REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	[redacted]	THESIS

4. TITLE AND SUBTITLE
INSTITUTIONAL CONTROLS AT AIR FORCE SUPERFUND SITES

5. FUNDING NUMBERS

6. AUTHOR(S)
MAJ HUGHES HARRY M

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
GEORGE WASHINGTON UNIVERSITY

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
THE DEPARTMENT OF THE AIR FORCE
AFIT/CIA, BLDG 125
2950 P STREET
WPAFB OH 45433

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
FY99-17

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION AVAILABILITY STATEMENT
Unlimited distribution
In Accordance With AFI 35-205/AFIT Sup 1

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

14. SUBJECT TERMS

15. NUMBER OF PAGES

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT

Institutional Controls at Air Force Superfund Sites

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Thesis Abstract

The George Washington University
Law School
in partial satisfaction of the requirements
for the degree of Master of Laws

August 30, 1998

Thesis directed by

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Thesis Abstract

The Superfund environmental cleanup program has made great strides in cleaning up our nation's deadliest contaminated sites. However, this success has come at a tremendous price. Congress and the U.S. Environmental Protection Agency have been examining ways to make the Superfund cleanup process more cost effective and timely. One of the issues identified has been the practice of cleaning up sites to levels that are unwarranted and unnecessary based on the exposure scenarios presented by a site's future land use. In other words, money is being wasted by making sites cleaner than they need to be when clean ups are to residential use levels at sites where the future land use will be industrial. Based on the exposure scenarios presented by residential versus industrial land use, safe contamination levels can be reached more quickly and at less expense for industrial land uses.

With the understanding that future land use assumptions can drive contamination cleanup levels (with the associated expenses and timing), the question turns to how to best develop future land use assumptions. The EPA has provided guidance on implementing future anticipated land use assumptions in the Superfund cleanup process; however, some EPA regional offices and state regulators are demanding more than assumptions. They are demanding future land use guarantees in the form of institutional controls before agreeing to particular remedial actions.

Typically, the type of institutional controls sought are "negative easements" or "restrictive covenants." However, the creation of these property rights requires a conveyance of these property rights from the property owner to a third party (such as a state regulatory agency). Since the Department of Defense does not give away federal property rights in this manner, another form of institutional control must be used. That brings us to the purpose of this paper.

This paper supports the thesis that the Air Force processes for base comprehensive planning and project approval can assure the effectiveness and long-term reliability of institutional controls established as environmental remediation land use restrictions. First, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Contingency Plan (NCP) are outlined to provide the statutory and regulatory framework for the Superfund cleanup process. Next, the importance of future land use assumptions is addressed using specific EPA guidance on the issue. The various forms of institutional controls and the authority for their implementation are then explained. With this background information established, the paper next focuses on the Department of Defense (DoD) and then the Air Force.

The DoD commitment to the environment and, in particular, environmental restoration is then demonstrated by setting forth DoD's overall environmental policy and explaining the Defense Environmental Restoration Program (DERP). With the "big picture" developed, the paper then explains the details of the Air Force base comprehensive planning process and how the Base Comprehensive Plan is integrated into the day-to-day activities on an installation. The possibility that the Air Force might convey property impacted by environmental restoration institutional controls is also addressed. Two recent examples of how regulatory agencies are handling institutional controls in remedial actions at federal facilities are then highlighted. Lastly, the paper proposes some recommendations that will act as additional checks and balances to specifically ensure the long-term adherence to institutional controls. Hopefully the reader will come away with the realization that the Air Force is committed to and capable of implementing institutional controls through its base comprehensive planning and project approval processes.

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I. INTRODUCTION

The Superfund environmental cleanup program has made great strides in cleaning up our nation's deadliest contaminated sites.[1] However, this success has come at a tremendous price.[2] Congress and the U.S. Environmental Protection Agency have been examining ways to make the Superfund cleanup process more cost effective and timely. One of the issues identified has been the practice of cleaning up sites to levels that are unwarranted and unnecessary based on the exposure scenarios presented by a site's future land use. In other words, money is being wasted by making sites cleaner than they need to be when clean ups are to residential use levels at sites where the future land use will be industrial. Based on the exposure scenarios presented by residential versus industrial land use, safe contamination levels can be reached more quickly and at less expense for industrial land uses.

With the understanding that future land use assumptions can drive contamination cleanup levels (with the associated expenses and timing), the question turns to how to best develop future land use assumptions. The EPA has provided guidance on

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[1] As of January 26, 1998, cleanup construction has been completed at 504 sites on the National Priorities List and another 473 sites are in construction. Testimony of Timothy Fields, Jr., Acting Assistant Administrator for OSWER, EPA, before the Subcommittee on Finance and Hazardous Materials, U.S. House of Representatives, February 4, 1998.

