DOD has tripled the number of potentially contaminated sites in the last 7 years. Even DOD current cost estimates may prove far too modest, however. The Congressional Budget Office (CBO) believes that if the current pace of budgetary growth is maintained, the DOD will hit the $30 billion expenditure level before the year 2000. According to the DOD's Office of the Inspector General, $100 to $200 billion may ultimately be required to complete the overall DOD cleanup effort. If that occurs, the military's toxic waste remediation effort may rival the cost of the Nation's savings and loan bailout.

Congress increased the level of funding for DOD domestic environmental restoration efforts in each of the fiscal years 1990 through 1994, to an approximate level of $2.5 billion per year. During these years, DOD officials told Congress that the money the DOD was receiving for domestic restoration programs was adequate. In the most recent defense appropriation statute, however, Congress reduced funds for cleanup at operating DOD bases by $200 million.

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65. 1991 House Armed Servs. Hearings, supra note 10, at 194. The official testimony indicated that the revised DOD estimate was based on 1988 figures, and that the Department planned to update its estimate. Id.

66. See Elizabeth A. Palmer, Pollution Clogs the Transfer of Land to Civilian Uses, CONG. Q., Mar. 27, 1993, at 770; see also DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION REPORT 2 (1992) [hereinafter 1992 DERP REPORT]. It appears that the rapid escalation in estimated restoration costs is attributable to several factors: (1) the dramatic twenty-fivefold increase in the number of potentially contaminated sites, from between 400 and 800 when the program got underway in 1985, to just under 20,000 sites identified in the DOD's most recent report to Congress, see CBO, 1995 ISSUES AND OPTIONS, supra note 56, at 5; (2) the frequent need for additional restoration once sites are adequately investigated, see SHULMAN, supra note 17, at 5; and (3) the inflating costs of manpower and machinery needed for restoration. Id. At bases slated for closure, the DOD estimates that cleanup efforts will cost $4.3 billion through 1999. CBO, 1995 ISSUES AND OPTIONS, supra note 56, at 3.

67. CBO, 1995 ISSUES AND OPTIONS, supra note 56, at 18 (indicating that $20 billion could be spent in the next 5 years, in addition to the $11 billion already spent on the DOD's cleanup program).


69. H.R. REP. No. 200, 103d Cong., 1st Sess. 487 (1993), reprinted in 1993 U.S.C.C.A.N. 2038. To keep these numbers in perspective, funding for defense environmental restoration represented approximately 0.1% of the total DOD budget in 1988. CBO statement, supra note 48, at 6-7. By 1994, restoration funding had risen to the level of approximately 1% of the DOD budget. Id.

cut that prompted major criticisms from environmental groups.\textsuperscript{71} The reduction comes at a time when cleanup funding needs are likely to increase, because work at many contaminated sites is now shifting from the investigatory stage to the more costly remedial action stage. As a result, the gap between DOD cleanup needs and the funds available for cleanup will likely widen, and senior Pentagon officials are starting to acknowledge this in their public statements.\textsuperscript{72} As the shortfall in funding becomes more apparent, local communities and environmental groups may become increasingly concerned about the DOD's ability to accelerate (or at least maintain) the pace and quality of military base cleanups.

Funding shortages may also pose a problem for cleaning up overseas facilities. Data from EPA reportedly indicated that the Pentagon planned to spend more than \$1 billion for cleanups overseas during fiscal year 1992.\textsuperscript{73} Yet an Army white paper suggests that remediating soil and groundwater contamination at U.S. military facilities in Germany alone could cost in excess of \$3 billion.\textsuperscript{74} Given the fact that the armed services plan to close or realign nearly 40\% of their overseas facilities by the end of fiscal year 1996,\textsuperscript{75} the overseas cleanup burden seems likely to grow significantly in the future.

With the limited progress to date and resources almost certain to be scarce for both domestic and overseas cleanups for the foreseeable future, it makes sense to confront base closure cleanups on a much more systematic basis. Some adjustments to base closure process have been made in the past 2 years, which should increase the pace of defense conversion. But to make major strides in cleaning up military facilities slated for closure, additional flexibility in remedy selection and the role of federal and state authorities is needed. To achieve this, Congress, the DOD, and EPA must cooperate to adopt some of the

\textsuperscript{71} Over 60 Groups Strike Out Against Cuts to Environment Dollars, DEF. ENV'T ALERT (Inside Wash. Pub., Wash., D.C.), Dec. 28, 1994, at 4-6 (expressing deep concern that proposed "drastic cuts in Defense Department environmental programs" could undermine the "spirit of partnership" in cleanup efforts).

\textsuperscript{72} Appropriators Cut \$400 Million from DOD Environmental Cleanup Requirements, DEF. ENV'T ALERT (Inside Wash. Pub., Wash., D.C.), Oct. 5, 1994, at 13-14, 18. Sherri Wasserman Goodman, the DOD's top environmental officer, recently stated that, given existing technology and the "cumbersome process" that governs DOD cleanups, "we do not have enough money in the federal treasury to complete all of our cleanups." Id. at 14.

\textsuperscript{73} See SHULMAN, supra note 17, at 112 (citing EPA documentation of the Pentagon's appropriation plans). A portion of these expenditures may be due in part to ongoing compliance costs.

\textsuperscript{74} See Satchell, The Mess We've Left Behind, supra note 38, at 28, 30.

\textsuperscript{75} See infra part III for a discussion of U.S. policy toward closing overseas bases, and the number of bases being realigned or closed.
Superfund reforms that Congress considered but failed to enact this year.\textsuperscript{76} In addition, a number of other changes in the legal and policy framework governing base closures at home and abroad are necessary.

II
DOMESTIC MILITARY FACILITIES: CLEANUP AND CLOSURE

A. The Base Closure Process

Because base closures almost always mean job losses for nearby communities,\textsuperscript{77} the Defense Department encounters a great deal of congressional opposition to the realignment or closure of military bases. In 1977, for example, after more than sixty major defense bases and hundreds of smaller facilities were closed during the previous decade,\textsuperscript{78} affected communities pressured Congress to restrict the closure process.\textsuperscript{79} Congress responded with a law requiring the Pentagon to notify Congress and to prepare economic, environmental, and strategic analyses of a closure's effect on the local community at least sixty days before closure of a military installation.\textsuperscript{80} During the same period, federal courts held that the DOD was required to comply with the National Environmental Policy Act (NEPA) before closing a base.\textsuperscript{81} As a result of the statutory restrictions and the NEPA obligations, through the remainder of the 1970's and continuing throughout most of the 1980's the Pentagon found it practically impossible to close any major bases.\textsuperscript{82}

In 1988, severe budgetary pressures and public concerns about wasteful military spending led Congress to establish a comprehensive closure process for domestic military bases in the Base Closure and

\textsuperscript{76} See discussion infra part II.C.

\textsuperscript{77} DEFENSE BASE CLOSURE AND REALIGNMENT COMM'N, REPORT TO THE PRESIDENT viii (1993) [hereinafter 1993 COMM'N REPORT]. Over the past three decades, nearly 93,000 civilian jobs have been lost as a result of base-closures. However, according to the DOD's Office of Economic Adjustment, 158,000 new jobs were created during this period to replace the old ones. Id.

\textsuperscript{78} BASE CLOSURE AND REALIGNMENT REPORT, supra note 1, at 229.

\textsuperscript{79} See Natalie Hanlon, Military Base Closings: A Study of Government by Commission, 62 U. COLO. L. REV. 331, 359-61 (1991). For example, congressional criticism of DOD plans to close Fort Dix and Loring Air Force Base in the late 1970's resulted in these bases being kept open (at least for a time in the case of Loring). Id. at 335 n.18.


\textsuperscript{82} See BASE CLOSURE AND REALIGNMENT REPORT, supra note 1, at 230.
Realignment Act (1988 BCRA). Congress recognized that the end of the Cold War required a significant reduction of the U.S. military force structure. But to accomplish such a reduction, Congress needed to offset the constituent pressures that had previously made base closures next to impossible. Accordingly, Congress adopted a system of independent commissions to review Defense Department recommendations for base closures and realignments in the United States.

Under the 1988 BCRA, an independent commission recommended closing eighty-six bases and realigning or partially closing fifty-nine more in the United States. While the law helped to break the base closure logjam, the statute's closure criteria and the commission's decisionmaking process created problems. For example, one obsolete base, Fort Monroe in Virginia, was kept open solely because the cost of removing unexploded ordnance could not be recouped within 6 years, one of the requirements for closure under the 1988 BCRA. Additionally, because the commission's deliberations were often conducted in secret, allegations arose that Members of Congress and the DOD had weighted the commission with individuals sympathetic to particular causes.

In 1990 Congress once again modified the base closure law, resulting in the statute that governs the process today. In adopting the Defense Base Closure and Realignment Act of 1990 (BCRA), Congress


84. 10 U.S.C. § 2687 (1988) (by its terms, applies exclusively to military installations located within the United States and not to overseas closures). The threshold for a domestic base to be considered for closure under the statute is a civilian employment level of 300, and for realignment, an employment reduction of 50%. Id.

85. Hanlon, supra note 79, at 337-38. The 1988 commission projected a net estimated savings of $5.5 billion over 20 years and a net loss of nearly 21,000 jobs. Id.

86. 10 U.S.C. § 2687; Hanlon, supra note 79, at 338 n.38.

87. See 1993 Comm'n Report, supra note 77, at 3-1.


The commission independently reviews the Secretary's recommendations and modifies the list if it finds that the selection criteria were not properly applied. 1993 Comm'n Report, supra note 77, at vii, 3-2. After the commission completes its work, it submits a report to the President. Id. at 3-2. The President may only approve or disapprove the list in its entirety; he has no authority to amend or modify the report in any way. Id. at 3-3. If he approves the list, the President submits the commission's report to Congress, which then has 45 legislative days to adopt or reject the report. Id. As with the President, Congress may only accept or reject the entire list. Id. The process thus seeks to minimize the
gress sought to provide the process with the maximum degree of insulation from political pressure. It provided that the commissions would be appointed by the President with the advice and consent of the Senate, and directed that they meet in the off-election years of 1991, 1993, and 1995.

The scheme of independent commissions seems to be working so far. Three rounds of closure have taken place since the new mechanism was adopted (the first round under the 1988 law, and the second and third rounds under the 1990 BCRA), resulting in 249 bases slated for closure, with projected savings from the 1993 round alone of $3.8 billion over the next 5 years.

However, while the current base closure scheme may have broken the gridlock in choosing which bases to close, the cleanup obligations that confront the DOD at these installations still pose a major obstacle to the rapid transfer of military bases to civilian use. Congress has established a 6-year deadline for achieving formal closure of these bases, but no statutory deadline exists for completion of the cleanup process itself. The rest of this section focuses on the difficult-

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89. Notwithstanding the congressional effort to insulate the BCRA process from political influence, local communities and Members of Congress have sought to block BRAC decisions by challenging such decisions in court. See, e.g., County of Seneca v. Cheney, 806 F. Supp. 387 (W.D.N.Y. 1992). For an earlier example of such a challenge, see McDowell v. Schlesinger, 404 F. Supp. 221 (W.D. Mo. 1975).

90. Mayer & Lockwood, supra note 1, at CRS-4.

91. 139 Cong. Rec. S11,346 (1993) (statement of Sen. Feinstein). It appears that the BRAC process has in fact succeeded in reducing political interference. See, e.g., id. at S11,346-48, S11,358 (statements of Sens. Feinstein & Coats). Senator Feinstein from California was unable to defeat the 1993 BRAC round that heavily impacted her home state. Id. at S11,346-48. Another Senator during the debate over the 1993 closures maintained that the 1988 and 1990 base closure laws had functioned to "save us from ourselves.... [W]e do not have final veto authority individually." Id. at S11,358 (statement of Sen. Coats).

92. 1993 Comm'n Report, supra note 77, at viii.

93. 10 U.S.C. § 2687 (requiring the DOD to complete all closures and realignments within 6 years of the date on which the President transmits the Commission's report to Congress); see Recommendations of the Senate Democratic Defense Reinvestment Task Force 2 (1993) [hereinafter 1993 Senate Democratic Reinvestment Task
ties inherent in the cleanup regime for domestic military facilities and on steps that could be taken to overcome these difficulties.

B. The Cleanup Regime for Military Facilities

1. Application of CERCLA, RCRA, and State Requirements

Cleanup of past contamination at domestic military facilities is primarily governed by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), with the Resource Conservation and Recovery Act (RCRA) and state laws playing important secondary roles. CERCLA was initially adopted by Congress in 1980, largely in response to a series of EPA reports that documented the existence of 30,000 to 50,000 inactive and uncontrolled hazardous waste disposal sites in the United States, with as many as 2000 posing serious risks to public health. Several highly publicized incidents involving the human health threat posed by hazardous waste sites convinced Congress and the public of the seriousness of the risks and of the need to provide adequate funds for cleanup.

Congress viewed CERCLA as a comprehensive environmental response and financing mechanism. The statute established a source of funding (the Superfund) for remedial actions to clean up nonfederal inactive sites, imposed joint and several liability upon generators and handlers of hazardous wastes, designated EPA as the federal agency responsible for enforcing the law, and directed EPA to promulgate a National Contingency Plan (NCP) that would incorporate procedures and standards for responding to releases of hazardous substances and other pollutants.

FORCE\](stating that of the 71 major bases targeted for closure since 1988, only 8 have actually closed their doors and are undergoing redevelopment).

95. Id. §§ 6901-6992k (1988 & Supp. V 1993). In brief, the distinction between the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and RCRA is that CERCLA establishes the procedures for remediation of past hazardous waste practices, while RCRA governs control of hazardous wastes and other contaminants at ongoing facilities. Id. § 9601(22); id. §§ 6922-6944. CERCLA is carried out primarily by federal authorities, while RCRA is carried out through hazardous waste control and permitting programs delegated to the states. Id. §§ 9604-9608; id. § 6904. Overlap problems between CERCLA and RCRA can arise when ongoing hazardous waste disposal takes place in conjunction with cleanup of past contamination.
97. SHULMAN, supra note 17, at xi, 93 (stating that byproducts from the Hanford Nuclear Reservation present a hazard to human health that will linger for more than a million years).
99. Id. §§ 9605-9611.
CERCLA differs from many other federal environmental statutes in that it does not prescribe the substantive standards that remediation actions are to attain.100 Rather, in meeting environmental cleanup standards, CERCLA provides that a remedial action that "permanently and significantly reduces the volume, toxicity or mobility" of hazardous substances or pollutants is to be preferred over all other types of remedial actions.101 The law also stipulates that "primary attention" must be given to releases that pose a public health threat.102

Under CERCLA, like other federal environmental statutes, states in most cases have the ability to adopt more stringent remediation standards than those that apply under federal law.103 State cleanup enforcement within the CERCLA framework has become increasingly active, as a number of states have enacted "mini-CERCLA's." A number of states, including California, Colorado, New Jersey, and Michigan, have imposed substantive standards that are more restrictive than federal standards or provide for standards where none exist at the federal level.104 Many of these state laws have been the source of extensive disputes over cleanup plans at federal facilities, including military bases.105

100. Id. § 9621(d).
101. Id. § 9621(d)(2)(c)(i).
102. Id. § 9621(d)(4)(f).
104. See, e.g., Major William D. Turkula, Determining Cleanup Standards for Hazardous Waste Sites, 135 MIL. L. REV. 167, 171-72 (1992) (discussing Colorado’s statutory scheme and related cleanup efforts); CONGRESSIONAL BUDGET OFFICE, FEDERAL LIABILITIES UNDER HAZARDOUS WASTE LAWS xv (1990) [hereinafter CBO, FEDERAL LIABILITIES]. The concentration of trichloroethylene (TCE) permitted under federal and state drinking water standards was discussed during the 1993 Armed Services hearings. 1993 Senate Armed Servs. Hearings, supra note 14, at 412 (testimony of Alan P. Babbitt, Deputy for Hazardous Material and Waste, Deputy Assistant Secretary of the Air Force (Env’t, Safety & Occupational Health)). While the federal standard under the Safe Drinking Water Act is five parts per billion (ppb), California’s comparable standard is 0.5 ppb, or 10 times as strict. Id. Air Force officials have been negotiating with EPA and state officials over how to comply with the differing TCE standards at George and Mather Air Force Bases in California. Id.
105. See Turkula, supra note 104, at 172-73; Richard E. Lotz, Federal Facility Provisions of Environmental Statutes: Waiver of Sovereign Immunity for “Requirements” and Fines and Penalties, 31 A.F. L. REV. 7, 12-13 (1989). Colorado has also encountered difficulty in enforcing its more stringent state standards under RCRA against the Army’s Rocky Mountain Arsenal. The State sued to close facilities at the Arsenal and to require specific groundwater monitoring, but the Army argued that cleanup at a Superfund site should be governed solely by EPA-coordinated CERCLA cleanup procedures. See United States v. Colorado, 990 F.2d 1565 (10th Cir. 1993), cert. denied, 114 S. Ct. 922 (1994); see also 1993 Senate Armed Servs. Hearings, supra note 14, at 413 (statement of Sen. Glenn).
2. Coverage of Military Activities and Facilities

Under CERCLA, the Defense Department must remediate contamination and assume financial liability for almost all activities at military installations located in the United States. The military cannot avoid liability arising from its ownership of military bases unless it can demonstrate that the government did not conduct, contract for, or permit the disposal of CERCLA-covered wastes.

In the 1986 Superfund Amendments and Reauthorization Act (SARA), Congress determined that it was necessary to strengthen the original CERCLA provisions to improve federal agency compliance, particularly at military installations. SARA provided that: (1) any regulations issued under the NCP would also apply to federal facilities; (2) remedial actions at federal facilities could be governed by state laws regarding removal and remedial action; and (3) federal agencies would disclose the existence of hazardous wastes and of any known releases to purchasers when transferring real property, and

106. 42 U.S.C. § 9620(a)(1). The initial version of CERCLA provided that all federal facilities "shall be subject to, and comply with, this chapter in the same manner and to the same extent, both procedurally and substantively, as any nongovernmental entity, including liability under this section." Id. Under Executive Order 12,580, the Secretary of Defense is delegated authority and responsibility to take action to comply with CERCLA when there is a release or threatened release of contamination at a military base. Exec. Order No. 12,580, 52 Fed. Reg. 2923 (1987) [hereinafter Exec. Order No. 12,580].


108. See EPA Guidance on Landowner Liability, 54 Fed. Reg. 34,236-37 (1989); 40 C.F.R. § 260.10 (1990); see also Davis & McCrum, supra note 107, at 32-33. Even if the DOD asserts these defenses, it may have difficulty escaping liability if no other potentially responsible party can be identified.


111. Id. § 9620(a)(4). But state law is not enforceable if it "is more stringent than the standards and requirements applicable to facilities which are not owned or operated by any such department, agency, or instrumentality." Id. The exception was to ensure that overzealous state officials would not seek discriminatory enforcement measures against federal facilities. See David W. Goewey, Assuring Federal Facility Compliance with RCRA and Other Environmental Statutes: An Administrative Proposal, 28 WM. & MARY L. REV. 513, 523-25 (1987).
take remedial actions prior to transfer.\textsuperscript{112} Congress also ordered the Secretary of Defense to carry out a Defense Environmental Restoration Program (DERP) to investigate and clean up contamination from pollution at DOD sites.\textsuperscript{113} To fund this program, Congress established a Defense Environmental Restoration Account (DERA) into which yearly appropriations for environmental restoration would be transferred.\textsuperscript{114}

Congress believed that SARA would help quell increasing public concerns over federal facility compliance with CERCLA\textsuperscript{115} and would enable states to pursue necessary enforcement actions against federal facilities.\textsuperscript{116} Even after SARA, however, EPA's enforcement of CERCLA against the Defense Department and other federal agencies continued to be weak,\textsuperscript{117} and federal agencies continued to challenge state environmental enforcement efforts, particularly the fines and penalties levied by states, under CERCLA and RCRA on the grounds of sovereign immunity.\textsuperscript{118} As a consequence, Congress returned to the issue again in 1992, when it adopted the Federal Facility Compliance Act (FFCA) as an amendment to RCRA.\textsuperscript{119} The FFCA reversed

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\item \footnotesize\textsuperscript{112} 42 U.S.C. § 9620(h) (1988 & Supp. V 1993). Leases of federal property, however, are not subject to this requirement because they do not involve transfer of legal title. See infra part II.D.2.
\item \footnotescript{113} 10 U.S.C. §§ 2702-2703 (1988).
\item \footnotescript{114} \textit{Id}. Under the terms of Executive Order 12,580, see supra note 106, President Reagan assigned the responsibility for carrying out the Defense Environmental Restoration Program (DERP) to the DOD within the overall framework of the Superfund Amendments and Reauthorization Act (SARA) and CERCLA. See 1993 DERP REPORT, supra note 58, at 1.
\item \footnotescript{115} Title III of SARA, known as the Emergency Planning and Community Right-To-Know Act (EPCRA), required owners or operators of hazardous waste sites to provide the public with detailed information on the status, planning, and remediation steps pursued at such sites. 42 U.S.C. §§ 11021-11023 (1988). By its terms, however, EPCRA did not apply to federal facilities. See \textit{id}. § 11049(7). On August 6, 1993, however, President Clinton signed Executive Order 12,856 to apply EPCRA to all federal agencies, including military installations. Exec. Order No. 12,856, 58 Fed. Reg. 41,981 (1993).
\item \footnotescript{117} See Exec. Order No. 12,580, \textit{supra} note 106, at 74. The Executive order was issued in 1987, 1 year after SARA was adopted, and provided, \textit{inter alia}, that EPA could not pursue an enforcement action against other federal agencies without first obtaining the approval of the Justice Department. \textit{Id}. The Executive order invoked the theory of the "unitary executive," which holds that disputes between federal agencies are to be resolved internally within the executive branch, and not by the federal judiciary. Wolverton, \textit{supra} note 109, at 579-81; \textbf{NATIONAL GOVERNORS' ASS'N & NAT'L ASS'N OF ATTORNEYS GEN., FROM CRISIS TO COMMITMENT: ENVIRONMENTAL CLEANUP AND COMPLIANCE AT FEDERAL FACILITIES vi} (1990).
\item \footnotescript{118} See, e.g., Ohio v. Department of Energy, 904 F.2d 1058 (6th Cir. 1990), \textit{rev'd}, 112 S. Ct. 1627 (1992); Mitzelfelt v. Department of Air Force, 903 F.2d 1293 (10th Cir. 1990); United States v. Washington, 872 F.2d 874 (9th Cir. 1989).
the attempts by federal agencies during the Reagan and Bush Administrations to resist state cleanup enforcement efforts, most notably at the Rocky Mountain Arsenal, and overrode a line of cases in which the federal agency position had been upheld.  