[2] The EPA spends about $1.4 billion a year on the Superfund program. GAO Report to Congressional Requesters, Superfund - Trends in Spending for Site Cleanups, September 4, 1997. This does not include the fact that responsible parties are funding about 75% of Superfund long-term cleanup. Testimony of Timothy Fields, Jr., Acting Assistant Administrator, OSWER, before the Subcommittee of Finance and Hazardous Materials, U.S. House of Representatives, February 4, 1998. CERCLA initially created a $1.6 billion fund for its first five years, but increased this amount to $8.5 billion with the enactment of the Superfund Amendments and Reauthorization Act of 1986. Risch, The

implementing future anticipated land use assumptions in the Superfund cleanup process; however, some EPA regional offices and state regulators are demanding more than assumptions.[3] They are demanding future land use guarantees in the form of institutional controls before agreeing to particular remedial actions.[4]

Typically, the type of institutional controls sought are "negative easements" or "restrictive covenants."[5] However, the creation of these property rights requires a conveyance of these property rights from the property owner to a third party (such as a state regulatory agency). Since the Department of Defense does not give away federal property rights in this manner,[6] another form of institutional control must be used.[7] That brings us to the purpose of this paper.

National Environmental Committee: A Proposal To Relieve Regulatory Gridlock at Federal Facility Superfund Sites, 151 Mil. L. Rev. 1, 37.

[3] Memorandum from Jon D. Johnson, Chief Federal Facilities Branch EPA Region IV, To Federal Facilities Branch, Subject: Assuring Land Use Controls at Federal Facilities, April 21, 1998. The EPA Region IV Land Use Control Assurance Policy will be discussed below in Section VII.B.

[4] *Id.*

[5] These proprietary institutional controls are more fully discussed below in Section IV.B.

[6] Utilization and disposal of federal real property is governed by 41 C.F.R. Part 101-47. Real property is defined as "any interest in land". 41 C.F.R. § 101-47.103-12. Federal agencies "may grant easements in or over real property on appropriate terms and conditions: Provided, that where the disposal agency determines that the granting of such easement decreases the value of the property, the granting of the easement shall be for a consideration not less than the amount by which the fair market value of the property is decreased." 41 C.F.R. § 101-47.313-2. However, an argument can be made that if the property interest has no commercial value or if the cost of continued care and handling would exceed the estimated proceeds from the sale, the property interest can be donated to public bodies. 41 C.F.R. § 101-47.501-2.

This paper supports the thesis that the Air Force processes[8] for base comprehensive planning and project approval can assure the effectiveness and long-term reliability of institutional controls established as environmental remediation land use restrictions. First, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)[9] and the National Contingency Plan (NCP)[10] are outlined to provide the statutory and regulatory framework for the Superfund cleanup process. Next, the importance of future land use assumptions is addressed using specific EPA guidance on the issue. The various forms of institutional controls and the authority for their implementation are then explained. With this background information established, the paper next focuses on the Department of Defense (DoD) and then the Air Force.

The DoD commitment to the environment and, in particular, environmental restoration is then demonstrated by setting forth DoD's overall environmental policy and explaining the Defense Environmental Restoration Program (DERP). With the "big picture" developed, the paper then explains the details of the Air Force base comprehensive planning process and how the Base Comprehensive Plan is integrated into the day-to-day activities on an installation. The possibility that the Air Force might

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[7] For a comprehensive discussion on the use of land use restrictions in remediation of contaminated property, see Thanheiser, The Allure of a Lure: Proposed Federal Land Use Restriction Easements in the Remediation of Contaminated Property, 24 B.C. Envtl. Aff. L. Rev. 271. See also, Coursen, Institutional Controls at Superfund Sites, 23 Envtl. L. Rep. 10279.

[8] These processes are somewhat equivalent to the zoning procedures used by local municipal governments.

[9] 42 U.S.C. § 9601 et seq.

[10] 40 C.F.R. pt 300.

convey property impacted by environmental restoration institutional controls is also addressed. Two recent examples of how regulatory agencies are handling institutional controls in remedial actions at federal facilities are then highlighted. Lastly, the paper proposes some recommendations that will act as additional checks and balances to specifically ensure the long-term adherence to institutional controls. Hopefully the reader will come away with the realization that the Air Force is committed to and capable of implementing institutional controls through its base comprehensive planning and project approval processes.

II. STATUTORY AND REGULATORY OVERVIEW

A. THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT

The Comprehensive Environmental Response, Compensation and Liability Act, commonly referred to as "CERCLA" or "Superfund," was enacted in 1980 and substantially amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).[11] CERCLA authorizes the federal government to clean up or arrange for the cleanup of seriously contaminated sites[12] and to recover all costs of removal and remedial action from the responsible parties.[13] CERCLA covers "any site or area where a

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[11] Pub. L. No. 99-499, 100 Stat. 1615, 1652, 1692, 1774 (1986), codified at 42 U.S.C. §§ 6907-75.