At the time the FFCA was adopted, 50% of the approximately 1100 federal facilities on the EPA docket consisted of Defense Department facilities, and the overall cost estimate for federal facility cleanup exceeded $100 billion. Since then, both the number of DOD facilities on the EPA docket and the overall cost estimate for federal facility cleanup have continued to climb. Although the FFCA was intended to resolve a long-running debate over whether the DOD must submit to EPA and state RCRA enforcement efforts, there have been no similar modifications to the SARA federal facilities provisions, and the states' authority to impose standards upon the Defense Department in the CERCLA cleanup process is still evolving.

3. The DOD Environmental Remediation Process

To carry out its cleanup obligations at domestic military facilities under CERCLA, RCRA, and other federal and state environmental statutes, the Defense Department has adopted an Installation Restoration (IR) Program. The IR Program handles the cleanup of both contaminated sites at bases scheduled for closure and the far larger number of contaminated sites at bases where DOD operations are

enforcement orders and fines under RCRA as long as the orders and fines are applied on a nondiscriminatory basis. See Wolverton, supra note 109, at 587.

120. NATIONAL GOVERNORS' ASS'N & NAT'L ASS'N OF ATTORNEYS GEN., supra note 117, at 11. The FFCA was adopted just after two federal court decisions in which the states lost enforcement actions against the federal government. Department of Energy v. Ohio, 112 S. Ct. 1627, 1640 (1992) (holding that RCRA did not subject the United States to state-enforced punitive fines); Maine v. Department of the Navy, 973 F.2d 1007, 1010 (1st Cir. 1992) (holding that CERCLA did not subject the federal government to state-enforced punitive fines).

121. CBO, FEDERAL LIABILITIES, supra note 104, at 7, 47; see 55 Fed. Reg. 34,492 (1990). The majority of the $100 billion estimate was attributable to weapons production facilities under the jurisdiction of the Department of Energy.


123. See Samuel W. Goodhope, The Role of States in the Cleanup of Closing Bases, Presentation at the Base Closure Cleanup Contracting Conference 8-9 (Dec. 8, 1993) (on file with authors); Nelson & Hurley, supra note 109, at 53-55. In recent policy guidance, the DOD has moved to increase state and local participation in the CERCLA process. See DEPARTMENT OF DEFENSE, GUIDANCE ON IMPROVING PUBLIC INVOLVEMENT IN ENVIRONMENTAL CLEANUP AT CLOSING BASES 1-3 (1993) [hereinafter DOD, PUBLIC INVOLVEMENT GUIDANCE].

124. See NAVY/MARINE CORPS INSTALLATION RESTORATION MANUAL 3-1 (1992) [hereinafter NAVY/MARINE CORPS IR MANUAL].
ongoing. Guidance manuals implementing the IR Program form the basis for all environmental restoration decisions taken by the DOD in the context of base closures.

Each military department adheres to essentially the same basic steps mandated by CERCLA in carrying out the Installation Restoration Program. When evidence of past contamination at either a base slated for closure or an ongoing facility comes to the attention of an armed service branch, the CERCLA cleanup process takes place according to the four-stage procedure prescribed by the National Contingency Plan: (1) preliminary assessment, (2) site inspection, (3) remedial investigation/feasibility study, and (4) remedial design/remedial action.

a. Preliminary Assessment

The initial stage involves an installationwide assessment to determine if sites are present that may pose a threat to public health or the environment. The preliminary assessment focuses upon the source and nature of releases, pathways of exposure, exposure targets, and the potential need for removal or remedial action. Any person affected by a release or threatened release of a hazardous substance is authorized to petition the DOD to conduct a preliminary assessment.

b. Site Inspection

All potential sites are then inspected to determine whether contamination is actually present and whether further action is appropriate. A site inspection usually involves sampling soils, sediments, groundwater, and surface water, and is used to rank the seriousness of

125. Id. at 3-1 to 7-12.
126. See, e.g., id. at 1-9; EPA/NAVY CERCLA REMEDIAL ACTION TECHNOLOGY GUIDE 1 (1993).
127. 42 U.S.C. §§ 9604-9605; 40 C.F.R. § 300.400-.440 (1994). The basic procedures that the armed services follow on removal and remedial actions are broadly set forth in CERCLA § 104, the National Contingency Plan (NCP), and other EPA federal facilities guidance.
128. In the case of ongoing facilities, evidence of past contamination is likely to come to the attention of base commanders as a result of the services' audit programs. See, e.g., NAVY/MARINE CORPS IR MANUAL, supra note 124, at 4-4. For base closures, an environmental baseline survey is used to disclose, on an initial basis, the extent of past contamination. DEPARTMENT OF DEFENSE, POLICY ON THE IMPLEMENTATION OF THE COMMUNITY ENVIRONMENTAL RESPONSE FACILITATION ACT 1-3 (1993).
130. Id. § 9605(d). According to DOD estimates, the time required to complete a preliminary assessment varies widely from 18 months for simple soil contamination, to 36 months for complete soil contamination, to 6 years for groundwater contamination. CBO, 1995 ISSUES AND OPTIONS, supra note 56, at 21.
the hazards at the site. Sites that receive the highest scores on EPA’s Hazard Ranking System are put on the National Priorities List of most hazardous sites.\(^{132}\)

c. **Remedial Investigation/Feasibility Study**

This stage is subdivided into two phases. The remedial investigation (RI) assesses the nature and extent of the risks that contamination poses to individuals living or working near a site, and the feasibility study (FS) evaluates the potential remedies available to ameliorate these risks.\(^{133}\)

The end product of the RI/FS stage is the selection of an appropriate remedial action.\(^{134}\) Currently under CERCLA, the selected remedy must comply with “applicable or relevant and appropriate requirements,” also known as ARAR’s.\(^{135}\) ARAR’s stem from underlying federal or state environmental protection statutes. After EPA and the state certify that all relevant state and federal statutes and regulations have been considered, a plan containing the preferred alternative is presented to the public and to regulatory agencies for review and comment.\(^{136}\)

Congress has been concerned about the slow pace of completing RI/FS’s for bases subject to closure.\(^{137}\) In response, recent defense authorization statutes have set strict deadlines for the submission of completed RI/FS’s for bases designated for closure. The Pentagon was required to submit all RI/FS’s by December 5, 1993 for the bases

\(^{132}\) *Id.* § 9605(c). Sites are evaluated for placement on the NPL based on criteria in § 105 or criteria determined by EPA or by a State Governor. These criteria take into account the following factors: (1) the population at risk, (2) the hazardous potential of the hazardous substances, (3) the potential for contamination of drinking water supplies, (4) the potential for direct human contact, (5) the potential for destruction of sensitive ecosystems, and (6) the damage to natural resources that may affect the human food chain. *Id.* § 9605(a)(8)(A).

\(^{133}\) *Id.* § 9620(e)(1).

\(^{134}\) 40 C.F.R. § 300.430 (1994).

\(^{135}\) *Id.* (stipulating that remedy selection is to be based on nine criteria, such as overall protection of human health and the environment, long-term effectiveness and permanence, cost, and community acceptance).

\(^{136}\) States have the right to challenge the DOD in federal district court for noncompliance with applicable or relevant and appropriate requirements (ARAR’s). 42 U.S.C. § 9621(e). Citizens and municipalities also have authority to bring civil suits in the district court that has jurisdiction over the local DOD or EPA office. *Id.* § 9659(a)(1).

on the 1989 closure list, and by December 5, 1994 for the bases on the 1991 closure list.138

d. Remedial Design/Remedial Action

This phase involves the preparation and implementation of specific design plans for the cleanup. After the DOD and the relevant state authorities agree on the most appropriate remedy, actual cleanup begins.139 The DOD estimates that 14 years, on average, will elapse between initial identification of contamination and completion of the remedial design/remedial action phase.140

CERCLA liability, however, does not terminate after completion of the Installation Restoration Program.141 Even if the process is carried out faithfully, there remains a risk that undiscovered wastes will come to light in the future, triggering CERCLA liability and remediation obligations anew. The Superfund Amendments of 1986 addressed this issue by requiring federal agencies to include provisions in title transfer documents that acknowledge federal liability if hazardous wastes generated by the government are discovered at a later date.142 The remedial action itself may address this issue through long-term monitoring of the remedy’s effectiveness.143

Funding for the IR Program is handled out of two accounts. As noted previously, the Defense Environmental Restoration Account was created as part of the 1986 SARA legislation. The account, how-

138. See National Defense Authorization Acts for Fiscal Years 1992 & 1993, Pub. L. No. 102-190, § 334(a)(2), (b)(2), 105 Stat. 1290, 1340-41 (1991). An important deviation from the extended RI/FS process involves interim remedial actions (IRA’s), which may be conducted at any time during the IR process to protect public health or control contaminant releases if an imminent threat exists. 1992 DERP REPORT, supra note 66, at 2. IRA’s are typically employed to provide alternative water supplies to local residents, remove concentrated sources of contaminants, or “wall off” areas to halt the spread of contamination. Id.

139. Agreement must also be reached with EPA for sites on the NPL.

140. CBO, 1995 ISSUES AND OPTIONS, supra note 56, at 21.

141. See 42 U.S.C. § 9607(b) (1988) (implying that CERCLA contains no restrictions on subsequent claims for personal injury). In addition, the Federal Tort Claims Act is available to injured parties who wish to pursue damage claims against the federal government in the event that undiscovered wastes cause personal injury at a later date. 28 U.S.C. § 2671 (1988).


143. DEPARTMENT OF DEFENSE, POLICY ON THE ENVIRONMENTAL REVIEW PROCESS TO REACH A FINDING OF SUITABILITY TO LEASE (FOSL) 2-5 (1993) [hereinafter DOD, FOSL POLICY]. When environmental remediation takes place at a domestic base slated for closure, an environmental baseline survey for transfer must also be prepared before the site is deemed suitable for transfer and reuse. Id. On the basis of the survey, EPA is required to certify in the finding of suitability of transfer that all remedial actions necessary to protect human health and the environment have been taken. 42 U.S.C. § 9620(h)(3) (1988). The transfer deed must also stipulate that the DOD and EPA will conduct ongoing monitoring of the effectiveness of the cleanup, perform 5-year reviews, and/or take additional remedial or removal actions, as necessary. DOD, FOSL POLICY, supra, at 3-5.
ever, funds cleanups at domestic operating bases only.\textsuperscript{144} Cleanups at domestic closing bases are funded by the Base Closure Account (BCA), created by Congress as part of the 1988 base closure law and made the sole source of funds in the 1990 base closure law.\textsuperscript{145} Funding levels for the DERA are about three to four times the size of the BCA (e.g., for fiscal year 1995 the DERA received $1.8 billion and the BCA received $508 million for cleanups), reflecting the fact that open military bases far outnumber those slated for closure.\textsuperscript{146}

C. Problems in Fulfilling Restoration Obligations at Military Facilities

It has been evident for some time that the CERCLA process in general, and the military base cleanup program in particular, needs to be adjusted. The process tends to be heavily encumbered by procedures and provides little flexibility or room for innovation. The process also gives inadequate opportunity for state and local officials to participate in the cleanup effort. As a result of these deficiencies, CERCLA cleanups are more costly and time consuming than necessary. The 103d Congress grappled with many of these issues when it sought to reauthorize and extend CERCLA—an effort that fell just short of passage when Congress adjourned without taking final action on the proposed Superfund Reform Act (SRA).\textsuperscript{147}

Many of the reforms contained in the proposed SRA were designed to make the cleanup process more cost-effective.\textsuperscript{148} If the reforms are enacted into law by the next Congress—or if EPA takes some of these steps administratively without waiting for congressional action—funding for DOD cleanups could be stretched.\textsuperscript{149}

\textsuperscript{144} 1991 House Armed Servs. Hearings, supra note 10, at 106 (statement of Lewis D. Walker, Deputy Assistant Secretary of the Army (Env’t, Safety & Occupational Health)).

\textsuperscript{145} Defense Base Closure & Realignment Act of 1990, Pub. L. No. 101-510, §§ 2905(a), 2906, 104 Stat. 1808, 1815 (1990). The reason for the two accounts was concern that cleanups at base closures could suffer if these cleanups had to compete for funds with bases that would remain open (where commanders would have a greater incentive to protect their personnel). See 1991 House Armed Servs. Hearings, supra note 10, at 107 (statement of Lewis D. Walker, Deputy Assistant Secretary of the Army (Env’t, Safety & Occupational Health)).

\textsuperscript{146} See Military Construction Appropriation Act for Fiscal Year 1995, Pub. L. No. 103-307, 108 Stat. 1662-63 (1994); see also Hearings on the National Defense Authorization Act for Fiscal Year 1995, H.R. 4301, Before the House Comm. on Armed Servs., 103d Cong., 2d Sess. 301 (1994). To keep these figures in perspective, the $2.3 billion total annual spending on the military’s domestic environmental cleanup program accounts for less than 1% of the $240 billion Congress appropriated for the Defense Department for fiscal year 1995. Id. at 206.

\textsuperscript{147} David Hosansky, Superfund Bill’s Supporters Look to Next Congress, 52 CONG. Q. 2865, 2865-66 (1994).

\textsuperscript{148} See, e.g., H.R. 3800, 103d Cong., 2d Sess. 49 (1994).

\textsuperscript{149} See infra part II.C.1-3.
1994 election underscores the importance of adopting reforms, since the new congressional leadership has already made it clear that, at a minimum, it will subject DOD environmental programs to even greater congressional scrutiny than in the past.150

If the military cleanup process is to be streamlined and made more cost-effective, then Congress (or the DOD and EPA on their own) needs to address remedy selection. This section first considers the remedy selection question in the context of military base closures and then addresses two other matters that bear upon the military base cleanup program: statutory and administrative coordination, and funding priorities.

1. Remedy Selection

Congress focused upon several remedy selection issues in connection with its consideration of the SRA, including tailoring, containment, and cleanup standards. In addition, EPA has attempted to streamline the remedy selection process by making greater use of presumptive remedies. These matters are discussed below.

a. Tailoring

Perhaps the most important remedy selection issue is the question of tailoring, which considers whether and to what extent, when selecting the appropriate remedy for cleanup, the DOD should be permitted to take future land use into account. Although until recently tailoring had been disfavored by EPA, frustrations with delays and massive cleanup costs have led to a call for more flexibility in the remedy selection process.

Senator Barbara Boxer (D-CA) highlighted the appeal of tailoring at a hearing held last year when the base closure issue came before Congress. Senator Boxer, who represents the state most heavily impacted by the most recent round of base closures, asked whether it makes sense, when a community intends to convert a former munitions factory into a heavy equipment industrial facility, to force the DOD to expend enormous amounts of time and money to clean the facility to a level that would allow children playing in a sandbox "to eat the sand."151 The same point was echoed by former New Jersey Governor James Florio, one of the architects of the original CERCLA statute. When confronted as Governor with the massive cleanup costs for a site located in a heavily industrialized area of his state, Florio

argued that "it doesn't make sense to clean up a rail yard in downtown Newark so it can be a drinking water reservoir."\textsuperscript{152}

Much of the inflexibility that Boxer and Florio have complained about stems from the current CERCLA statute and EPA's interpretation of the statute. When Congress reauthorized CERCLA in 1986, it provided that remedial actions that "permanently and significantly" reduce the volume, toxicity, or mobility of hazardous substances would "be preferred" over all other types of remedial actions.\textsuperscript{153} At the time this provision was enacted, Congress clearly intended that a conservative approach toward remedy selection under CERCLA would be followed,\textsuperscript{154} and this is the way EPA has read the statute. When EPA revised the National Contingency Plan in 1990,\textsuperscript{155} EPA incorporated an assumption that the future use of a hazardous waste site would be residential, although it acknowledged that such an assumption is not required by law.\textsuperscript{156}

The combination of comprehensive liability under CERCLA with the future residential use assumption means that many contaminated facilities designated for closure face very large cleanup costs over extended periods of time. As a result, future transferees, such as municipalities or local redevelopment authorities, have been confronted with lengthy waits before contaminated bases may be converted to civilian use. EPA has told Congress that this conservative approach may "significantly increase the costs of cleanup without commensurate benefits."\textsuperscript{157}

\textsuperscript{154} See id.
\textsuperscript{155} EPA was directed to revise the NCP within 18 months of enactment. 42 U.S.C. § 9605(b) (1988). However, EPA did not promulgate its final regulations until 1990. See 40 C.F.R. § 300 (1990).
\textsuperscript{156} "The assumption of residential land use is not a requirement of the program but rather is an assumption that may be made, based on conservative but realistic exposures, to ensure that remedies that are ultimately selected for the site will be protective. An assumption of future residential land use may not be justifiable if the probability that the site will support residential land use in the future is small." \textit{Hearings Before the Subcomm. on Transp. & Hazardous Materials of the House Comm. on Energy & Commerce}, 103d Cong., 1st Sess. 29-33 (1993) [hereinafter 1993 House Transp. & Hazardous Materials Hearings] (testimony of Robert Sussman, Deputy Administrator, EPA).
\textsuperscript{157} Id. at 30. Sussman also testified that "current and future land uses are significant considerations in remedy selection decisions," but they are not the sole or primary determinants. \textit{Id.} at 31.

EPA's insistence on a residential use policy has spawned several local challenges. In Aspen, Colorado, EPA attempted to require extensive soil removal in order to remediate
Dissatisfaction with the residential use assumption led Congress to include a provision in the proposed Superfund Reform Act that would have squarely addressed this problem. The provision would have permitted "the reasonably anticipated future uses of land at a facility" to be taken into account in designing the remedy. Factors to be considered included current land use of the facility and surrounding property, history of land use and current development patterns in the area, federal or state land use designations, current land use zoning and future land use plans of the local government, and proximity of the contamination to residences, sensitive populations, or ecosystems.

Tailoring of remedies to reflect "the reasonably anticipated future uses of land" would unquestionably improve the cost-effectiveness of the CERCLA process. Congress should incorporate this idea in any future Superfund reauthorization, and if it fails to do so, EPA should seek to pursue this option on an administrative basis.

If tailoring is pursued, though, it needs to be fine tuned in order to prevent misuse. Some state officials and environmental groups have expressed concern that local communities eager to ameliorate the effects of base closures may not consider the long-term impacts of tailored cleanups. They believe long-term impacts must be considered because the needs of a community might change over time, and the community may wish to permit a land use that is different from the one upon which the CERCLA cleanup remedy was based.

Therefore, institutional controls at the local level should be required as a precondition to taking future land use into account under CERCLA. Institutional controls could restrict future land use through a deed restriction, a zoning ordinance, or some combination of the two. As needs change, the community may decide to revise the local zoning ordinance, but in such instances EPA and state regulatory lead contamination in a residential development located near the Superfund site at Smuggler Mountain. See 1993 House Transp. & Hazardous Materials Hearings, supra note 156, at 2-3 (statement of Kenneth Dickerson, Senior Vice President, Atlantic Richfield Company); see also id. at 31 (testimony of Robert Sussman, Deputy Administrator, EPA) (discussing the effect of neglecting local input in remedy selection). EPA's proposed remedy would have involved removing several feet of topsoil throughout the entire subdivision. Id. at 3 (testimony of Robert Sussman, Deputy Administrator, EPA). This remedy was based upon the assumption that all of the lead in the soil could have been absorbed by humans. Id. The local community balked, and EPA eventually backed off its conservative assumptions after an independent review suggested that it should consider a less comprehensive remedy. Id.
authorities should have an opportunity to review any proposed revision to assure that the revised future land use poses no increased risk to human health or safety.

State officials have also argued that permitting tailoring of CERCLA cleanups could cause a conflict with the less flexible and potentially more stringent RCRA corrective action rules adopted by the states. For example, in states such as California with stringent hazardous waste standards, such standards could override future CERCLA tailoring, thereby creating conflicts between federal and state standards and potentially undercutting the presumed advantage of tailoring. Provisions in the proposed SRA, which would have permitted delegation of CERCLA authority to the states, would help to address this problem.

b. Containment

Closely related to the issue of tailoring are the questions of whether the preference for "permanent" remedies should be modified to allow contamination to be contained onsite, and whether this can be done without jeopardizing human health and safety. Some of the most troublesome contaminants confronting the armed services are solvents, degreasers, and fuel oils, because of the substantial threat that they pose to groundwater systems. Because permanent remedies are preferred under CERCLA, the traditional method of remediation has obliged the DOD to pump and treat these contaminants to the surface for subsequent treatment and disposal. This type of remedy can require "several decades to clean up ground water at each site." EPA has acknowledged that for certain military contaminants, particularly those known as dense nonaqueous phase liquids (DNAPL's), site stabilization coupled with long-term monitoring may be the best approach. This option, which involves barricading con-

164. See infra notes 196-97 and accompanying text.
165. Shulman, supra note 17, at 84.
166. 42 U.S.C. § 9621(b)(1).
167. See Satchell, Uncle Sam's Toxic Folly, supra note 68, at 20.
169. Dense nonaqueous phase liquids are the chlorinated solvents, degreasers, and PCBs that are often found at military facilities. Id. at 9-10. According to EPA, DNAPL's are very difficult to clean up quickly and inexpensively. See id. at 8-9. In the past, pump and treat technologies were employed to bring DNAPL's to the surface and remediate them, but even if this approach is used, the DOD generally cannot eliminate the source of contamination deep underground. Id. at 13. This has caused EPA to rethink its approach to DNAPL's and the efficacy of pump and treat technology. See id. at 10-15; id. at 4 (statement of Kenneth Dickerson, Senior Vice President, Atlantic Richfield Company).
taminants against further migration, is generally much less costly and time consuming than the pump and treat process.\textsuperscript{170}

As with tailoring, dissatisfaction with the inefficiency and inflexibility in the law led Congress to include a provision on containment in the proposed Superfund reforms.\textsuperscript{171} The SRA would have specifically narrowed the statutory preference for "permanent" treatment to allow for containment remedies where appropriate. The one exception in the proposed changes would have been for "hot spots," to which the permanent standard would still have applied.\textsuperscript{172}

If Congress adopts a new law in which containment becomes the remedy of choice, issues of future liability for the potential migration of remaining contaminants will need to be addressed. While offsite risks must be taken into account in designating future land use, long-term monitoring is only required for hot spots where permanent treatment was not technically possible or costs were determined to be unreasonable.\textsuperscript{173} This may not be sufficient, especially where the contamination could migrate to other properties or aquifers. In any event, if contamination is contained in place at an industrial facility that is adjacent to residential property, there should be assurances that offsite property will be protected to the residential use level, even if cleanup remedies at the site itself are tailored to industrial use.\textsuperscript{174}

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\textsuperscript{170} See \textit{Clean Sites, Improving Remedy Selection} 12-13 (1990) (stating that remedies that involve the pumping of liquids and bioremediation, along with site excavation and offsite treatment, can be up to 40 times more costly than use of a low permeability cover or a multimedia RCRA cap, coupled with prepumping of contaminated liquids); see also 1993 Senate Armed Servs. Hearings, supra note 14, at 375 (comparing the costs of pump and treat technology with bioventing at Griffith Air Force Base). Pump and treat can require 5 to 10 years to complete, as opposed to 3 to 6 months for the capping approach. 1993 Senate Armed Servs. Hearings, supra note 14, at 395 (statement of Alan P. Babbitt, Deputy for Hazardous Material and Waste, Deputy Assistant Secretary of the Air Force (Env't, Safety & Occupational Health)). However, the capping approach might require the property to be off limits for residential use, while the more comprehensive remedy would probably involve no such restriction. \textit{Id.}

\textsuperscript{171} H.R. 3800, supra note 148, at 51.

\textsuperscript{172} \textit{Id.} at 50 (defining a "hot spot" as a "discrete area within a facility that contains hazardous substances, pollutants, or contaminants that are present in high concentrations, are highly mobile, or cannot be reliably contained that would present a significant risk to human health or the environment should exposure occur"); see 42 U.S.C. § 9621(b)(3)(B)(i).

\textsuperscript{173} H.R. 3800, supra note 148, at 50.

\textsuperscript{174} See \textit{Clean Sites, supra} note 170, at 12-14; 1993 House Transp. & Hazardous Materials Hearings, supra note 156, at 28-33 (testimony of Robert Sussman, Deputy Administrator, EPA). The National Commission on Superfund recommended that communities be permitted to adopt restricted use plans as long as the area immediately adjacent to a site is not residential, and individuals living in the affected community surrounding a site are actively involved in the decisionmaking process. See National Comm'n on Superfund, Final Consensus Report 14 (Dec. 21, 1993) (on file with the \textit{Ecology Law Quarterly}). The commission also recommended that local residents within 1 mile of a site have the opportunity to petition for a referendum on the proposed restricted use site plan. \textit{Id.}
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In addition, any reforms must address the health of workers at sites that have been tailored for industrial use and where contaminants have been contained but not permanently remediated. It may also be appropriate to insist on more extensive and sensitive monitoring mechanisms in such situations to provide a full measure of protection to workers.\textsuperscript{175}

c. Cleanup Standards

The SRA also proposed to deal with the issue of whether cleanup standards should be adjusted to take account of the feasibility and cost-effectiveness of a remedy.\textsuperscript{176} Here again, Congress worked to develop a measured response to the criticism that current cleanup standards are often inefficient and unattainable. A provision on the use of cost-benefit analysis stated that cost would be considered on an equal footing with the other selection criteria, except in the case of hot spots.\textsuperscript{177} The SRA additionally provided that protective concentration levels that do not achieve the national risk goals could be selected if the President determines that achievement of the goals is technically impracticable from an engineering perspective.\textsuperscript{178}

The SRA also proposed to streamline the remedy selection process. It would have done this by eliminating the ARAR concept entirely and making remedies subject to “applicable” requirements only.\textsuperscript{179} Except for groundwater and surface water that may be used as drinking water (which would have remained subject to the maximum contaminant levels established in the Safe Drinking Water Act), cleanup standards would have been based upon a national risk goal, a single numerical health risk level ensuring a “reasonable certainty of no harm.”\textsuperscript{180} Eventually, EPA would have been expected to adopt national cleanup standards for the one hundred contaminants most often occurring at Superfund sites, a step that was designed to increase consistency at the state level in carrying out enforcement obligations under CERCLA.\textsuperscript{181}

As with tailoring, these are useful ideas that deserve further consideration by Congress. They would almost certainly enable the cleanup process to proceed more rapidly and at lower cost. During

\begin{itemize}
  \item \textsuperscript{175} National Comm’n on Superfund, \textit{supra} note 174, at 14.
  \item \textsuperscript{176} The Superfund Reform Act (SRA) attempted to clarify that cost-effectiveness may be taken into account in CERCLA remedy selection. \textit{H.R. 3800, supra} note 148, at 49-52.
  \item \textsuperscript{177} For hot spots, a higher threshold for evaluating the reasonableness of the costs still would have been required. \textit{Id.} at 118.
  \item \textsuperscript{178} \textit{Id.} at 116; \textit{42 U.S.C. § 9621(d)(4)(C)}.
  \item \textsuperscript{179} \textit{H.R. 3800, supra} note 148, at 45.
  \item \textsuperscript{180} \textit{Id.} at 45, 113.
  \item \textsuperscript{181} \textit{Id.} at 46.
\end{itemize}
the congressional consideration of Superfund reforms, EPA estimated that the combination of tailored remedy selection, less insistence on permanence of treatment, and increased local participation would reduce federal cleanup expenditures by $1.4 to $1.9 billion per year and achieve results 10% to 20% faster than the current system. More recently, the DOD's top environmental official estimated that the proposed Superfund reforms would reduce the average cleanup time by 25%. The support for these reforms by key environmental groups suggests that these changes can be accomplished without significantly infringing upon CERCLA's fundamental mission of protecting human health and safety.

d. Presumptive Remedies

At the administrative level, the DOD and EPA are seeking ways to incorporate less costly technologies into the remedy selection process. One promising development is the attempt to use generic or presumptive remedies (i.e., successfully proven technologies that can be put in place to remediate the same type of contaminant occurring at many different DOD CERCLA sites) in lieu of site-specific remedies. EPA has identified seven categories of presumptive remedies, focusing on soil and groundwater contaminants, including volatile organic compounds and PCB's, and municipal landfills. EPA believes that presumptive remedies can streamline the Superfund program significantly and that approximately 600 sites on the National Priorities List are amenable to this approach.

The DOD has already begun to experiment in this area. Earlier this year, the Air Force told Congress that it had applied the technique of bioventing (using oxygen to speed up the growth of bio-

182. Superfund Program: Hearings Before the Subcomm. on Transp. & Hazardous Materials of the House Comm. on Energy & Commerce, 103d Cong., 2d Sess. 217 (1994) [hereinafter 1994 House Transp. & Hazardous Materials Hearings] (testimony of Carol M. Browner, Administrator, EPA). At DOD sites, however, it may take some time to realize the full extent of these savings because remedies have already been selected at a number of sites. Congressional Budget Office Estimates, DEF. ENV'T ALERT (Inside Wash. Pub., Wash., D.C.), June 12, 1994, at 12. The Congressional Budget Office (CBO) believes the remedy selection reforms contained in the SRA would not start to affect spending until late in the 1995 to 1999 period. Id.


184. See National Comm'n on Superfund, supra note 174, at 1.


organisms to render petroleum byproducts environmentally benign) at one hundred of its sites throughout the country. The service believes that it has had "overwhelmingly successful" results with the use of this presumptive remedy. Adoption of presumptive remedies for other common contaminants at DOD sites may be worth attempting, without waiting for congressional action on Superfund reform.

2. Statutory Coordination; Enhanced State and Local Role

In the past, a significant impediment to prompt remediation at military bases has been the difficulty in coordinating the actions of the DOD, EPA, and the states, especially when overlapping CERCLA and RCRA compliance is involved. Even though the federal agencies and the affected state often sign formal agreements covering a cleanup, protracted negotiations over the respective roles of the agencies and state authorities have substantially delayed cleanup efforts.

In sorting through the respective rights and responsibilities of interested parties in base cleanups, two separate tensions emerge. First is the conflict between EPA and the DOD. Even though EPA has primary responsibility for overseeing enforcement of the Nation's environmental protection laws, under the doctrine of the unitary executive endorsed by the Reagan administration and still extant, EPA cannot bring enforcement actions in court against the DOD for CERCLA cleanup responsibility. DOD cleanup plans are, however, subject to EPA review in almost every instance, and delays in

187. 1994 House Transp. & Hazardous Materials Hearings, supra note 182, at 3-4 (statement of Alan P. Babbitt, Acting Deputy Assistant Secretary of the Air Force (Env't, Safety & Occupational Health)).

188. FEDERAL FACILITIES, supra note 64, at 2-7.

189. See DOD, 1994 ENVIRONMENTAL CLEANUP REPORT, supra note 28, at 11, 44. For example, the DOD and EPA frequently enter into Interagency Agreements to specify remedies and timetables for individual cleanups at bases, and Defense and State Memoranda of Agreement are designed to increase state participation in DOD cleanups. Id.

190. FEDERAL FACILITIES, supra note 64, at 4. Both the GAO and the Defense Environmental Response Task Force have concluded that confusion and delay has resulted from involving multiple government agencies in cleanup decisions. Id.; DEPARTMENT OF DEFENSE, REPORT OF THE DEFENSE ENVIRONMENTAL RESPONSE TASK FORCE 30-33 (1991) [hereinafter DOD, 1991 TASK FORCE REPORT]. For example, the GAO found that interagency coordination agreements can take more than 1 year just to negotiate, a fact that reflects the conflict and delay inherent in federal agency cleanups. FEDERAL FACILITIES, supra note 64, at 4. The Task Force stressed that agreement on the involvement of state regulatory agencies (and EPA for NPL sites) early in the DOD's contamination investigation is essential if the entire cleanup process is to be expedited. DOD, 1991 TASK FORCE REPORT, supra, at 30-33.

191. See H. Allen Irish, Enforcement of State Environmental Crimes on the Federal Enclave, 133 MIL. L. REV. 249, 254-58 (1991); Wolverton, supra note 109, at 569-73 (stating that the unitary executive doctrine proceeds on the assumption that the President, not the courts, should arbitrate disputes within the executive branch).
cleanup are often attributed to the failure of the DOD and EPA to coordinate their efforts effectively.\textsuperscript{192}

The second tension involves the traditional conflict between federal and state interests. A number of state officials have criticized the unwillingness of the federal government to allow state regulatory agencies to participate fully and promptly in cleanup decisionmaking. The attorneys general have warned Congress that, without better coordination with state agencies and meaningful public participation at an earlier stage, the states may respond with a series of nonconcurrences to DOD cleanup plans,\textsuperscript{193} actions that could add significant delay to the DOD cleanup process.

While some administrative steps have been taken to improve regulatory coordination between the federal and state agencies involved in cleanup activities,\textsuperscript{194} Congress still appears to be concerned about the problem. The proposed Superfund amendments contained several provisions aimed at eliminating overlapping regulatory authority and increasing community involvement.\textsuperscript{195} A key structural change proposed in the legislation would have authorized EPA to delegate all or part of the CERCLA program to qualified states.\textsuperscript{196} The states could step into the shoes of EPA with respect to oversight of DOD and other federal facility cleanups where EPA possessed such authority in the first instance—for example, at NPL-listed bases.\textsuperscript{197}

As a corollary to improved regulatory coordination, Congress has also considered ways to increase and structure local community involvement in the cleanup decisionmaking process. At present, the DOD uses restoration advisory boards (RAB's), composed of representatives from local government and community groups, to provide

\textsuperscript{192} For example, the California EPA has complained that base cleanups have not always been well coordinated between the federal regulators (EPA and the DOD). See 1993 Senate Env't & Pub. Works Hearings, supra note 5, at 9 (joint statement of John Dunlap, Chief Deputy Director, Dep't of Toxic Substances Control, Cal. EPA & David Wang, Chief, Base Closure Branch, Dep't of Toxic Substances Control, Cal. EPA); DOD, 1991 TASK FORCE REPORT, supra note 190, at 30-33.

\textsuperscript{193} See 1993 Senate Env't & Pub. Works Hearings, supra note 5, at 4-7 (testimony of Samuel W. Goodhope, Special Counsel for the Env't, Office of the Attorney General, State of Texas).

\textsuperscript{194} See Samuel W. Goodhope, Presentation at the Base Closure Cleanup Contracting Conference 8 (Dec. 8, 1993) (on file with the Ecology Law Quarterly) (stating that, whether through practice or better partnering, the problems of coordination between federal and state agencies appear to be diminishing).

\textsuperscript{195} H.R. 3800, supra note 148, at 3, 45, 84, 92, 113.

\textsuperscript{196} Id. at 12-17.

\textsuperscript{197} Id. at 88-93. Specifically, the legislation would have permitted states to apply to the EPA Administrator for a transfer of authority to oversee all stages of the cleanup process, including selecting and approving remedial actions. Id. at 16-17.
input at DOD CERCLA sites. A number of criticisms have been leveled at the DOD regarding the RAB’s, namely that they are hand picked by the DOD, that their involvement in the assessment and remedy selection process is restricted, and that they receive inadequate technical data from the DOD. The proposed CERCLA amendments would have authorized the DOD to replace the RAB’s with Community Working Groups to provide meaningful input throughout the cleanup process, including the key task of proposing land use recommendations.

Although the SRA would have provided the working groups with a number of important powers, concern persists that the working groups would fall victim to the same problems afflicting the current RAB’s. The working group recommendations would not be binding on EPA or the DOD, and whether the groups would actually be provided the technical and administrative support promised in the SRA is unsettled. A better way to strengthen community participation would be to ensure that the RAB’s or working groups are formed at the earliest stages of the DOD’s CERCLA site assessment and remediation process, to ensure that they have access to all nonclassified data, and to ensure that they are furnished with the necessary training and support to fulfill their important role.

Another difficulty in this area is coordinating government actions in light of the potential statutory overlap between CERCLA and RCRA. The fundamental problem is that the DOD must often

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198. See DOD, 1994 ENVIRONMENTAL CLEANUP REPORT, supra note 28, at 27. The RAB’s are the successors to the Technical Review Committees established under CERCLA § 121 to provide community input. See 1993 DERP REPORT, supra note 58, at 11.

199. U.S. Environmental Protection Agency and Department of Defense Restoration Advisory Board Implementation Guidelines, DEF. ENV’T ALERT (Inside Wash. Pub., Wash., D.C.), Oct. 19, 1994, at 21. In partial response to these criticisms, the DOD and EPA have formulated new guidance on the operation of the RAB’s. Id. The DOD and EPA are attempting to improve local understanding and support for DOD cleanup efforts by changing the selection process for RAB members and soliciting increased community involvement in the RAB’s. See id.

200. H.R. 3800, supra note 148, at 5-9. The panels would have considered future facility waste management needs, zoning plans and other remedy selection factors in making their recommendations. Id. at 5.

201. For example, the SRA states that the goal of the working groups is to achieve “direct, regular, and meaningful consultation with all interested parties;” that the input of the groups should have “equal weight” with advice received from other community members; and that the membership of the groups should reflect the composition of the community and a diversity of interests, specifically including persons residing near a site, medical authorities, and “local representatives of citizen, environmental or public interest groups.” Id. at 6-7.

202. Id. at 5.

comply at the same time with two different statutes\(^{204}\) that employ distinct regulatory mechanisms, goals, and approaches.\(^{205}\)

The DOD has consistently maintained that the CERCLA/RCRA overlap is a major obstacle to effective and prompt CERCLA clean-ups.\(^{206}\) Army officials testified in 1993 that, as a result of the ongoing litigation over competing cleanup standards at the Rocky Mountain Arsenal in Colorado, they "no longer have a road map to get to the end."\(^{207}\) At earlier hearings, the Army told Congress that the RCRA/ CERCLA overlap is "the most serious obstacle to Army cleanup efforts."\(^{208}\) The Air Force has also testified that the overlap problem "is

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204. 42 U.S.C. § 9620(i); see id. § 6961(a) (Supp. V 1993). There are a number of important statutory distinctions between CERCLA and RCRA. For example, the main RCRA program is embodied in permit conditions while CERCLA does not require permits. Id. § 9620; id. § 6921(a). CERCLA is exclusively under the jurisdiction of the federal government while RCRA is delegated to and implemented by the states. Id. § 9604; id. §§ 6902, 6904. Finally, CERCLA prefers permanent remedies, but RCRA permanence requirements are not as pronounced. See id. § 9620; id. § 6961.

205. See DOD, 1991 TASK FORCE REPORT, supra note 190, at 30-32. The CERCLA/RCRA overlap is exacerbated when state hazardous waste standards are more stringent than their federal counterparts. Id. For example, in the 1980's California base cleanups were significantly delayed while officials attempted to reconcile more stringent California standards with RCRA and CERCLA standards. Eventually, the federal government and California developed a process for harmonizing the state and federal standards. Id. Base closure cleanups in other states with stringent cleanup laws may face similar difficulties. See 1993 Senate Env't & Pub. Works Hearings, supra note 5, at 2-4.

206. DOD, 1991 TASK FORCE REPORT, supra note 190, at 18-22. Three CERCLA/RCRA overlap problems in base closure cleanups are frequently mentioned: (1) conflicting timelines—when contamination is discovered at a closing base with an existing RCRA permit, the base commander faces a potential conflict between taking corrective action under RCRA and complying with the CERCLA provisions that require the military to divide base property into contaminated and uncontaminated parcels according to a prescribed timetable; (2) liability issues—the allocation of liability for CERCLA cleanups or RCRA corrective action can become a contentious matter because any local, state, federal, or private entity can be liable under CERCLA, whereas RCRA corrective action requirements apply only to the current permitholder; and (3) nature and timing of contamination—EPA considers one-time spills or storage tank leaks that occurred prior to 1980 to be covered under CERCLA rather than under the corrective action requirements of RCRA, but determining whether a particular incidence of contamination is of recent origin is often difficult. Id.; see Stoll, supra note 203, at 151-62, 174-96; Satterlee & Anderson, supra note 203, at 195-97 (discussing the role of CERCLA and RCRA remediation approaches).

207. 1993 Senate Armed Servs. Hearings, supra note 14, at 413 (testimony of Army Gen. Brown). General Brown also said: "I am the cleanup guy for the Army ... I thought I was using CERCLA, but now if the court says that under RCRA the State can come in and trump me any time, I do not know where I am going ... I believe that the country and the taxpayers would be better served if cleanup at our bases was based upon risk and not some preset standard.").

208. 1991 House Armed Servs. Hearings, supra note 10, at 287-88. The Army cited a California base where cleanup efforts were delayed until a RCRA study could be performed, even though the site had already been evaluated under CERCLA procedures. Id. at 288. The Army further asserted that the overlap has "prevented us from accomplishing any significant or substantial work at far too many of our sites." Id.
a very serious threat to . . . future cleanup efforts.'"209 At some defense facilities, the process of evaluating a site under both RCRA and CERCLA and determining what remedies are applicable has consumed substantial resources and delayed cleanup activity for years.210

Given the DOD’s success in closing out more than 7600 of its potentially contaminated sites, however, the DOD may be somewhat overstating the seriousness of the CERCLA/RCRA regulatory overlap.211 While EPA has been slow to clarify the application of CERCLA and RCRA to federal facilities,212 much of the CERCLA/RCRA overlap has been rectified in recent years.213 More effective use of Federal Facility Agreements has unquestionably helped to mitigate this problem.214 Nevertheless, additional legislative or administrative steps may be needed to ensure that the DOD cannot use this issue as an excuse for slow base closure cleanups. For example, if Congress enacts the provision in the proposed SRA regarding the states’ role in federal facility cleanups, this would largely place RCRA and CERCLA powers in the same hands, thus helping to eliminate most of the remaining problems in this area.215

3. Funding

a. Trends

Funding for defense environmental cleanup has gone through several phases. In the late 1980’s and early 1990’s, as widespread envi-

209. Id. at 304. The Air Force cited the following problems: (1) EPA’s programs under CERCLA and RCRA are not fully integrated; (2) sites closed out under CERCLA can be reopened under RCRA; (3) the DOD may be subjected to both processes and controlled by EPA and state regulators at the same site; and (4) cost-effectiveness is a consideration under CERCLA, but not RCRA. Id.

210. See id. at 275, 288.
211. 1993 DERP REPORT, supra note 58, at 7.
212. 1994 House Transp. & Hazardous Materials Hearings, supra note 182, at 189, 196-97 (testimony of Carol M. Browner, Administrator, EPA). EPA has been criticized for failing to better integrate RCRA and CERCLA by issuing new corrective action standards under § 3004(v) of RCRA. DOD, 1991 TASK FORCE REPORT, supra note 190, at 19. That section requires facility owners and operators to take corrective action beyond facility boundaries “where necessary to protect human health and the environment.” 42 U.S.C. § 6924(v). However, EPA has issued no guidance to the states to help interpret that standard, notwithstanding RCRA’s mandate to EPA to do so “as promptly as practicable after November 8, 1984.” Id. The result has been that the states have applied this standard on a case-by-case basis. DOD, 1991 TASK FORCE REPORT, supra note 190, at 19. As senior EPA officials have recognized, EPA needs to act promptly to help make the cleanup standards under RCRA and CERCLA consistent. See 1994 House Transp. & Hazardous Materials Hearings, supra note 182, at 189, 196-97 (testimony of Carol M. Browner, Administrator, EPA).
213. DOD, 1991 TASK FORCE REPORT, supra note 190, at 31; see also Stoll, supra note 203, at 149-51.
Environmental problems at military facilities started to emerge, the Defense Department was frequently criticized for its reluctance to acknowledge the full extent of the base cleanup burden or to ask Congress for sufficient financial resources to address it.\textsuperscript{216} One critic, Ralph DeGennaro, Director of the Appropriations Project at Friends of the Earth, has suggested that the Pentagon had a tendency to “lowball” its cleanup needs at the outset; he labelled this the “I’m not hungry” syndrome, in which the DOD behaves “like an overpolite gentleman with a ravenous appetite.”\textsuperscript{217}

Some of this criticism was clearly warranted. In the early years of the program, the Pentagon was repeatedly forced to raise its original cost estimates for facility cleanups once they were underway. For example, in 1988 the Air Force estimated that environmental cleanup at the Pease Air Force Base in New Hampshire would cost $11 million.\textsuperscript{218} Six years later, the Air Force’s predictions jumped tenfold to a minimum of $147 million to remediate the Pease Base through 1999, with an admission that the final price tag could go even higher.\textsuperscript{219}

The Defense Department’s efforts to estimate the overall cost of the cleanup program have encountered similar problems. In 1985, when the program was just starting, the DOD estimated that all of its domestic facilities could be restored for a cost of $5 to $10 billion. The DOD’s current estimate is $30 billion,\textsuperscript{220} an increase of 200\% to 400\% above the original figure, and some have predicted that the defense cleanup tab could eventually rise to more than $100 billion.\textsuperscript{221} When costs are underestimated in this fashion, delays in obtaining the needed appropriations are likely, and this in turn leads to even greater costs in the long run.\textsuperscript{222}

\begin{itemize}
\item \textsuperscript{216} GAO, Pub. No. NSIAD-86-60, Hazardous Waste: DOD’s Efforts To Improve Management of Generation, Storage and Disposal 26 (1986). For a more recent study, see Environmental Cleanup: Too Many High Priority Sites, supra note 13, at 3-9.
\item \textsuperscript{217} 1991 House Armed Servs. Hearings, supra note 10, at 354 (testimony of Ralph DeGennaro, Director of the Appropriations Project, Friends of the Earth).
\item \textsuperscript{218} 1993 Senate Armed Servs. Hearings, supra note 14, at 140 (statement of Sen. Glenn).
\item \textsuperscript{219} DOD, 1994 Environmental Cleanup Report, supra note 28, at B-1 to B-265; 1993 Senate Armed Servs. Hearings, supra note 14, at 140 (statement of Sen. Glenn). Senator Glenn noted the tenfold increase in costs at Pease and expressed how “skeptical” he was about the DOD’s overall cost estimates for its cleanup efforts in light of the experience at Pease. 1993 Senate Armed Servs. Hearings, supra note 14, at 140.
\item \textsuperscript{220} See supra notes 64-72 and accompanying text.
\item \textsuperscript{221} See Hearings on the 1993 National Defense Authorization Act, supra note 70, at 484 (statement of Rep. Robin Tallon) (sugging that costs of environmental cleanup at U.S. military facilities could fall in the $100 to $200 billion range).
\item \textsuperscript{222} See CBO, Environmental Cleanup Issues, supra note 8, at 21 (“DOD may be more likely to meet funding requirements for cleanup if it manages the process in ways to minimize cost growth.”).
\end{itemize}
In the past several years, DOD cleanup funding has entered a second phase, in which the Pentagon has been willing to acknowledge the growing cost of its cleanup programs, and Congress has been willing to fund them. Particularly in the closure area, this change in attitude has been facilitated by the full-scale environmental audits that are required once a base is recommended for closure. As the overall scope of environmental contamination has come to light, it has become much harder for the Pentagon to deny the true extent of the cleanup burden and its costs. The Pentagon's willingness to be more open about its needs led to a 5-year period, between fiscal year 1990 and fiscal year 1994, in which congressional funding for defense environmental programs steadily increased.

Unfortunately, defense environmental funding may now be entering a third phase. In late 1994, Congress voted to set fiscal year 1995 funding for cleanup at operating bases at a level $200 million below the prior year's appropriation. This action reversed the trend of the previous 5 years. Much deeper cuts in cleanup funding have been suggested by members of the new congressional leadership; these members have also suggested, as an alternative, that the cleanup program be shifted out of the DOD budget entirely. In addition, the DOD comptroller recently recommended that the Administration not seek full funding for the cleanup effort.

The lack of full funding could make it extremely difficult for the DOD to meet its statutory cleanup obligations, particularly now that many DOD cleanup projects are moving out of the study phase and into full-scale remedial work, and the point is reached where "many sites . . . become ready for remediation simultaneously." In addi-

223. 1993 Senate Armed Servs. Hearings, supra note 14, at 370 (statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.)). As an indication of this change in attitude, top environmental compliance officials at the Pentagon have dubbed their effort "C³P²": Cleanup, Compliance, Conservation, and Pollution Prevention. Id.


225. CBO, Environmental Cleanup Issues, supra note 8, at 10-14; see also GAO, Pub. No. NSIAD-93-161, Military Bases: Revised Cost and Savings Estimates for 1988 and 1991 Closures and Realignments 4 (1993) (stating that experience with the first round of base closures and realignments has shown that cleanup estimates increase significantly once more detailed studies and tests are completed); Environmental Cleanup: Too Many High Priority Sites, supra note 13, at 4-9.


227. See supra note 12.

228. 1992 DERP Report, supra note 66, at 3; see also DOD, 1994 Environmental Cleanup Report, supra note 28, at 44 (stating that the DOD's cleanup efforts through the end of fiscal year 1993 were largely restricted to site characterization, rather than actual cleanups, although this trend changed in fiscal year 1994). The characterization stage tends to be much less labor intensive, and thus far less costly than the remedial stage. See 1992 DERP Report, supra note 66, at 2-3.
tion, the failure to seek full funding could subject the Pentagon to penalties and lawsuits. In a memorandum written just after the November 1994 election, the Under Secretary for Acquisition and Technology warned that if the Pentagon does not request full funding for cleanup, "the Department [may be] subject to fines and penalties" from federal and state regulatory agencies, and may also be "subject to civil suits" from the private sector.\footnote{229}

The closure program provides some indication of the magnitude of potential funding shortfalls. For example, consider that, of the 250 bases on the 1988, 1991, and 1993 closure lists, twenty-three of these are on the National Priorities List of the worst contaminated sites in the United States.\footnote{230} Projected spending to complete cleanups at these NPL bases alone is approximately $2 billion,\footnote{231} and spending on these bases over the 5 years of the Clinton Administration's cleanup program is projected to be $1.2 billion.\footnote{232} On the basis of these figures, more than one-half of the Administration's $2.2 billion base closure cleanup effort will be devoted to just 10% of the bases on the closure list, with less than $1 billion left over to handle the other 90% of military bases slated for closure.\footnote{233} These non-NPL bases could become caught in an even tighter budget squeeze if the twenty-three NPL sites experience cost overruns similar to those at Pease Air Force Base.\footnote{234}

Although more funds are unquestionably needed, some of the pressures on the defense cleanup budget could be alleviated if the

\footnote{230. DOD, 1994 ENVIRONMENTAL CLEANUP REPORT, supra note 28, at A-1, A-10.}
\footnote{231. 1993 DERP REPORT, supra note 58, at A-4, B-4, B-5, F-2, F-3; 1993 COMM'N REPORT, supra note 77, at ix-xiii.}
\footnote{232. DOD, 1994 ENVIRONMENTAL CLEANUP REPORT, supra note 28, tbl. B-1.}
\footnote{233. See supra note 11. Another indication of a perceived funding shortfall was the DOD's request that Congress permit the DOD to use the larger Defense Environmental Restoration Account for base closure cleanups. See 1993 Senate Armed Servs. Hearings, supra note 14, at 87-88, 133-40. However, the fiscal year 1994 defense authorization and appropriation bills did not contain such a change. See DOD Holds Back 15% of Cleanup Funds Pending Site Progress Reviews, DEF. ENV'T ALERT (Inside Wash. Pub., Wash., D.C.), Jan. 26, 1994, at 1, 3. There are also concerns that funds in the DERA may be insufficient to handle cleanups at the DOD's ongoing facilities. See 1993 Senate Armed Servs. Hearings, supra note 14, at 415 (statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.)) (citing Odeen Panel findings that the DERA will be underfunded in out-years by several billion dollars).}
\footnote{234. The Congressional Budget Office shares the concern about future funding shortfalls. In a prepared statement before the Senate Armed Services Committee, CBO officials advised Senators that: "Given the likely constraints on future budget cuts and the complexities of cleaning up thousands of contaminated facilities, DOD could have serious difficulties in meeting its program goals within the current budget plan." CBO statement, supra note 48, at 1.}
DOD manages its funds in a different manner. Changes in site selection, remedy selection, and the closure process itself could partially mitigate the funding pressures that the DOD is likely to confront in the new Congress. Some of these changes will require new authority from Congress; the DOD has clear authority to make some of the others on its own.

b. Funding Priority—Site Selection

During the Reagan and Bush Administrations, the Pentagon generally employed a "worst first" system for selecting operating sites to be cleaned up. The prioritization was done on the basis of relative risk to health and the environment as determined in the completed remedial investigation and helped the services to identify where they would commit cleanup funds at operating facilities.

The Defense Department no longer formally employs the "worst first" system, but it does generally rank cleanup needs on a facility-by-facility basis, rather than on a site-by-site basis. Such an approach can result in misplaced priorities. This can occur because, pursuant to EPA's system for identifying high priority sites, the Pentagon usually places an installation on the NPL on the basis of the hazard ranking scores of the four to six worst sites at the facility. Along with these severely contaminated sites, however, a typical DOD installation may have several hundred potentially contaminated sites, many of which have only minor contamination. In overseeing the CERCLA process, though, EPA requires that nearly all the potentially contaminated sites at an NPL installation, and not just the severely contaminated ones, go through a full-scale CERCLA characterization.

235. See 1993 DERP Report, supra note 58, at 3. In addition, during this period the Pentagon developed a complex Defense Priority Model (DPM) to allocate resources to cleanup areas in the event of future funding shortfalls. Id. The DPM, which the DOD had hoped to use in making future prioritization decisions, came under criticism from EPA, who believed that use of the DPM could disrupt existing interagency cleanup agreements. See Federal Facilities, supra note 64, at 4-6. The Clinton Administration now appears to be taking a less formalistic approach to cleanup prioritization and allocation of funding resources. See DOD, 1994 Environmental Cleanup Report, supra note 28, at 5.


237. Id. The Defense Priority Model applied to use of funds in the DERA, which handles operating facilities only. The use of funds from the Base Closure Account (BCA) is not governed by the "worst first" priority system, most likely because it is expected that all of these bases slated for closure will be addressed with in a timely fashion. See 1993 Senate Armed Servs. Hearings, supra note 14, at 187-88 (statement of Sen. Glenn).


240. Id.

241. Id.
It is not difficult to see how this approach can result in a misallocation of DOD cleanup dollars. The system can lead to the expenditure of huge sums at the Pentagon's most highly contaminated facilities. For example, more than $865 million has already been spent on activities—mostly investigative in nature—at just six large DOD facilities, with almost $511 million at the Rocky Mountain Arsenal alone.242 But the system also means that many DOD sites with only moderate or minor degrees of contamination are given higher priority, and receive earlier access to DOD funding, than contaminated sites located at non-NPL military installations "that pose a greater risk to human health and the environment."243 The GAO believes that the "DOD unnecessarily expends significant time and resources applying the CERCLA process to the minor sites" at NPL bases, with the result that "seriously contaminated sites on non-NPL installations are allowed to worsen."244

To illustrate how a revised priority system might work, consider the $865 million spent on investigative work at the six large DOD facilities.245 If these sites did not pose direct health risks and the funds had been diverted to other work, sufficient funding might have been available to not only study but to fully remediate perhaps thirty other major facilities across the country, assuming an estimated range of $20 to $50 million for median base cleanup costs.246 These cleanups could have restored additional facilities for government or private use, provided jobs in the community, and safeguarded the health and welfare of residents in surrounding areas. Therefore, the DOD and EPA need to develop a revised ranking system that specifically accords weight to future reuse potential, and that allows the DOD the flexibility to structure its work on a site-by-site rather than a facility-by-facility basis. The ultimate aim would be for the DOD to be guided by a "maximum value" approach rather than the "worst first" system in carrying out its cleanup program, and to thereby ensure that cleanup dollars


244. Id. at 10-11.


246. In California, the state with the largest number of open military installations covered by the 1992 Defense Environmental Cleanup Program, the median projected cleanup cost is $18 million and the average projected cleanup cost is $58 million. See DOD, 1994 Environmental Cleanup Report, supra note 28, at B-1-59 to B-1-89. Since the median figure is likely to understate the cost of a typical cleanup, and the average figure is likely to overstate it, the cost of cleanup at a substantial majority of military installations seems likely to fall within a range of $20 to $50 million. See CBO, 1995 Issues and Options, supra note 56, at 12 n.6 (indicating average base remediation costs of $25 million).
are spent in a way that provides the greatest overall economic and environmental return.\textsuperscript{247}

c. Funding Priority—Remedy Selection

As noted above, the current law's insistence on permanent remedies, its failure to explicitly allow costs to be taken into account, and the inflexible application of a residential use assumption all have the potential to result in a more costly and time-consuming remedy than necessary.\textsuperscript{248} These policies have put considerable strain on the DOD's cleanup budgets.\textsuperscript{249} The types of changes that Congress contemplated in the proposed Superfund reforms would, if enacted, benefit both the DOD and economically distressed communities with strong interest in more rapid defense conversion.\textsuperscript{250}

The same is true of proposed changes in the area of state and local participation. Although the DOD has expressed some concern that state-led efforts could lead to "gold-plated" cleanups, the concept of providing for larger state roles and involvement of Community Working Groups early in the process should help to avert the consid-

\textsuperscript{247} The Congressional Budget Office takes a similar view. It points out that it can cost as much as $65,000 per acre to survey and remEDIATE a site that contains unexploded buried ordnance, and $14,000 to $26,000 per cubic meter to clean up buried radioactive waste with current technology. CBO, 1995 Issues and Options, supra note 56, at 11-12, 32-33. The CBO suggests that it may make more sense to postpone cleanups of this nature as long as there is no current health or safety risk, and to utilize scarce cleanup dollars at sites where the potential economic return from productive reuse can be maximized. \textit{Id.}

\textsuperscript{248} See supra notes 156-61 and accompanying text.

\textsuperscript{249} H.R. REP. No. 254, 103d Cong., 1st Sess. 31 (1993). In its report accompanying the Fiscal Year 1994 Defense Appropriations Bill, the House Appropriations Committee expressed its view that tailored remedies could reduce DOD cleanup funding needs: "In the past, the Committee has been frustrated with this tremendous growth in requested funding, considering how little land has actually been restored to date . . . the Defense Department could cut costs and shorten cleanup times if the intended future use of polluted sites were matched to the cleanup effort. Thus, a polluted site on a military base that is going to close and be converted into an industrial park need not be cleaned as thoroughly as a site intended for a housing development. The Committee expects to see this new belief translate into reduced future budget requests." \textit{Id.}

\textsuperscript{250} One other mechanism that could alleviate some of the pressure on the DOD cleanup budget would be a dedicated trust fund. EPA used such an approach to handle a recent hazardous waste cleanup in Massachusetts, and its broader application was endorsed by the Defense Environmental Response Task Force. 1993 Senate Democratic Reinvestment Task Force, supra note 93, at 11. A dedicated trust could be primed with funds appropriated directly by Congress and augmented with funds received from the sale of land and facilities to state and local governments, industrial users, or private developers. See 1993 Senate Armed Servs. Hearings, supra note 14, at 87, 125 (joint statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.) & David J. Berneau, Principal Deputy Assistant Secretary of Defense for Prod. and Logistics). Although there is some limited authority for a dedicated trust now, at least for bases on the 1988 closure list, this authority will expire when the Base Closure Account, part I expires in late 1995. \textit{Id.} The Defense Department has requested legislation to extend this authority. \textit{Id.} at 87-88.
erable wrangling over remedy selection that now often occurs between federal, state, and local entities. If the process works more smoothly, the increased delegation of authority to state and local representatives should in the long run produce overall savings in the DOD cleanup program.

Beyond these needed legal and administrative reforms, it is increasingly clear that better and cheaper environmental remediation technologies are critical to checking runaway cost growth. Even technologies currently under development could result in significant cost savings. For example, the current cost to clean up groundwater that is contaminated with heavy metals can range as high as $40 per 1000 gallons; the DOD believes that new technologies could lower this to a range of between 10 cents and $2 per 1000 gallons.\textsuperscript{251} The cost of eliminating metals from contaminated soils could drop from the present range of $75 to $250 per ton to between $20 and $200 per ton.\textsuperscript{252} Overall, the Congressional Budget Office estimates that new technologies now under development could cut the costs of characterizing and remediating these sites by 50\% or more.\textsuperscript{253} In light of this, the CBO believes that the DOD "cannot afford not to" invest in such efforts, and that it would be shortsighted not to fully fund the environmental research and development portion of the DOD budget (a program that accounts for roughly 6\% of all DOD environmental spending).\textsuperscript{254} It seems particularly prudent to do this if cuts are made in other portions of the DOD environmental budget.

d. Funding Priority—"Too Dirty To Close"

Cleanup funding issues may also be complicating the selection of bases for closure under the statutory scheme, as anecdotal evidence suggests that potentially costly cleanups can "save" a base from closure. Under the 1990 BCRA, the DOD is obliged to exclude the costs of environmental restoration from its calculation of net savings to the government when deciding whether to close a base.\textsuperscript{255} In its review of the 1993 base closure round, however, the GAO pointed out that: "[E]nvironmental cleanup costs . . . are likely to have a significant budgetary impact since pressure for rapid conversion and reutilization of closed bases will not allow these costs to be spread over many years."\textsuperscript{256} The DOD thus has an incentive to keep a highly contami-

\textsuperscript{251.} CBO, 1995 Issues and Options, supra note 56, at 34.
\textsuperscript{252.} Id.
\textsuperscript{253.} Id.
\textsuperscript{254.} Id. at 35.
\textsuperscript{255.} Military Bases: Analysis of the DOD's Recommendations, supra note 26, at 67.
\textsuperscript{256.} Id.; see Cleanup Costs Force Bases To Remain Open, Study Says, Def. Env't Alert (Inside Wash. Pub., Wash., D.C.), Oct. 19, 1994, at 15 (stating that "looming envi-
nated base open, because a decision to close creates added pressure for quick, costly cleanup.

For example, the GAO criticized the Army for excluding Fort Monroe in Virginia from consideration for closure in the 1993 round on the grounds of high environmental cleanup costs which were estimated at over $600 million. The GAO concluded that such costs should not be included in determining the government's return on investment connected with the base. BRAC Commission Chairman James Courter echoed this criticism, noting that the characterization of Fort Monroe as a base "too dirty to close" merely resulted in spending more money to keep open a base that should have been closed. Such shortsightedness should be curtailed; when the Commission convenes in 1995 for the next round, it needs to ensure that dirty bases are not kept open merely because cleanup costs are expected to be large.

D. Problems in Transferring Military Facilities to State or Local Control

Even though nearly 250 bases have been authorized for closure in the past 6 years, few transfers or leases of military base properties have been completed. Local communities are understandably anxious to put closed bases to commercial or other productive use as quickly as possible in order to preserve their employment base; many have been frustrated by the slow pace of the defense conversion

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257. MILITARY BASES: ANALYSIS OF THE DOD'S RECOMMENDATIONS, supra note 26, at 38.

258. Id.


260. See Hearings Before the Subcomm. on Military Readiness & Defense Infrastructure of the Senate Armed Servs. Comm., 103d Cong., 1st Sess. (1994) (statement of James Boatright, Deputy Assistant Secretary of the Air Force (Installations)) (indicating that 60% of Air Force bases in the 1988 base closure round and 80% of the bases in the 1991 round have not yet been converted to civilian use); see also Courter remarks, supra note 259, at 5 (finding that with the exception of several small Army housing areas and the Air Force leases for Pease and Chanute Air Force Bases, there had been few transfers or leases of military base properties as of 1993); see 1993 Senate Armed Servs. Hearings, supra note 14, at 447 (testimony of Sen. McCain) (discussing the limited number of Army transfers to nonfederal entities). Transfers and leases of federal property are generally governed by the Federal Property and Administrative Services Act of 1949, and the DOD employs these rules in disposing of surplus property on closed military bases. 40 U.S.C. § 471 (1949).
process and by the fact that environmental cleanup is often "the most difficult obstacle" to reusing base properties.261

Congress has attempted to deal with this problem twice in recent years. In 1992, it adopted legislation to permit federal facilities to be "parcelized" into contaminated and uncontaminated segments, so that the uncontaminated segments could be put to productive local use more quickly.262 In 1993, it sought to accelerate the DOD cleanup process and to authorize communities to obtain outmoded military facilities at below fair market rates.263 Nevertheless, a number of problems remain in this area.

This section reviews the current parcelization process, and discusses how the process could be improved. It also suggests several other means by which the transfer of unused military property could be expedited.

1. The Parcelization Process

a. Overview

In 1992, Congress enacted the Community Environmental Response Facilitation Act (CERFA) as an amendment to CERCLA.264 CERFA was primarily designed to overcome the delays in reusing federal facilities that stemmed from the restrictions on transfers of contaminated federal property in CERCLA section 120.265 CERCLA

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261. NATIONAL GOVERNORS' ASS'N & NAT'L ASS'N OF ATTORNEYS GEN., supra note 117, at 6-9; Satchell, Uncle Sam's Toxic Folly, supra note 68, at 20; REUSE PLANS FOR SELECTED BASES, supra note 7, at 18.


264. Pub. L. No. 102-426, 106 Stat. 2174 (1992). CERFA was primarily based upon the recommendations of the Defense Environmental Response Task Force, which was established by Congress in 1990 to help streamline administrative procedures connected with base cleanups. See DOD, 1991 TASK FORCE REPORT, supra note 190. The Task Force members were drawn from the DOD, other federal agencies, state agencies, and public interest groups. See 10 U.S.C. § 2687 (1990). The Task Force's October 1991 report found that transferring uncontaminated parcels at a closing base could speed conversion to civilian uses, as long as there existed: (1) specific criteria for determining whether contamination existed, and (2) safeguards to ensure that transfers of parcels would not interfere with ongoing cleanups. DOD, 1991 TASK FORCE REPORT, supra note 190, at 7-8. The Task Force found that contaminated parcels could be leased so long as threats to health and the environment did not significantly increase, and the public was adequately informed about the lease. Id. at 10. In the Fiscal Year 1993 Military Construction Appropriations Act, Congress reestablished the Environmental Response Task Force and directed it to issue yearly reports on current base closure activity. Military Construction Appropriations Act, 1993, Pub. L. No. 102-380, § 125, 106 Stat. 1366, 1372 (1992); see 1993 Senate Armed Servs. Hearings, supra note 14, at 77, 81 (statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.)) (discussing CERFA's role in accelerating cleanups).

section 120 stipulates that before a federal agency may transfer title to real property on which a hazardous substance has been released, disposed of, or stored for a year or more, it must warrant that "all remedial action necessary to protect human health and the environment . . . has been taken before the date of such transfer." While this transfer restriction does not preclude the early transfer of the uncontaminated portions of a military base, Congress found that the Defense Department and other federal agencies lacked a process for identifying and transferring such parcels. The absence of a parcelization process often prevented communities from making early use of housing units, office and warehouse space, or airport or port facilities that offer nearby communities their "best prospect for future economic development" to help offset the economic dislocation caused by closures.

CERFA addresses this problem by requiring the DOD and other federal agencies to identify and segregate contaminated land from uncontaminated land and to make the uncontaminated parcels available for sale, lease, or other transfer in a timely fashion. In carrying out the responsibility to identify uncontaminated parcels, agencies are required to perform an environmental baseline survey (EBS). The EBS includes searches of federal records and title documents, visual inspections, interviews with current or former employees, and "sampling, if appropriate under the circumstances."

For military base closures, the Defense Department must complete the identification process and

266. Id.
267. H.R. REP. NO. 814, 102d Cong., 2d Sess. 6, 8 (1992), reprinted in 1992 U.S.C.C.A.N. 1496, 1499, 1501. In its report accompanying CERFA, the House Energy and Commerce Committee expressed concern about the lack of adequate procedures to speed the transfer of areas of uncontaminated property at bases slated for closure: "Affected communities are looking at these areas of uncontaminated property as potential opportunities for redevelopment and economic diversification. . . . The early identification of uncontaminated property combined with quicker action in undertaking necessary environmental response activities provides the best opportunity to achieve the twin objectives of environmental protection and mitigation of the adverse economic impacts on the surrounding community from closure of the facility." Id.
268. Id. at 5. The House committee report accompanying the CERFA legislation noted several examples of communities that were prevented from reusing property on a timely basis. The Fort Ord closure in Monterey County, California, scheduled for late 1995, was expected to increase the local unemployment rate by 8% and to cost area merchants $350 million in lost sales between 1993 and 1997. Id. at 5-6. In Sacramento, California, where the Mather Air Force Base and the Army Depot are slated for closure, the closures were projected to cost the area 10,000 jobs and $330 million in annual economic activity. Id. However, the Army did not expect to fully remediate the contamination at Fort Ord until the year 2011, and the Defense Department estimated that remediation at the other two facilities would go on "well into the next century." Id. at 6. The House committee viewed parcelization as one means to facilitate reuse at these and other similarly situated DOD bases. Id. at 6-10.
269. 42 U.S.C. § 9620(h).
receive concurrence from either EPA (if the property is on the NPL), or from the relevant state authority (if the property is not on the NPL), within 18 months from the date on which the closure decision becomes final.\textsuperscript{271} CERFA also clarified the transfer restrictions by allowing land to be sold if a remedy is in place at the time of transfer.\textsuperscript{272}

\textit{b. Clarifying CERFA's Ambiguous Definitions}

The parcelization process would be significantly improved if EPA and the DOD moved to adopt supplemental regulatory guidance regarding the key terms that trigger the CERFA process. At least two important terms under CERFA remain ambiguous. First, EPA provides little guidance on how to interpret the CERFA provisions defining property as contaminated if a hazardous substance or petroleum product has been stored there for 1 year.\textsuperscript{273} This provision, if read literally, would exclude from transfer residential housing units that have heating oil tanks on the premises.\textsuperscript{274} EPA and DOD officials say they are “challenged” in deciding how to interpret this provision of the law.\textsuperscript{275} Although Congress probably intended a less literal reading, legislative or regulatory action may still be needed to clarify this issue and thus preclude treating a property as contaminated simply because fuel oil was stored there for 1 year, regardless of actual contamination.

CERFA also does not resolve what constitutes a “necessary” remedial action “taken” by a federal agency that would allow a site to be parcelized and transferred under CERCLA section 120.\textsuperscript{276} The CBO suggested in 1992 that Congress or EPA needed to clarify what government actions are “necessary” to protect human health and the

\begin{footnotes}
\item[271] Id. § 9620(h)(4)(C).
\item[272] Id. § 9620(h)(3) (deeming a CERCLA remedial action to have been taken if “construction and installation of an approved remedial design has been completed, and the remedy has been demonstrated by the Administrator to be operating properly and successfully”).
\item[273] See DOD, FOSL POLICY, supra note 143, at 1-4. The DOD has issued CERFA guidance, but this guidance essentially just tracks the statute. Id.
\item[274] 42 U.S.C. § 9620(h)(4)(A). The Superfund reauthorization bill would have dealt with at least part of this problem by deleting the words “stored for one year or more” from the parcelization provision in CERFA. H.R. 3800, supra note 148, at 56.
\item[275] 1993 Senate Env't & Pub. Works Hearings, supra note 5, at 6 (joint statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.) & Thomas L. McCall, Jr., Acting Deputy Assistant Administrator, EPA). The issue of whether “no contamination” means no “detectable” contamination, or “de minimis” contamination, or absolutely zero contamination is a continuing struggle for EPA and the states. EPA is currently attempting to develop a definition of “no contamination” for purposes of CERFA, and the number of parcels identified as uncontaminated could vary significantly based on EPA’s definition.
\item[276] 42 U.S.C. § 9620(h)(3).
\end{footnotes}
environment under CERCLA section 120(h)(3).\textsuperscript{277} Clarification would also be helpful in determining whether the DOD’s remedial actions have been sufficiently implemented to constitute having been “taken.”\textsuperscript{278} The DOD, local communities, and base reusers frequently disagree on these CERFA definitions and interpretations, and the potential exists for slowing the parcelization process considerably.

The Defense Department should be able to work with EPA to clarify the definition of uncontaminated property and to formulate specific examples of what necessary remedial actions justify transfer of property. To the extent that statutory clarification is needed, the necessary amendments should be included in legislation to reauthorize the Superfund program.

c. State and Local Participation

In addition to the above areas of ambiguity, states and local communities are concerned over their lack of involvement in key parts of the parcelization process under CERFA.\textsuperscript{279} For example, the DOD’s preparation of an environmental baseline survey (EBS), the initial step in the CERFA process, frequently proceeds without any outside involvement. Because an EBS does not entail the type of extensive site testing, sampling, and analytical activities that are conducted when contamination has been discovered,\textsuperscript{280} state regulators and citizens groups may question the government’s ability to determine which parcels are uncontaminated for parcelization purposes.\textsuperscript{281} As a result,

\begin{itemize}
  \item \textsuperscript{277} CBO, \textit{Environmental Cleanup Issues}, \textit{ supra} note 8, at 16. CERFA may not have addressed this issue because defining “necessary” for purposes of base closure cleanups would have ramifications for all other Superfund cleanups. The proposals for Superfund reauthorization did not attempt to clarify what is “necessary” either. \textit{See National Comm’n on Superfund, \textit{supra} note 174, at 5-14.}
  \item \textsuperscript{278} CERCLA as amended by House Bill 4016 attempted to clarify this issue by stating that “construction and installation of an approved remedial design” qualifies as “taken,” but there is room for interpretation on this point. 42 U.S.C. § 9620(h)(3); H.R. 4016, 102d Cong., 2d Sess. 3 (1992), \textit{reprinted in 1992 U.S.C.C.A.N.} 1496, 1507.
  \item \textsuperscript{279} 1993 Senate Env’t & Pub. Works Hearings, \textit{ supra} note 5, at 80-82 (testimony of Samuel W. Goodhope, Special Counsel for the Env’t, Office of the Attorney General, State of Texas). The National Association of Attorneys General (NAAG) believes that the Defense Department is not adequately fulfilling the requirements of CERCLA § 220(h)(4)(B), which guarantees the states a concurrence role in the parcelization process. \textit{See} 42 U.S.C. § 9620(h)(4)(B). NAAG has testified that when the DOD prepares an environmental baseline survey (EBS), it does not always reflect the values, concerns and years of learning and experience of state regulatory agencies and the result may very well be a series of nonconcurrences in the coming months. \textit{1993 Senate Env’t & Pub. Works Hearings, \textit{ supra} note 5, at 80-82.}
  \item \textsuperscript{280} H.R. 4016, \textit{ supra} note 278, at 2. \textit{But see} 1993 DERP \textit{Report, \textit{ supra} note 58, at 2 (explaining the remedial and investigative phases after contamination has been discovered at a site).}
  \item \textsuperscript{281} DOD, FOSL POLICY, \textit{supra} note 143, at 2. Under current DOD guidance issued in September 1993, an “EBS will be based on all existing environmental information related to storage, release, treatment or disposal of hazardous substances or petroleum prod-
the potential remains for continuing disputes about parcelization. Local community involvement would help to ensure that adequate environmental review takes place and thus serve to limit these disputes. Accordingly, the Superfund reauthorization should also provide that community working groups are entitled to participate in the EBS process.282

d. Buffer Zones To Protect Parceled Properties

Apprehension over the migration of contaminants from military facilities can also complicate facility transfer. States and local property owners may question whether adjacent nonfederal properties will be sufficiently protected in the CERFA parcelization process (i.e., whether appropriate "buffer zones" will be erected around the contaminated DOD bases). Although the DOD requires that an environmental baseline survey cover "properties contiguous to the boundaries" or "other nearby properties," concern remains that the EBS will be too limited in scope to identify contamination that may migrate over large distances, and that the DOD has insufficient safeguards against these migrating pollutants.283 In response, the Defense Environmental Response Task Force has recommended the use of buffer zones to ensure that contamination does not reach any uncontaminated parcels transferred under CERFA.284 Nevertheless, EPA has yet to adopt any specific rules on such buffer zones.

Given the variability that exists between sites, it would be nearly impossible to define a buffer zone in terms of a fixed number of yards (or miles). EPA could, however, design a set of presumptions to guide the DOD in this area. The variables to be taken into account would include type and extent of contamination, soil permeability and condition, hydrogeological factors, migration potential, and sensitivity of the surrounding area. Such a guide could remove a significant impediment to the CERFA process.

282. See 42 U.S.C. § 9617(a) for the current status of public participation in the remediation process.
283. DOD, FOSL POLICY, supra note 143, at 4.
284. DOD, 1991 TASK FORCE REPORT, supra note 190, at 8.
2. **Leasing**

The CERCLA transfer restrictions may be circumvented altogether if a federal agency enters into a lease or other arrangement that falls short of a sale. As a result, the Departments of Defense and Energy have undertaken programs to lease contaminated and uncontaminated federal parcels. The Defense Environmental Response Task Force regards the leasing of contaminated federal property while the cleanup process is taking place as an acceptable practice, so long as an EBS is conducted, there is no interference with the cleanup process, no danger to the users of the facility exists, and the federal government remains obligated to proceed expeditiously with the cleanup. In order to issue a finding of suitability to lease (FOSL), the DOD must consult with federal and state regulatory agencies and, as required by CERCLA section 120(h)(5), notify the state prior to execution of any lease that would encumber the property beyond the date of termination of military operations.

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285. See 42 U.S.C. § 9620(h)(3) (indicating that transfer restrictions do not apply to the lease of property); DOD, 1991 TASK FORCE REPORT, supra note 190, at 9. Accordingly, the DOD may execute leases for facilities for which remedial action has not been completed without violating the CERCLA requirement that closing federal facilities be cleaned up before formal title passes. DOD, 1991 TASK FORCE REPORT, supra note 190, at 9. The Defense Environmental Response Task Force found that parcelization of facilities leading to leasing of contaminated sites and sale or lease of uncontaminated sites could help to overcome delays in converting DOD facilities to productive civilian use. Id. In the past such delays have stemmed from the CERCLA property transfer restrictions. Id. at 9-10.


287. See H.R. CONF. REP. No. 357, 103d Cong., 1st Sess. 807 (1993), reprinted in 1993 U.S.C.C.A.N. 2218, 2364-65; DOD, 1991 TASK FORCE REPORT, supra note 190, at 5-9. The Task Force report listed the following as minimum criteria for leasing: (1) no significant increase in risk to health or the environment, (2) no interference with the cleanup process, (3) no significant risk to users, (4) an expeditious cleanup process, and (5) liability remains with the DOD for remedial actions. DOD, 1991 TASK FORCE REPORT, supra note 190, at 10; see DOD, FOSL POLICY, supra note 143, at 1-8.

288. DOD, FOSL POLICY, supra note 143, at 6. However, the DOD’s FOSL guidance does not require concurrence or approval by either EPA or state officials. 1993 Senate Armed Servs. Hearings, supra note 14, at 200. State officials in Texas have expressed concerns about the DOD’s base closure leasing policies and have requested input to the DOD and EPA discussions on the subject. See State Pushing for Input in DOD-EPA Agreement on Leasing at Closing Bases, DEF. ENV'T. ALERT (Inside Wash. Pub., Wash., D.C.), Dec. 29, 1993, at 4 [hereinafter State Pushing for Input]. One of Texas’ complaints is that the DOD failed to comply with CERFA’s lease notice requirements by neglecting to disclose the exact term of an interim lease at the Carswell Air Force Base in Texas. Letter from Thomas H. Edwards, Assistant Attorney General, Environmental Protection Division, Office of the Texas Attorney General, to Air Force Base Disposal Agency 1 (Sept. 10, 1993) (on file with the Ecology Law Quarterly).
A significant question concerns the appropriate length of the lease term under CERFA. One of the Pentagon's first leases at a closed base involved the Pease Air Force Base in New Hampshire, where leasing was viewed as a critical part of the base's conversion to civilian use.\(^{289}\) The maximum term for a lease allowed under General Service Administration practice was 5 years.\(^{290}\) The Defense Department, however, circumvented this rule by including ten 5-year renewal options in its lease agreement.\(^{291}\) The potential 55-year term of the lease at the Pease Air Force Base raised concerns about whether the lease constituted an attempt to convey federal property on a long-term basis without first having put appropriate CERCLA remediation measures in place.\(^{292}\) The Pease lease was challenged in federal court, which found that the Air Force had violated CERCLA by transferring contaminated parcels via a long-term deed without adopting an approved CERCLA remedial design.\(^{293}\)

While the court in the Pease case was clearly troubled by the fact that the Air Force used the artifice of a long-term lease to avoid the remedy-before-transfer restrictions of CERCLA,\(^{294}\) limiting lease terms to just a few years could significantly disadvantage local redevelopment efforts. In some situations, it may be appropriate to provide reasonable lease renewal options to allow businesses to recover the cost of their property improvements; this may be the only way to entice businesses to take over property and enable them to obtain necessary financing for redevelopment.\(^{295}\)

\(^{289}\) See DOD, 1991 TASK FORCE REPORT, supra note 190, at 7.

\(^{290}\) CBO, ENVIRONMENTAL CLEANUP ISSUES, supra note 8, at 18.

\(^{291}\) Id.


\(^{293}\) See Conservation Law Found., Inc. v. Department of the Air Force, No. CV.C.92-156-L, 1994 WL 5177697, at *27-29 (D.N.H. 1994). While the court declined to void the Pease lease, the court ordered the Air Force to prepare a supplemental final environmental impact statement to delineate a CERCLA remedial design for the properties to be transferred by lease. Id. at *29. The plaintiffs have subsequently moved to amend the court's decision on the ground that the finding of a CERCLA violation by the Air Force means that the Pease lease was an illegal act that must be voided. See State, Environmentalists Move To Amend Court Ruling, supra note 292, at 14.

\(^{294}\) The court noted that the Air Force had admitted its preference for transfer by deed, but had circumvented the transfer requirements of CERCLA § 220(h)(3) by using a long-term lease. Conservation Law Found., 1994 WL 5177697 at *27-28; 42 U.S.C. § 9620(h)(3). The court emphasized that while the Air Force had promised to continue the CERCLA remediation process, there was no specific warranty that ensured that an adequate remedial program was in place. Conservation Law Found., 1994 WL 5177607, at *28.

\(^{295}\) See DOD, 1991 TASK FORCE REPORT, supra note 190, at 12. The Democratic Defense Task Force also recommended a number of improvements to the DOD's leasing policy. These included accelerating determinations of lease prices, permitting base commanders to execute leases, requiring the DOD to cover leasing costs, and prioritizing
House-Senate conferees sought to grapple with this issue in a recent defense authorization bill. The conference report states: "The leases should be for the length of time necessary to foster redevelopment but not so long as to discourage the cleanup of the property as expeditiously as possible." One way of dealing with this question would be to tailor the term of a lease to the type of environmental contamination at a facility. Where limited surface contamination exists, a shorter term lease may be favored. But where long-term remediation will likely be required, a long-term lease with special provisions for access and health protection may be appropriate. In such situations, however, the DOD should be prevented by law from approving any lease extension option without making a finding—in which EPA and state authorities concur—that cleanup progress has been made and that firm plans are in place for completing the cleanup effort. This will help to avoid any perception that the lease has been structured to avoid the CERCLA cleanup and property transfer requirements, as happened with the Pease lease in New Hampshire.

3. Liability and Indemnification

The prospect of CERCLA liability for subsequent owners also impedes expeditious conversion. While CERCLA section 120 provides that federal agencies remain responsible for final cleanup of contaminated facilities after transfer, CERCLA section 107 provides that subsequent facility "owners" or "operators" are also liable for cleanup or for any damages that may be caused by contamination at the facility. Thus, entities acquiring converted properties through lease or sale are frequently concerned about potential CERCLA liability and want the DOD to indemnify them against financially debilitating claims that might be brought against them in the

296. H.R. CONF. REP. NO. 357, supra note 287, at 807. The report also states: "The conferees are sensitive to several competing interests related to closing bases which have environmentally contaminated property. One interest is the remediation of the contamination on an expedited basis. . . . Another interest is the community's desire to generate new jobs. . . . If the lease is too short, redevelopment prospects would be discouraged from making the necessary capital investment . . . ." Id.


298. 42 U.S.C. § 9620(h). Congress reaffirmed this policy in CERCLA as amended by CERFA, which states that, when any real property is transferred to another person, "the United States Government should remain responsible for conducting any remedial or corrective action . . . with respect to any hazardous substance or petroleum product or its derivatives, including aviation fuel and motor oil, that was present on such real property at the time of transfer." Id. § 9620(h)(5).

299. Id. § 9607; see id. § 9601(20)(A) (broad definition of "operator").
Such liability concerns often require lengthy negotiations to resolve. Furthermore, the Defense Department has in the past aggravated this problem by insisting that municipalities waive the right to indemnification before it will allow a base to be converted to civilian use. Congress, however, has indicated that the armed services should more freely indemnify transferees. When the Pease Air Force Base was closed in 1991, Congress addressed transferee liability concerns by enacting a special bill indemnifying the State of New Hampshire and lenders against any liability associated with Air Force contamination at the base. In 1992, Congress attempted to treat the indemnification problem more broadly by declaring that the DOD should indemnify transferees from any claim "that results from . . . any hazardous substance or pollutant . . . as a result of Department of Defense activities at any military installation (or portion thereof) that is closed pursuant to a base closure law."

300. The National Association of Counties has pointed out that: "[L]ocal governments and businesses will not find lenders willing to invest in construction of new facilities on closed bases unless lenders are assured that the federal government will be responsible for damages arising from toxic contamination caused by DOD. Indemnification is a waiver of sovereign immunity that places the federal government in the same position as any other owner of contaminated property. By waiving its sovereign immunity rights, the federal government will enhance the value of its property by making new investment possible." 1993 Senate Armed Servs. Hearings, supra note 14, at 72 (statement of Larry E. Naake, Executive Director, Nat'l Ass'n of Counties).


302. Katy Podagrosi, Presentation to the Senate Democratic Defense Reinvestment Task Force 3-4 (June 7, 1993) (on file with the Ecology Law Quarterly). Katy Podagrosi, the Mayor of Rantoul, Illinois, blamed disputes over indemnification language and other liability considerations for a "gridlock" of 4.5 years in converting the nearby Chanute Air Force facility to civilian use. Id.


304. Id.

305. National Defense Authorization Act for Fiscal Year 1993, Pub. L. No. 102-484, § 330(a), 106 Stat. 2315, 2371 (1992). In the fiscal year 1993 appropriations law, Congress also attempted to deal with this issue, but used different terms and in the process created significant confusion in this area. Department of Defense Appropriations Act, 1993, Pub. L. No. 102-396, tit. II, 106 Stat. 1836, 1884 (1992). The authorization law's indemnification provisions were restricted to base closures, used the CERCLA definitions of hazardous substance and contaminant, and required a claimant to notify the DOD within 2 years after a claim "accrues." § 330, 106 Stat. at 2371-72. By contrast, the appropriations provisions applied only to any property that was "transferred" to a state or political subdivision, and the definition of hazardous substance specifically included petroleum and natural gas (substances not defined as "hazardous" under CERCLA). Title II, 106 Stat. at 1884. For a time, the DOD apparently refused to enter into certain leases unless communities waived their right to DOD indemnification. In its refusals the DOD cited the conflicting provisions of the Fiscal Year 1993 DOD Authorization and Appropriations Acts. See 1993 Senate Env't & Pub. Works Hearings, supra note 5, at 13 (joint statement of John D. Dunlap, Chief Deputy Director, Dep't of Toxic Substances Control, Cal. EPA & David Wang,
Currently, in order to be reimbursed by the military, municipalities and lessees must prove that the Defense Department caused the subsequently discovered contamination.\textsuperscript{306} Understandably, the DOD will fight hard to avoid liability if the contamination cannot be proved to be "as a result of" military activities; but redevelopment authorities and their lessees will remain equally determined to be indemnified for contamination not of their doing. This tug-of-war is likely to be repeated many times as the pace of base closures accelerates, and at present there are few mechanisms to ameliorate the situation.\textsuperscript{307}

To deal with this problem, the National Association of Attorneys General has suggested that the burden be reversed so that the military could be relieved of liability only if it establishes that it did not cause the contamination.\textsuperscript{308} This may be a reasonable solution given the probability that the contamination at most of these facilities is likely to be DOD-based. Shifting the legal burden would send an important signal to local communities that the federal government is ready and willing to assume cleanup obligations and hold transferees harmless from costly claims and legal proceedings.

\textsuperscript{306} Chief, Base Closure Branch, Dep’t of Toxic Substances Control, Cal. EPA). Congress sought to eliminate the confusion by repealing the appropriations language in the Fiscal Year 1994 Supplemental Appropriations Bill passed in the summer of 1993. See 139 Cong. Rec. H4378 (1993).

\textsuperscript{307} See id. § 9607. Allocation of liability and determination of indemnification rights for cleanup are difficult irrespective of whether the cause of the contamination is known definitively. Under CERCLA, both current and past owners or operators are liable on a joint and several basis, and CERCLA itself provides little guidance for allocating liability among these groups. Id. The House Commerce Committee report accompanying the passage of CERCLA states that: "[The Committee intends that the usual common law principles of causation . . . should govern the determination of whether a defendant 'caused or contributed' to a release or threatened release." H.R. Rep. No. 1016, supra note 96, at 34. Subsequently decided case law tended to place a heavier liability burden on an owner or operator who performed dumping, affirmatively allowed dumping, or benefited from dumping. See, e.g., Amoco Oil Co. v. Dingwell, 690 F. Supp. 78 (D. Me. 1988); Jersey City Dev. Auth. v. PPG Indus., 655 F. Supp. 1257 (D.N.J. 1987); United States v. R.W. Meyer, Inc., 932 F.2d 568 (6th Cir. 1991). The proposed Superfund reforms sought to deal with this issue by encouraging potentially responsible parties to have their share of liability determined early in the CERCLA process. See H.R. 3800, supra note 148, at 19-20.

\textsuperscript{308} See National Governors' Ass'n & Nat'l Ass'n of Attorneys Gen., supra note 117, at 2.
In many situations, adequate indemnification against liability can be the foundation of a successful defense conversion. Congress should consider how to provide additional assurances to communities, base developers, and lenders that the indemnification requirements will operate effectively should contamination be discovered during re-development or at a later stage. For example, base commanders should be required to disclose a base's past and present environmental compliance history so that communities may later have the necessary proof to trigger the DOD's indemnification commitment. To the extent that such assurances would require the DOD to limit its CERCLA defenses and assume greater financial liability, this would appear to be fully in keeping with Administration and congressional directives that the base closure process be "reinvented" to ensure that local communities are not unduly harmed.

4. Fast-Track Cleanups and Below Market Rate Transfers

In 1993, President Clinton ordered the Pentagon to adopt a "fast-track" system to carry out environmental cleanups and to permit below market rate transfers of defense facilities to affected communities. Much of the Clinton initiative was incorporated in an amendment developed by Senator David Pryor (D-AR) and adopted as part of the Fiscal Year 1994 Defense Authorization Law.

The Pryor amendment requires the military to perform the identification of uncontaminated base property under CERFA within 6 months after the local authorities propose a use for the property, and to complete any required environmental impact statements within 1 year after the redevelopment plan is submitted. The Pentagon then

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309. 1993 Senate Democratic Reinvestment Task Force, supra note 93, at 3.
310. Beyond the desire to bolster the DOD's indemnification of municipalities, there have been calls for Congress to provide indemnification of contractors who perform base closure cleanups on behalf of the DOD and for the ultimate benefit of municipalities. See Hearings on Dep't of Defense Remedial Action Contractor Liab. & Indemnification Before the Env'tl. Restoration Panel of the House Comm. on Armed Serv., 101st Cong., 2d Sess. 90-106 (1992) (testimony of Thomas E. Baca, Deputy Assistant Secretary of Defense (Env't)). Proponents of this approach argue that the lack of contractor indemnification may prevent competent cleanup firms from bidding on contracts and harm the quality of the cleanup. Id. at 8-27. Opponents respond that indemnification could make contractors less careful in carrying out base closure cleanup activities, and that in any event there is a healthy pool of bidders even without indemnification. Id. A DOD study on this issue concluded that contractor indemnification was not necessary, but strong differences of opinion on the issue remain within the Administration and Congress. See DOD Rejects Extending Contractor Indemnifications, Def. Env't Alert (Inside Wash. Pub., Wash., D.C.), Jan. 26, 1994, at 21-22.
311. See Revitalizing Base Closure Communities, supra note 11, at 5-6.
313. 42 U.S.C. § 9620(h)(4)(C)(i) (requiring that identification of parcels be made at least 6 months before the termination of federal operations on the property); H.R. Conf.
must appoint a transition coordinator for each base in order to assist communities and to speed conversion.314

The Pryor amendment also permits the Defense Department to convey property through sale or lease to a local redevelopment authority at below fair market value.315 Furthermore, it requires the DOD to transfer property for no consideration whatsoever if: (1) the facility is located in a rural area, and (2) the Secretary finds that the closure will have "a substantial adverse impact" on the local economy.316 In addition, the new law prevents the DOD from transferring personal property to another facility if the redevelopment plan identifies it as essential for reuse or redevelopment (an exception is provided if the equipment is "uniquely military" in character).317 The Defense Department has promulgated interim regulations for determining eligibility and price, taking into account local and regional economic development needs.318

The Pryor amendment also sought to address problems at the local level.319 In many communities, there has been difficulty satisfying the requirement that a local reuse plan be in place before the transfer process can proceed.320 Until 1993, the DOD was partly responsible for this difficulty because it insisted on performing separate environ-
mental impact analyses of the closure decision and of the potential reuse options under the National Environmental Policy Act.\textsuperscript{321} Under the Pryor provision, a single NEPA analysis covering closure and reuse will now be prepared, and this will occur within 12 months of the date a community submits its final reuse plan.\textsuperscript{322} This approach places the burden on the local community to complete its reuse plan, and thus to start the clock ticking on the DOD's obligations to satisfy NEPA.

While the Pryor legislation should enable the closure and redevelopment process to proceed more smoothly, the decisions about which base property transfers can be made and at which reduced values may not be simple to make. The law authorizes the Defense Department to lease property at below fair market rates whenever "a public interest will be served,"\textsuperscript{323} but Congress did not adopt clear guidelines for below market transfers, and the DOD's interpretation of the statute has been the subject of a recent rulemaking.\textsuperscript{324} The current situation has the potential to produce haggling over whether one community is receiving a better price break than another. If the individual valuation negotiations are not coordinated properly, this could cause the delay and expense characteristic of the pre-Pryor amendment period. Congress may be compelled to readdress these questions in an upcoming DOD authorization statute.

III
OVERSEAS MILITARY FACILITIES: CLEANUP AND CLOSURE

In contrast to the Defense Department's projected U.S. base reductions, which account for only 15% of its domestic base infrastructure, the military is much further along in its plans to close or realign


\textsuperscript{322} Id.


\textsuperscript{324} See Revitalizing Base Closure Communities-Base Closure Community Assistance, 59 Fed. Reg. 16,127 (1994) (codified at 32 C.F.R. § 91 (1994)). In this extended rulemaking, the DOD is attempting to clarify the eligibility requirements for economic development conveyances (EDC's) at less than fair market value. 59 Fed. Reg. 16,129-31. However, the DOD's procedures may be "impractical" and the DOD is thus revising the rules. The DOD is currently proposing the following factors to judge eligibility for EDC's: (1) potential for economic recovery, (2) consistency with the redevelopment plan, (3) financial feasibility, (4) extent of local and state investment, and (5) level of risk. 59 Fed. Reg. 53,738. This nonprioritized list appears to leave significant discretion in the hands of the DOD with the potential for considerable variances at closing bases.
facilities outside the United States. In the past 3 years, the Pentagon has announced plans to reduce or close 704 overseas installations, a figure that represents 38% of the military’s base infrastructure abroad. More than 90% of these proposed closures are European bases. The extensive targeting of European bases reflects the view that our North Atlantic Treaty Organization (NATO) partners should share more of their defense burden.

Substantially different legal and policy issues are presented when the Department of Defense closes or realigns its overseas facilities. There is no statutory base closure process—indeed, there are relatively few statutory controls in this area at all. Overseas base closure decisions are regarded as falling within the foreign affairs powers of the Executive, an area that is largely off limits to Congress by virtue of Article II of the Constitution. Consequently, the final decision on whether to close an overseas facility rests with the Secretary of Defense. Individual base commanders propose overseas closure decisions and then transmit their recommendations to Washington for review. This centralized decisionmaking process generally allows foreign base closures to proceed much more quickly than domestic base closures.

In addition to the closure process itself, the overseas cleanup process is largely unregulated by U.S. statutory law. U.S. environmental statutes generally are designed to cover pollution occurring within the

326. Office of the Assistant Secretary of Defense, Department of Defense, More U.S. Overseas Bases To End Operations 27 (Mar. 12, 1993) (News Release). The percentage figure is based upon plant replacement cost. See Base Closure and Realignment Report, supra note 1, at 227. The Army’s plans call for a 44% reduction in overseas operations by the end of fiscal year 1996; the Navy projects an overseas reduction of 28% by that date; the expected reduction for the Air Force is 37%. Id. In February 1994, the Pentagon announced that by 1996 it plans to return 54% of its overseas sites—approximately 900 sites—to host nations. See 1994 House Appropriations Comm. Hearings, supra note 63, at 18 (statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.)); see also Cunningham, U.S. Foreign Base Closure, supra note 36, at 7 (indicating a 32% reduction in overseas bases since 1988).
328. 10 U.S.C. § 2687. As noted earlier, the base closure statute by its terms applies exclusively to closures within the United States. See id.
330. Cunningham, U.S. Foreign Base Closure, supra note 36, at 8. Defense Department decisions to close overseas bases are keyed to six criteria: (1) existing military threat, (2) number and types of forces involved, (3) logistics requirements, (4) geographic location, (5) host nation agreements, and (6) facility inventories. Id.
331. Id. at 11 (finding that the average elapsed time following public announcement of a domestic base closure is more than 4 years, while overseas bases average 2 years from the date of announcement to final closure).
United States, and courts will usually presume that statutes do not apply extraterritorially unless they clearly state otherwise. As a result, whatever legal obligation the United States has to clean up its overseas bases stems from presidential executive orders or bilateral agreements with foreign countries. EPA has no authority over contaminated overseas bases, and responsibility for environmental compliance at closed overseas facilities has been placed largely in the hands of base commanders.

The political dynamic is also quite different for overseas facilities. When domestic bases are scheduled for closure, local communities put strong pressure on Congress to clean up contaminated bases, and Congress tends to be extremely sensitive and responsive to this pressure. But no comparable pressure exists when contaminated overseas facilities are closed. Instead, most legislators simply want to get out at the lowest possible cost and leave the host country with the responsibility for future cleanup. Congress’ hands-off attitude unquestionably has a strong influence on the Pentagon’s approach to-

332. For example, CERCLA requires the President to adopt a National Contingency Plan that addresses releases or threatened releases “throughout the United States.” 42 U.S.C. § 9605(a)(8)(A). Furthermore, the CERCLA definitions of environment and navigable water restrict the scope of the statute to U.S. lands, subsurface strata, ambient air, and territorial waters. Id. § 9601(8), (15). Likewise, RCRA controls disposal of hazardous waste under permits issued by EPA, and the Clean Air Act limits its application to air quality control regions in the United States. Id. § 6925(a); id. § 7401(b).


334. The congressional role is nonetheless an important one, both in prodding the Executive to negotiate favorable agreements with other countries and in providing funding for cleanups and compliance abroad.


336. CUNNINGHAM, U.S. FOREIGN BASE CLOSURE, supra note 36, at 8. However, commanders are required to consult with the U.S. environmental executive agent for the respective host nation on all environmental risk questions. See DEPARTMENT OF DEFENSE, POLICY AND PROCEDURES FOR THE REALIGNMENT OF OVERSEAS SITES 12 (1993) (Unclassified memorandum) [hereinafter REALIGNMENT OF OVERSEAS SITES]. The executive agent is responsible for knowing host country environmental laws and procedures. Id.

337. See, e.g., NATIONAL GOVERNORS’ ASS’N & NAT’L ASS’N OF ATTORNEYS GEN., supra note 117, at 10-12.

ward environmental obligations overseas. This affects not only overseas base closures, but also ongoing operations abroad.\textsuperscript{339}

Inconsistencies between the military’s cleanup efforts at home and abroad were first highlighted in hearings by the Environmental Restoration Panel of the House Armed Services Committee that focused on environmental compliance at U.S. bases in Asia.\textsuperscript{340} The Panel found that U.S. bases in the Pacific consistently fail to meet the clean water standards mandated for domestic facilities, partially because no Pacific host nation has enacted environmental laws or regulations as comprehensive as those in the United States.\textsuperscript{341} Nearly all Pacific host nation requirements are less stringent than the United States’ regulations,\textsuperscript{342} but the real disparity that exists in Asia stems from lack of enforcement. When local enforcement is lax or non-existent, the U.S. military has little incentive to push for full environmental compliance at its facilities. In the Philippines, for example, even if the United States had complied with U.S. standards on water discharges from its Subic Bay and Clark Air Base facilities, water quality would not have appreciably improved.\textsuperscript{343}

When host country environmental standards are weak, the United States generally complies to whatever extent is necessary to

\begin{itemize}
  \item \textsuperscript{339} Satchell, \textit{The Mess We’ve Left Behind}, supra note 38, at 28, 30. The Army, for example, has code-named its effort to withdraw from facilities in Europe “Operation Brilliant Exit”—an ironic designation in light of some of the difficulties the armed services have encountered in this area. \textit{Id.} at 30.
  \item \textsuperscript{340} \textit{1991 House Armed Servs. Hearings}, supra note 10, at 66.
  \item \textsuperscript{341} \textit{Id.} (stating that at facilities such as the Subic and Clark Bases in the Philippines and the Osan Air Base and Camp Carroll in Korea, American forces provided only primary treatment of sewage, while in the United States, such sewage is not discharged into local water sources without secondary treatment); see \textit{MILITARY BASE CLOSURES}, supra note 51, at 27-28 (discussing the lack of water testing at the Clark and Subic Bases).
  \item \textsuperscript{342} \textit{See 1991 House Armed Servs. Hearings}, supra note 10, at 66, 71 (testimony of Rep. Ray). However, since 1979 the Government of Japan has spent over $500 million at U.S. military installations to help build environmental projects designed to meet both Japanese and U.S. standards. \textit{Id.} These include state-of-the-art wastewater treatment plants, air emission treatment systems, noise abatement projects, hazardous waste accumulation points, and RCRA-conforming storage sites. \textit{Id.} According to Panel Chairman Richard Ray, a senior EPA official “was surprised to have to go half way around the world to find the finest RCRA facility he had ever [sic] seen.” \textit{Id.} at 73. At the Kadena Air Force Base, in fiscal year 1990 the DOD spent $22.9 million in environmental and safety funding, including more than $18 million on the reconstruction of revetments. \textit{Id.} at 82.
  \item \textsuperscript{343} \textit{Id.} at 66. In the Philippines, the issue is not that the statutes are weak; many Philippine air, water, and hazardous waste laws are in fact modelled upon those in the United States. Teresa Albor, \textit{U.S. Leaves Toxics at Subic Navy Base}, \textit{CHRISTIAN SCI. MONITOR}, Nov. 24, 1992, at 1, 1. The problem is that enforcement of these statutes is often ignored, and illegal industrial pollution in the Philippines is widespread. \textit{Id.} This situation exists in many newly industrialized countries, where resources are limited and adherence to strict environmental controls is more often the exception than the rule. \textit{Id.} A pertinent illustration of this problem is the American desire for an environmental side agreement with Mexico as part of the North American Free Trade Agreement.
\end{itemize}
protect the health and safety of personnel serving at a facility. But even where the host nation’s standards and enforcement efforts are strong, such as in Western Europe or Canada, pressures to hold down costs are likely to predominate. In a 1991 report, the General Accounting Office examined ten overseas DOD facilities located in Japan, Korea, Germany, the Philippines, England, and Italy. At all ten facilities the DOD violated both host nation and U.S. environmental laws. Although some of these violations involved “extremely dangerous” toxic and explosive wastes, the GAO found that the DOD had taken only very limited corrective actions at these facilities.

American policymakers cannot ignore the political repercussions of lax environmental standards overseas or of leaving contaminated sites behind when bases are closed. As the GAO suggests, the military’s failure to provide sufficient environmental safeguards at overseas bases has the potential to jeopardize America’s political and defense relationships with other countries. In light of these concerns, federal decisionmakers must resolve two major policy questions regarding cleanup at overseas military bases: (1) how should the cost

344. See 1991 House Armed Servs. Hearings, supra note 10, at 72 (report of Rep. Ray, Chairman of the Envtl. Restoration Panel). Fortunately, the extent of environmental contamination that exists at the Hanford and Rocky Mountain Arsenal facilities in the United States does not seem to have taken place overseas, at least not in the Far East. Id. Ray’s report notes that, for the most part, the Pacific bases have not performed major industrial work “like that which has generated most of DOD’s hazardous waste in the United States.” Id. Although significant problems may exist at some of these bases, notably Subic Bay, Yokosuka Naval Shipyards in Japan, and Camp Carroll, generally “the extent of industrial activities at these installations has been less than that [of] their U.S. counterparts.” Id. Representative Ray states that he has “no reason to believe we are going to find another Rocky Mountain Arsenal situation in the Pacific.” Id.

Most U.S. bases in Europe are not of the heavy industrial type, and thus may pose fewer environmental problems, although there are a number of petroleum and lubricant depots that could constitute major sources of pollution. See Congressional Research Service, Base Closures in Europe: Cost and Procedural Issues CRS-8 (1992) [hereinafter CRS, Base Closures in Europe].


346. See Satchell, The Mess We’ve Left Behind, supra note 38, at 28. The unclassified version of the GAO report makes it clear that violations of both host nation and U.S. environmental laws occurred. Hazardous Waste: Problems Continue at Overseas Bases, supra note 335, at 28, 46-47. According to the GAO, approximately 300 overseas sites at U.S. bases have been identified as potentially contaminated. Id. at 46.

of the cleanups be split between the United States and host nations, and (2) what legal procedures and substantive rules should govern the cleanups.

A. Who Should Pay?

The usual starting point in considering restoration obligations for overseas U.S. military facilities is the applicable bilateral agreement between the United States and the host country.348 In most cases, the United States and the host country have signed a status-of-forces agreement (SOFA) that details the legal obligations governing the operations of U.S. forces in the host nation. These agreements often specify how much each nation must contribute to maintain the facility and the substantive and procedural standards governing claims for damage against the United States.349 Some agreements provide that the United States will assume at least partial responsibility for certain forms of environmental contamination.350 The U.S. agreement with Germany, for example, provides that the United States will pay 75% of environmental damage claims arising from the activities of U.S. military forces outside military installations in that country.351 The U.S. liability for environmental damage caused within German military installations is much less clear, as Germany may have expressly waived many of these claims.352

Other SOFA's, particularly those governing facilities in the Far East, are either silent on the issue or specifically state that the United States does not have any obligation for environmental cleanup once military operations are terminated. For example, the status-of-forces agreements


350. See, e.g., 1991 House Armed Servs. Hearings, supra note 10, at 103 (testimony of Lewis D. Walker, Deputy Assistant Secretary of the Army (Env't, Safety & Occupational Health)).

351. North Atlantic Treaty, supra note 349, at 1802-03.

352. See 1993 Senate Armed Servs. Hearings, supra note 14, at 108 (statement of Paul W. Johnson, Deputy Assistant Secretary of the Army). The current German status-of-forces agreement (SOFA), the Agreement to Supplement the Agreement Between the Parties to the North Atlantic Treaty Regarding the Status of Their Forces in the Federal Republic of Germany, Aug. 3, 1959, U.S.-F.R.G., 14 U.S.T. 531, modifies the original terms of the North Atlantic Treaty, supra note 349, with respect to claims for damages. Id.; see 1991 House Armed Servs. Hearings, supra note 10, at 103 (testimony of Lewis D. Walker, Deputy Assistant Secretary of the Army (Env't, Safety & Occupational Health)).
agreement with the Republic of Korea provides: "The Government of the United States is not obliged, when it returns facilities and areas to the Government of the Republic of Korea . . . to restore the facilities and areas to the condition in which they were at the time they became available to the United States armed forces, or to compensate the Government of the Republic of Korea in lieu of such restoration." A similar provision is contained in the U.S.-Philippine agreement; as a result of this provision, the DOD was apparently able to conclude a termination arrangement with the Philippines that left the United States with no significant cleanup obligations when it closed the Subic Bay Naval Facility and the Clark Air Force Base.

Absent a governing SOFA provision, the DOD traditionally follows a case-by-case approach in negotiating financial responsibility for environmental remediation when it closes bases overseas. U.S. negotiators typically begin by asserting a claim for "current value," defined as the current value of the improvements made to the facilities to be transferred to host country control at the time of closure, adjusted for inflation and depreciation. The DOD then seeks to hold the host country liable for the "residual value" of the facility;

357. Realignment of Overseas Sites, supra note 336, at 12-15. The U.S. claims for recovery can be subject to difficult negotiations with host nations. Frequently, the underlying bilateral agreement does not define either "current" or "residual" value with any kind of specificity, and little basis exists either in international law or U.S. law for asserting an inherent right to the value of nonremovable improvements when U.S. forces depart and the SOFA or lease agreement is terminated. See generally CRS, Base Closures in Europe, supra note 344.
residual value is calculated by subtracting host country remediation claims from the current value of the facility.\textsuperscript{358} The U.S. aim is to ensure that the residual value of the facility is a positive number. This approach is colloquially known as “net zero.”

The net zero approach aims to avoid the payment of out-of-pocket costs when an overseas U.S. defense facility is closed.\textsuperscript{359} Net zero presumably attains its goal when the negotiated value of the military buildings, runways, and other equipment turned over to the host nation upon closure covers the predicted costs\textsuperscript{360} of environmental restoration.\textsuperscript{361} Normally in these cases, the Pentagon seeks to allocate responsibility for restoration by weighing a number of factors, including: conditions prior to the U.S. presence; other countries’ (including the host nation’s) responsibility for contamination; the host nation’s participation in construction, maintenance, and operation of the installation; political circumstances; the host nation’s ability to pay; the amounts of disposed wastes and stringency of cleanup standards; and fairness.\textsuperscript{362}

The Senate version of the defense authorization statute for fiscal year 1991 reflected the net zero approach. This proposed statute included a provision stating that under “no circumstances should the

\textsuperscript{358} \textit{Realignment of Overseas Sites}, supra note 336, at 12-15.

\textsuperscript{359} Indeed, the DOD has estimated that it will receive $7 billion in residual value payments from host nations even after resolution of the United States’ environmental restoration liability. \textit{CRS, Base Closures in Europe}, supra note 344, at CRS-7. A 1992 Congressional Research Service study expressed skepticism about U.S. prospects for recovering such sums because of the unclear nature of the SOFA provisions and the fact that residual value must be negotiated with, and ultimately accepted by host nations. \textit{Id.} at CRS-6 to CRS-10.

\textsuperscript{360} It is difficult to see how either side in these negotiations can arrive at a reasonably accurate estimate of what it will ultimately cost to restore the facility. As the material in parts I and II, supra, indicates, it can take many years and a sizeable expenditure of funds to fully determine the scope and extent of contamination at a major U.S. military facility.

\textsuperscript{361} In contrast to domestic base closures, U.S. law imposes no obligation on the U.S. government to indemnify a foreign country transferee against liability for the contamination caused by DOD activities. \textit{See National Defense Authorization Act for Fiscal Year 1994}, Pub. L. No. 103-160, § 1002, 107 Stat. 1547, 1745 (1993) (indemnification rules for base closures); 10 U.S.C. § 2683(e)(1) (Supp. V 1993) (base closure law restricted to domestic bases). Thus, the parties entitled to indemnification for claims arising from DOD activities do not include foreign governments or entities because they are not assuming ownership or control of a domestic “military installation.” Other countries’ laws may impose liability for the cleanup, however, and the question of moral obligation is another matter entirely. \textit{See, e.g.}, H.R. REP. No. 665, supra note 327, at 348.

\textsuperscript{362} \textit{See 1991 House Armed Servs. Hearings}, supra note 10, at 95-96 (testimony of Thomas E. Baca, Deputy Assistant Secretary of Defense (Env’t)). For a more current statement of this policy, see \textit{1993 Senate Armed Servs. Hearings}, supra note 14, at 82-83 (joint statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.) & David J. Berteau, Principal Deputy Assistant Secretary of Defense for Prod. and Logistics). Unfortunately, it can be difficult to determine the scope of the obligation the U.S. undertakes in these situations if the base closure and cleanup negotiations with host countries are kept confidential.
cost to the United States of environmental cleanup exceed the residual value of a closing overseas installation." However, this language was dropped in the conference committee. The conferees opted instead for a somewhat harder line and inserted a broadly worded policy statement that "environmental restoration of bases used by the United States in foreign countries is a host nation responsibility."

In the 1993 National Defense Authorization Act, Congress urged the DOD to share its environmental restoration cost burden with host countries on an "equitable division" basis. Although the legislative history on this concept is sparse, Congress appeared to be concerned that the U.S. taxpayers' ability to recover the value of investments when overseas bases were closed could be jeopardized if the United States committed to making costly environmental restoration expenditures. In the same law, Congress sought to push foreign countries to accept a greater share of the ongoing environmental compliance burden by urging the President to revise host nation agreements to reflect more equitable cost allocations.

Congress also acted to control the future use of funds collected from other countries upon the closure of U.S. bases. The 1991 defense authorization statute established a defense Overseas Military Facility Investment Account. The law directed the Secretary of Defense to ensure that the United States receives the fair market value

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364. Id.


366. H.R. Conf. Rep. No. 966, supra note 365, at 683. As with the earlier language on base closure costs, the "equitable division" language once again resulted from a compromise between the House and the Senate. The original House bill provided that the cost of overseas environmental restoration in base closure situations should be borne by the host nation. In conference, the House yielded, and conferees agreed to the "equitable division" language proposed by the Senate. Id. The Pentagon was directed to report to Congress on the progress made by the President in carrying out the cost-sharing effort in the 1993 annual Report on Allied Contributions to the Common Defense. § 324(b), 106 Stat. at 2371.

367. This view is reflected in the House report accompanying the Defense Authorization Statute for Fiscal Year 1995, which states: "[T]he committee continues to expect the residual value negotiations for these returned sites to produce the maximum monetary or in-kind value possible." H.R. Rep. No. 499, 103d Cong., 2d Sess. 300 (1994).


equivalent of the facilities turned over to host countries, and it further provided that once funds are placed in the account they can be used only on “facility maintenance and repair and environmental restoration” at domestic military installations.\textsuperscript{370} Congress modified this restriction in the 1993 defense authorization statute so that funds in the account may now be used for “facility maintenance and repair and compliance with applicable environmental laws” at military installations abroad.\textsuperscript{371} However, Congress neglected to authorize the use of account funds for restoration of overseas facilities, and, thus, such funds can be used only for compliance activities overseas. Yet even compliance funding is permitted only when the Secretary of Defense anticipates that the Armed Forces will occupy the overseas facility “for a long period of time.”\textsuperscript{372} This precludes the use of account funds on overseas U.S. facilities slated for closure.\textsuperscript{373}

These policy directives suggest that Congress is generally willing to fund environmental compliance work (and possibly even restoration) when this work will help to protect the health and welfare of U.S. personnel. But in times of increasingly tight budgets, legislators feel that host countries must share the costs of cleaning up past contamination and seem eager to have the Pentagon keep its responsibility for future cleanup funding to an absolute minimum after the base closure termination papers are signed.\textsuperscript{374} Congress also seems pre-

\textsuperscript{370} See id. In the most recent defense authorization law, Congress mandated that all proposed settlements with foreign countries be reviewed by the Office of Management and Budget. National Defense Authorization Act for Fiscal Year 1994, Pub. L. No. 103-160, § 2924(b), 107 Stat. 1547, 1931 (1993). The current status of the account was discussed in 1993 Senate Armed Services hearings. 1993 Senate Armed Servs. Hearings, supra note 14, at 83 (joint statement of Sherri Wasserman Goodman, Deputy Under Secretary of Defense (Envtl. Sec.) & David J. Berteau, Principal Deputy Assistant Secretary of Defense for Prod. and Logistics).\textsuperscript{371} See 10 U.S.C. § 2687. If the transfer is to a NATO country, the law allows a different account to be used to handle host country currency, but that account may only be used “for the construction of facilities to support United States military forces in that host country, or such real property maintenance and base operating costs.” Id.\textsuperscript{372} Id.\textsuperscript{373} Since the large Defense Environmental Restoration Account is off limits to overseas bases as a matter of law, and since the Defense Overseas Military Facility Investment Account appears to be restricted to ongoing facilities, funding for overseas base closure cleanup presumably must come from general operation and maintenance funds. The congressional willingness to provide these funds in the current budgetary climate seems quite limited.\textsuperscript{374} H.R. REP. No. 665, supra note 327, at 387. Some of the congressional reluctance about paying for environmental costs overseas may be based on concerns about “exporting jobs abroad,” i.e., concerns about using U.S. funds to employ non-U.S.-based firms for overseas assessment and cleanup work. If Congress could be assured that a portion of the funding would go to U.S.-based contractors, it might be somewhat more willing to pay for these costs. This assurance could be provided by including a stipulation to that effect in an upcoming DOD authorization statute. The stipulation might apply to highly skilled work, such as environmental sampling, risk assessment, and remedial design, because the cost of
pared to condone the Pentagon's occasional willingness to ignore or overlook problems when confronted with the possibility of contamination at its overseas facilities.

This approach has two major problems. First, the various congressional policy statements, including the "equitable division" language, provide insufficient guidance to the DOD about how restoration and compliance costs overseas are to be allocated, other than expressing a general desire to hold down U.S. expenditures. At a minimum, Congress needs to help the DOD develop more objective and precise criteria in this area. If cost allocations are left wholly to the case-by-case negotiating process, other nations may be able to take advantage of prior U.S. positions. The share of the costs that the United States agrees to pay in one country could thereby become the next country's opening position in negotiating its termination agreement with the DOD.

A second and more important problem is that U.S. policy in this area potentially conflicts with customary international law. The Defense Department often relies on provisions in SOFA's or other bilateral agreements to ground its argument that the United States has no liability for cleanup or restoration. But many of these provisions were written decades ago, and they were probably never intended to apply to environmental restoration. Where the underlying SOFA or bilateral agreement is silent on the cleanup question, principles of international law appear to require the United States to abate environmental damage stemming from its overseas activities and to provide appropriate compensation.

The international obligation of nations to abate environmental damage has been well established for more than five decades, beginning with the 1941 international arbitration in the Trail Smelter case. More recently, the concept has been incorporated in Principle 21 of the Stockholm Declaration and in the 1992 Rio Declaration on

using U.S.-based contractors to carry out this work should not be much higher than employing firms locally. However, requiring that U.S. contractors be chosen for the remedial portion of the cleanup probably would not make sense. Such work is likely to involve lower skilled positions and would probably be most effectively handled by using locally available labor.

375. For example, the 1951 NATO SOFA allows abandonment "without further obligation." North Atlantic Treaty, supra note 349, at 1802-03.

376. Trail Smelter Arbitral Tribunal, 35 Am. J. Int'l L. 684 (1941); see also Corfu Channel, 1949 I.C.J. 4; L. Oppenheim, INTERNATIONAL LAW 291 (H. Lauterpacht ed., 8th ed. 1955). Where a specific provision to the contrary exists in a status-of-forces agreement or other bilateral arrangement, it would take precedence over these general principles. Where a bilateral agreement is silent, however, these principles would seem to bear on the issue of liability at the facility. See RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW §§ 102, 115 cmt. d (1986) [hereinafter RESTATEMENT OF FOREIGN RELATIONS LAW]; LOUIS HENKIN, FOREIGN AFFAIRS AND THE CONSTITUTION 184-88, 221 (1972).
the Environment: “States have . . . the responsibility to ensure that activities within their jurisdiction and control do not cause damage to the environment of other States . . .”

The Stockholm/Rio doctrine of liability for activities within a country’s “control” only applies to contamination that can be traced directly to U.S. activities. In the case of overseas base closures, the allocation of responsibility for contamination is likely to be quite murky because the management and burden of operating an overseas base is often shared between the United States and the host nation. NATO defense bases, where operation is multilateral, present particularly difficult allocation of responsibility problems. In situations such as these, it may be appropriate to take mitigating factors into account when applying the Stockholm/Rio principle.

If a NATO base is to be closed, for example, the restoration costs might be allocated in proportion to the share of costs borne and benefits received by each ally. Factors such as the base’s age, the past security risks, the nature of the defense activities (e.g., intelligence gathering, logistics supply, or combat training), and the relative participation by host nation defense forces might also be taken into account.

The key to any system of restoration cost allocation, whether in a bilateral or a multilateral context, lies in conducting a thorough environmental audit and evaluation. The United States or the host coun-

377. United Nations Convention on Biological Diversity, Jan. 5, 1992, 31 I.L.M. 818, 824 [hereinafter Rio Declaration]. A House committee report reflected concern over U.S. adherence to this obligation in connection with base closures overseas: “The United States has an obligation, partly legal but primarily moral, to clean up damage to the environment caused by American military operations.” H.R. REP. No. 665, supra note 327, at 348; see also Restatement of Foreign Relations Law, supra note 376, § 601. This principle of international law has most frequently been enunciated in the context of transboundary air or water pollution emitted in one nation and causing damage across the border in another state. Nevertheless, the precise language of the 1972 Stockholm Declaration and the 1992 Rio Declaration seems to extend the principle not only to transboundary pollution but to activities in another nation that are under the “control” of the United States. Rio Declaration, supra, at 824.


379. This is similar to the allocation of liability problems encountered in domestic cleanup situations under CERCLA. See supra part II.B.2.

380. It may make sense to address contamination at NATO bases through the development of a multilateral treaty on environmental remediation at defense bases with joint military operations. Such a treaty could include provisions relating to financial liability, assessment obligations, and ultimate cleanup responsibilities. The House Armed Services Committee, in an early statement about the need for burden sharing, urged that cleanups at NATO bases being closed be handled only through a jointly funded NATO Infrastructure program: “Environmental restoration at closing military bases is very important to the citizens of the host nation. As good allies, we have the responsibility to ensure that the restoration is completed. Yet, these bases were used for NATO functions. It makes sense that the financial responsibility for cleaning these bases should rest with all the NATO nations through the Infrastructure program.” H.R. REP. No. 665, supra note 327, at 387.
try may conduct the necessary studies either separately or jointly. In each case the process should be no less thorough than it would be if the facility were located in the United States. If the host country performs the audit and evaluation, its investigators should be granted full and unimpeded access to the base property, including the authority to take core samples. The Defense Department may resist doing this, citing national security concerns, but it is difficult to see how allowing host nations to take groundwater and soil samples threatens the security interests of the United States. The host country should be expected to share the cost burden of the assessment process and should be entitled to receive all relevant information that the United States has regarding cleanup needs. This assures that both sides will be proceeding from a common knowledge base, and that both will be fully aware of what is going to be required for the facility to meet host country standards (or potentially some portion of CERCLA standards) before the termination agreement between the two nations is negotiated.

B. Which Standards Govern?

A related question in overseas environmental cleanups is whose standards apply: the host nation’s (lex situ), the United States’, or some other standard altogether. Under current congressional and DOD policy, the answer seems to depend on whether a base is an ongoing facility or slated for closure. To protect the health and safety of military personnel, Congress and the DOD are prepared to apply tough environmental standards to overseas facilities with ongoing operations. This impetus does not, however, apply at facilities that are scheduled to close.

Congress began to focus on the question of which cleanup standards to apply at overseas bases during the Bush Administration.  

381. Customary norms of international law generally hold that the activities of a foreign nation on the soil of a host nation are governed by lex situ, the law of the place, unless there is an agreement between the nations as to the particular applicable standards. See Restatement of Foreign Relations Law, supra note 376, §§ 401-403; see also United States v. Spelar, 338 U.S. 217, 219 n.3 (1949) (applying local law to the activities of the United States on foreign soil). U.S. military activities in host nations are generally governed by host nation law unless there is a specific provision in a status-of-forces agreement or other bilateral agreement that supersedes host nation law. See Vermilya-Brown Co. v. Connell, 335 U.S. 377, 388-89 (1948) (holding that statutes are effective beyond the limits of national sovereignty only when the statutes so intend).


383. As early as the Carter Administration, there was general concern about the environmental consequences of federal agency actions overseas, and an Executive order was issued that imposed a limited form of NEPA compliance on agency actions abroad. See Exec. Order No. 12,114, 3 C.F.R. 356 (1980), reprinted in 42 U.S.C. § 4321 (1982). However, DOD and service branch implementing regulations provided that the order was gen-
The House Armed Services Committee investigation in 1990-91 found that U.S. bases overseas followed practices that were inconsistent with U.S. and local environmental standards. About the same time, the GAO warned that hazardous waste disposal practices at overseas military installations could jeopardize international relationships when hazardous waste managers at U.S. military facilities abroad receive little guidance as to what environmental laws or policies they should follow.

Warnings such as these led Congress to direct the Pentagon to develop a more coherent policy for its overseas facilities. For bases that are to remain open, the Secretary of Defense was told to “develop a policy for determining applicable environmental requirements... In developing the policy, the Secretary shall ensure that the policy gives consideration to adequately protecting the health and safety of military and civilian personnel assigned to such installations.” In the cleanup area, though, different considerations apply. Here, the Secretary of Defense was told to “develop a policy for determining the responsibilities of the Department of Defense with respect to cleaning up environmental contamination that may be present... In developing the policy, the Secretary shall take into account... Status of Forces agreements[,] joint use and operation[,] [and] relative share of the collective defense burden.” Although this law was enacted more than 4 years ago, the Defense Department has yet to develop a comprehensive policy or guidance manual governing

erally inapplicable to military base closures. See 32 C.F.R. § 775.6 (1994). During the last 30 years, environmental groups have been largely unsuccessful in attempting to use the courts to force the DOD and other federal agencies to take account of environmental impacts abroad. See Barry N. Breen, International Application of NEPA, 806 A.L.I.-A.B.A. 421, 423-25 (1992). In Natural Resources Defense Council, Inc. v. Nuclear Regulatory Commission, the court rejected claims that NEPA should apply to the licensing of nuclear exports to the Philippines. 647 F.2d 1345, 1356 (D.C. Cir. 1981). “[A] policy of imposing [U.S.] regulatory procedures and standards on all host countries... would bode ill for the ability of the United States to maintain military facilities in as many locations around the world as it does now.” Id. (quoting Amicus Curiae Brief, Republic of the Philippines). But see Environmental Defense Fund, Inc. v. Massey, 986 F.2d 528, 529 (D.C. Cir. 1993) (ruling that NEPA applies to U.S. activities in Antarctica). As these court challenges largely failed, environmental groups took their concerns about the DOD’s overseas environmental compliance to Congress.

385. HAZARDOUS WASTE: PROBLEMS CONTINUE AT OVERSEAS BASES, supra note 335, at 45.
overseas cleanups in closure situations. It has, however, developed one for environmental compliance and restoration at its ongoing facilities overseas, as discussed below.

1. Compliance Policy

In the early 1990's, the Defense Department advised Congress that it would require its operating facilities to conform to the environmental quality standards of the host country. The DOD indicated that it would do this even where host nation standards were more stringent than U.S. standards. The Defense Department stated that it would also seek to apply "compatible" U.S. environmental standards.

This original approach, however, appears to have been implemented haphazardly, resulting in much more stringent standards in some areas than in others. For example, the Navy testified that it would require its overseas facilities to adhere to U.S. drinking water and hazardous waste standards, while air and wastewater pollution controls would be governed by host country standards. Yet even with this latitude, the services were not entirely faithful to the DOD guidance. In the Philippines, for example, the Navy and the Air Force chose to ignore both U.S. and local environmental standards. While the Subic Bay and Clark Bases were operating, the U.S. military permitted toxic chemicals to be dumped into open drains, untreated pollutants to be emitted directly into the air, and sewage water to be discharged directly into Subic Bay. The Navy generated more than 500 tons of hazardous waste during its last 2 years of operations at Subic Bay, and before the base was closed, the Navy properly dis-

388. See DEPARTMENT OF DEFENSE OVERSEAS ENVTL. TASK FORCE, OVERSEAS ENVIRONMENTAL BASELINE GUIDANCE DOCUMENT (OEBG) 1-4 (1992) [hereinafter OVERSEAS ENVIRONMENTAL BASELINE GUIDANCE].
389. Id. It is the responsibility of the DOD executive agent for each host country in which a U.S. military base is located to determine applicable host nation environmental laws and to develop Final Governing Standards for DOD activities in that nation. Id.
392. See id. at 64-65 (statement of Rep. Ray). Representative Richard Ray, who chaired the House Armed Services Committee hearings on overseas compliance, says Navy officials told him they were waiting for translations of Philippine environmental laws before deciding how to comply. See id. But this explanation rings a little hollow when one considers that all Philippine laws are written and published in the English language.
posed of less than 20% of this waste; presumably 80% still remains onsite. Furthermore, when the Subic Bay and Clark facilities closed, the Navy and Air Force left behind thousands of gallons of corrosive and leaking jet fuel in a 42-mile-long underground pipeline.

The Philippines experience may be an egregious example, but it is apparently not unique. The GAO and the House Armed Services Committee noted a number of situations in Asia and Europe where the military’s failure to adhere to environmental standards led to serious instances of pollution and toxic contamination. In late 1992, in response to the congressional directive contained in the fiscal year 1991 defense authorization statute, the Pentagon adopted its Overseas Environmental Baseline Guidance. This policy manual contains guidance for DOD executive agents in foreign countries to cover situations where host nation standards are either nonexistent or “provide less protection to human health and the natural environment than the baseline guidance.” The document recommends adherence to U.S. air, water, solid waste, hazardous waste, and toxic chemical standards for certain categories of operations, but it pointedly omits covering a wide variety of other circumstances. The DOD acknowledges in the document that, because of the expense of modifications, more protective requirements may be imposed on newly constructed facilities than on existing ones.

2. Cleanup Policy

In base closure situations, where military facilities are about to be turned over to a foreign government, and the health and welfare of U.S. personnel is much less likely to be implicated, the DOD is even

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395. See Military Base Closures, supra note 51, at 27-30. It now appears that the Philippine government wishes to reopen discussions with the United States about the contamination that the United States left behind in that country. Branigin, infra note 16, at A18.
397. See Overseas Environmental Baseline Guidance, supra note 388, at i.
398. For example, the guidance tracks the Clean Air Act’s emission standards for new or substantially modified fossil fuel-fired boilers, but does not provide any emission limitations for existing boilers as is required under the Clean Air Act. See id. at 2-2 to 2-3; Clean Air Act, 42 U.S.C. § 7651 (1990). The OEBG provisions for solid waste disposal also appear to lack detailed closure and postclosure guidelines required under RCRA. Overseas Environmental Baseline Guidance, supra note 388, at 7-1 to 7-9.
399. Overseas Environmental Baseline Guidance, supra note 388, at 1-1. Of course, at a time when military operations overseas are being sharply curtailed, new facilities are likely to be rare.
more reluctant to spend money for environmental purposes. As a result, the DOD's restoration policy is considerably more limited in such cases; the Pentagon has not agreed to abide by host country standards or to apply "compatible" U.S. standards, as it said it would where ongoing compliance was involved.\footnote{400} Nor is the DOD willing to commit the substantial sums that may be required to fully restore a property, and its underlying soil and groundwater, to its prior condition.\footnote{401}

In January 1992—probably in response to congressional pressures—the Deputy Secretary of Defense issued a statement of departmentwide policy governing cleanup at overseas base closures. According to that skeletal statement: "U.S. funds will not be spent at [closing] sites for maintenance, repair or environmental restoration beyond the minimum necessary to sustain current operations and/or eliminate known imminent risks to health and safety."\footnote{402} In implementing this policy, the Army, for example, requires its overseas base commanders to: (1) take all practical actions to remove hazardous materials from the installation being closed, (2) dispose of all hazardous waste through local defense reutilization and marketing offices, (3) correct any imminent hazard threatening public health and safety if the United States caused the hazard, and (4) prepare an Environmental Status Report, including information on "known cleanup costs," to be used in negotiating the value of the site.\footnote{403}

In December 1993, in a Secretary of Defense communication to overseas commanders, this restrictive policy was tightened even further: in overseas closure situations, the DOD will only remediate to the extent necessary to eliminate "known imminent and substantial dangers to human health and safety."\footnote{404} Thus, under the policy as it currently applies, the danger must be both imminent and substantial, and, in addition, the danger must be one that focuses upon human health and safety—dangers to the environment and/or wildlife are clearly not covered under this policy.

\footnote{400} Realignment of Overseas Sites, supra note 336, at 2. The DOD Policy and Procedures for the Return to Host Countries of Overseas Sites and Facilities contains no reference to host nation standards applicable to closure cleanups. \textit{Id.; see also Cunningham, U.S. Foreign Base Closure, supra note 36, at 11, 21.}

\footnote{401} Cunningham, U.S. Foreign Base Closure, supra note 36, at 21, 26.


\footnote{403} 1991 House Armed Servs. Hearings, supra note 10, at 103 (testimony of Lewis D. Walker, Deputy Assistant Secretary of the Army (Env’t, Safety & Occupational Health)). Both the Army and the Air Force have apparently developed "Protocols" for addressing past contamination at foreign bases slated for closure, but these documents are considered classified.

\footnote{404} Realignment of Overseas Sites, supra note 336, at 1 (emphasis added).
The "imminent and substantial danger" standard clearly indicates that the United States is prepared to take far less environmental action in overseas base closures than in domestic military closures.\textsuperscript{405} In contrast to domestic base closure policies, the DOD's foreign base cleanup policy makes no mention of permanent remedies. The policy incorporates only the CERCLA requirement of action to avert "imminent" danger to public health and safety.\textsuperscript{406} The DOD, however, limits the application of "imminent and substantial dangers" abroad to "known" risks, and the DOD will take only "the minimum necessary" actions to avoid these risks. The policy also does not cover environmental damage, in sharp contrast to the coverage provided under CERCLA.

Not only is the policy much more restrictive than the CERCLA approach, but there also appear to be significant discrepancies in the way that the DOD applies this policy in different countries. When the DOD closed the Clark Air Force Base and the Subic Bay Naval Facility in the Philippines, almost no restoration work was done, even though the level of contamination at these bases would likely qualify a domestic facility for the Superfund National Priorities List.\textsuperscript{407} In contrast, the United States has undertaken a considerably greater cleanup effort when its bases in Germany have been closed.\textsuperscript{408} As a general proposition, it appears that the United States has agreed to far fewer commitments to pay cleanup costs for closures in developing countries, where environmental standards are weaker and the host countries have little leverage to push the United States to accept

\textsuperscript{405} See 42 U.S.C. § 9621 (governing domestic base cleanups). Under this section, a remedy that permanently and significantly reduces the volume, toxicity, or mobility of the hazardous waste or other contamination is preferred over all other potential actions. \textit{Id.} § 9621(b)(1). Domestic base closures trigger cleanup obligations upon the release or threatened release of any designated hazardous substance, or whenever contamination presents "an imminent and substantial danger to the public health or welfare." \textit{Id.} § 9604(a)(1).


\textsuperscript{407} CUNNINGHAM, U.S. FOREIGN BASE CLOSURE, supra note 36, at 21.

\textsuperscript{408} See supra part III.A.
responsibility and liability for past contamination. On the other hand, the agreements with NATO countries or other industrialized nations appear to involve a far greater willingness on the part of the United States to acknowledge some obligation for restoration, perhaps reflecting the more equal bargaining positions and the more sophisticated standards of these nations.\textsuperscript{409}

3. \textit{Consistent Approach Needed}

Both the Defense Department's overseas cleanup policy and the way it has been applied appear to be deeply flawed. For one thing, limiting remediation of closed sites to "known imminent and substantial dangers" seems unjustifiably restrictive. Such a policy risks jeopardizing the health and welfare of citizens who live near a contaminated site, and it also fails to deal with any potential threat to the surrounding environment. These are not risks we are willing to condone when the health or welfare of U.S. citizens is involved. Such a double standard has the potential to create serious friction in America's relations with her allies. Moreover, there appears to be little justification, either on legal or political grounds, for the inconsistent application of the "imminent danger" standard in particular countries. Unless a SOFA provides otherwise, the United States should owe the same degree of cleanup commitment or guidance to countries with less sophisticated approaches to environmental protection and to nations with more advanced programs.

These problems underscore the importance of completing work on the overseas environmental policy guidance that Congress mandated in 1990. Four years should have been sufficient to complete this task; but the matter still is under review by the Office of the Secretary of Defense, with no indication when or if the DOD will issue a final policy.\textsuperscript{410} Without such a policy, host countries have no assurance that the United States will evenhandedly fulfill its environmental obligations when bases are closed. If the Defense Department does not es-

\textsuperscript{409} See \textsc{Cunningham}, \textit{U.S. Foreign Base Closure}, \textit{supra} note 36, at 7, 11 (finding that the Defense Department handles closures in industrialized nations that maintain and enforce high environmental standards "very differently" from closures in developing nations that lack or do not enforce such standards, and concluding that this policy "unfairly favors" industrialized nations). It is difficult to tell, however, whether the discrepancy in the U.S. approach to industrialized and developing nations stems from the nature of the underlying SOFA, the negotiation leverage, or a combination of the two.

\textsuperscript{410} \textit{DOD Prepares First-Time Cleanup Policy for Overseas Bases}, \textit{Def. Env't Alert} (Inside Wash. Pub., Wash., D.C.), July 27, 1994, at 4. In early 1994, a policy directive was cleared by the DOD Environmental Security Council and the Environmental Security International Activities Committee, and forwarded to the Office of General Counsel for further review. \textit{Id.} The guidance apparently will give force commanders at overseas sites broad authority for making decisions on the scope and extent of cleanups. \textit{Id.}
establish a timetable for completion of the policy, Congress should set one for it.

In developing its overseas guidance, the Pentagon should follow several basic precepts. First, the United States should see that sites are thoroughly evaluated and that the host country is apprised of all potentially significant environmental hazards. Unless both sides fully understand the scope of the contamination, the termination agreement is not likely to serve the long-term interests of either party.

Second, the Pentagon should develop some type of minimal "baseline cleanup guidance." This guidance should compare with the minimum cleanliness standard that the DOD uses in ongoing compliance cases. In most instances, this would require that a facility be restored to at least host country cleanup standards. If the host country cleanup provisions are not sufficiently protective of public health and welfare, it may be appropriate to apply U.S. cleanup standards if the host country opts for such standards. This does not necessarily mean that the United States should pay for all or even most of the costs. Cost allocation should initially be based upon the extent to which the contamination can be traced directly to U.S. activities, but other factors, such as the relative long-term share of the defense burden, might also be taken into account. What is essential is that the parties not sign the base termination papers until they reach agreement on a long-term cleanup program that clearly delineates each party's financial obligations.

Finally, the State Department should play a clearly defined role in this process. The United States has interests in maintaining good relations with its allies and in ensuring that it remains in good standing without.

411. There may be cases where this is not appropriate. For example, in situations where the DOD concludes that the surrounding area is already contaminated by local pollution, the application of CERCLA standards might be an exercise in futility. The DOD apparently takes the position that this was the case in the Philippines. Cunningham, U.S. Foreign Base Closure, supra note 36, at 21-26. However, this should not justify failing to fully evaluate the site in the first place because it is entirely possible that contamination from the U.S. facility will be of a degree and type not present in the local contamination—heavy metal concentrations or radioactivity, for example. In such circumstances, the United States should be prepared to remediate any such contamination that is traceable to the U.S. military facility.

412. It would have been somewhat easier to accomplish this under the proposed Superfund Reform Act than under current law because of the greater flexibility afforded by the SRA. The proposed reforms would have permitted costs as well as the potential future use of the facility to be taken into account in designing remedies. H.R. 3800, supra note 148, at 49-51. In addition, the proposed law would have specifically required federal agencies to take account of the needs and interests of the local community in designing cleanup remedies. Id.

413. There may be instances in which a host nation may opt to postpone costly cleanups, and in such situations the United States needs to be sensitive to the host nation's desire to balance economic development and environmental protection.
in the community of nations. The State Department has the primary responsibility for both of these missions, and overseas base closures potentially implicate both interests. The State Department's new Office of the Undersecretary for Global Affairs should be directed to ensure that closure decisions: (1) treat the health and welfare concerns of foreign citizens with the same respect accorded to U.S. citizens, and (2) maintain a consistent U.S. remediation policy from one country to another.

CONCLUSION

The U.S. military views the problem of environmental contamination at its facilities as "the largest challenge" confronting it today. The steps outlined in this article are designed to help the military meet this challenge at its facilities in the United States and throughout the rest of the world.

In the domestic sphere, perhaps the most difficult challenge for the DOD is balancing competing national, state, and local interests. The services must comply with an overriding national health protection standard under CERCLA and satisfy state standards that may be even more stringent. But the services are also subject to community pressures to adjust and relax standards to take account of local needs and conditions.

Congress needs to help the DOD balance these competing obligations and pressures. What would be particularly useful are the types of provisions that Congress considered in the proposed Superfund reforms. The reforms would differentiate between cleanup goals and cleanup remedies; the former would be set at the national level, while the latter would specifically require that local needs and interests be taken into account. The goals question—how clean is clean—would be answered through development by EPA of a national risk protocol for conducting risk assessments. But implementation of remedies should be treated primarily as a local matter, and thus any new law enacted by Congress should allow the DOD greater latitude in selecting remedies and freedom to consider local uses of property in designing them. Moreover, the new law needs to expand and clarify the roles of state authorities and local community representatives in order to remove some of the ambiguities that have plagued the DOD cleanup process in the recent past.

A second challenge concerns the pace of DOD cleanups. Up until now, the Defense Department has proceeded quite deliberately with its cleanups in the United States in order to minimize the chances of long-term liability once properties are transferred. This has caused it to repeatedly miss targets and deadlines. As the base closure proc-
ess accelerates, though, the armed services are coming under increasing pressure from Congress and local communities across the country to act more quickly on cleanups in order to make outmoded defense facilities available for civilian reuse as rapidly as possible. The DOD needs to balance these pressures, while recognizing that the services' primary mission must be to comply with the obligation under CERCLA section 104 to take whatever actions are "necessary to protect the public health or welfare or the environment."

If new standardized health protection goals are developed by the federal government, as the proposed SRA contemplated, this would provide base commanders with a much better sense of how much time each type of contamination will take to clean up. A revised CERCLA process should enable regulators to standardize cleanup technologies and to predict the costs associated with them. Such steps should help the DOD establish reliable deadlines and cost estimates for its site cleanups, a development that would not only improve confidence in the Defense Department's ability to get the job done, but also greatly assist the DOD in dealing with affected communities and other interested parties.

A third challenge for the DOD is ensuring that scarce cleanup dollars are prudently managed. In the past the military has been accused of ignoring the full scope of environmental problems at its facilities and the costs of remedying them. These costs might be more manageable today had the military been willing to fully acknowledge them earlier.

In the future, the DOD should be guided by a maximum value test in selecting domestic sites for characterization and cleanup. To do so, the DOD needs to be given greater freedom to take cleanup costs into account and to give significant weight to a site's potential economic return in deciding how quickly the cleanup problems need to be addressed. The DOD may need to give less attention to a number of sites with lower levels of contamination that are located at NPL installations and provide correspondingly more attention to significantly contaminated sites at non-NPL locations. Budgeting for cleanup may also require more advance planning: as more sites move out of the investigation phase and toward full-scale remediation, the Defense Department may need to be prepared to ask Congress for additional funds for both the Base Closure Account and the DERA. It should unquestionably be prepared to ask for funding for new environmental technologies that promise to provide significant savings in the long run. If Members of Congress push to reduce the defense cleanup budget, Defense Department officials will need to make the case forcefully as to why these funds are needed.
The Defense Department faces competing pressures of a different sort in the overseas cleanup area. Congress has been pushing the DOD in one direction, urging it to hold cleanup expenditures to a minimum and to recover maximum value when U.S. facilities are turned over to foreign countries. The tug in the other direction comes from international law precepts such as the Stockholm principle, which requires countries to accept environmental responsibility for activities within their control. Apart from international law, the problem with the DOD approach is that it leaves the government open to the charge that the government is less vigilant in protecting the health of citizens overseas than it is here at home. Furthermore, the DOD's case-by-case approach in negotiating closure settlements leaves the U.S. government vulnerable to having the ceiling on one cleanup payment serve as the floor for the next one.

To deal with these competing pressures and problems, the Defense Department needs to develop coherent overseas cleanup policy guidance without further delay. A fair formula for allocating restoration costs between the United States and the host country needs to be developed. In cases where the United States is entitled to recover the value of facilities, such a formula is unlikely to result in additional out-of-pocket costs since in most instances a facility's value will exceed the allocated U.S. share of cleanup costs. Arrangements should be made to ensure that overseas property is assessed just as diligently as it would be at home. The DOD should also plan for remediation to be generally carried out in compliance with host country standards and anticipate that in some cases additional CERCLA standards may need to be incorporated.

Adopting this approach would do a great deal to bring overseas base cleanups more in line with the policies that are followed for domestic base closures. It would also help to ensure that the United States is in full compliance with the customary international norms that have governed this area for the past 50 years.