[12] 42 U.S.C. § 9604(a)(1).

[13] 42 U.S.C. § 9607(a).

hazardous substance has ... come to be located...."[14] The President has delegated the primary authority for carrying out CERCLA's objectives to the EPA.[15]

The cleanup requirements of CERCLA can be triggered whenever there is a release,[16] or substantial threat of a release, of a hazardous substance[17] into the environment, or by a release or substantial threat of a release into the environment of a pollutant or contaminant[18] that may present an "imminent and substantial danger to the public health or welfare."[19]

Upon discovery of a situation that warrants the implementation of CERCLA remediation, the EPA tries to identify the person or persons responsible for the hazardous environmental contamination. These "potentially responsible parties" (PRPs) fall into

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[14] 42 U.S.C. § 9601(9)(B).

[15] Executive Order 12580, 52 Fed. Reg. 2923 (1987). This delegation is authorized by CERCLA § 115.

[16] The term "release" means "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discharging of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant)." 42 U.S.C. § 9601(22).

[17] The term "hazardous substances" includes substances defined as hazardous or toxic under other federal environmental statutes and CERCLA § 102. The term does not include petroleum or natural gas. 42 U.S.C. § 9601(14).

[18] The term "pollutant or contaminant" includes any substance "which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring." The term does not include petroleum or natural gas. 42 U.S.C. § 9601(33).

[19] 42 U.S.C. § 9604(a).

one of the following four categories: (1) Current owners or operators of the vessel or facility; (2) Previous owners or operators of the facility at the time of disposal of any hazardous substance; (3) Any person who arranged for the disposal or treatment of the hazardous substance in question; and (4) Any person who accepted the hazardous substance for transport to a disposal or treatment facility of his selection.[20] PRPs are strictly[21] liable for all response costs incurred by the federal government not inconsistent with the national contingency plan, any other necessary response costs incurred by other persons consistent with the national contingency plan, natural resource damages, and the cost of health assessments or health effects studies conducted by the Agency for Toxic Substances and Disease Registry.[22] As between the PRPs, liability is joint and several[23] unless one of the parties proves the damages can be apportioned.[24]

Once a person is identified as a responsible party, CERCLA only provides three defenses to liability.[25] A responsible party can avoid liability if they can prove by a preponderance of the evidence that the hazardous contamination was cause solely by an act of God, act of war, and/or an act or omission of a third party (with no employee,

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[20] 42 U.S.C. § 9607(a).

[21] See New York v. Shore Realty Corp., 759 F.2d 1032, 1042 (2d Cir. 1985); United States v. Northeastern Pharmaceutical & Chem. Co. (NEPACCO), 579 F.Supp. 823, 844 (W.D. Mo. 1984).

[22] 42 U.S.C. § 9607(a).

[23] See United States v. Chem-Dyne Corp., 572 F.Supp 802, 810-11 (S.D. Ohio 1983); New York v. Shore Realty Corp., 759 F.2d 1032, 1042 (2d Cir. 1985).

[24] United States v. Stringfellow, 20 ERC 1905, 1910 (C.D. Cal. 1984).

agency, or contractual relationship with the defendant) if the defendant exercised due care with respect to the hazardous substance and took precautions against foreseeable acts or omissions of the third party.[26] Within the definition of "contractual relationship," CERCLA provides for the so-called "innocent purchaser" defense.[27]

Once the EPA has identified the PRPs, CERCLA provides for two courses of action.[28] First, the EPA may decided to conduct the response action itself[29] and then seek compensation from the PRPs for the cleanup costs.[30] Second, when the EPA determines the PRPs are capable and reliable, it may allow PRPs to conduct the response action themselves.[31]

Provisions specifically applicable to federal facilities are set forth in CERCLA section 120.[32] Section 120 is a waiver of sovereign immunity[33] and generally requires federal facilities to follow all EPA guidelines, rules, regulations, and criteria.[34] Federal

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[25] 42 U.S.C. § 9607(b).

[26] *Id.*

[27] 42 U.S.C. § 9601(35) provides strict standards for the application of the innocent purchaser defense.

[28] 42 U.S.C. § 9604(a).

[29] *Id.*

[30] 42 U.S.C. § 9612(c)(3).

[31] 42 U.S.C. § 9604(a).

[32] 42 U.S.C.A. § 9620.

[33] 42 U.S.C.A. § 9620(a)(1).

[34] 42 U.S.C.A. § 9620(a)(2).

facilities are required to list their hazardous waste sites on the Federal Agency Hazardous Waste Compliance Docket,[35] conduct preliminary assessments,[36] and, for sites included on the National Priorities List, must commence remedial investigations and feasibility studies (RI/FS) within six months.[37] Within 180 days after the completion of the RI/FS, the federal facility enters into an interagency agreement with the EPA concerning all necessary remedial action at the facility.[38] Within 15 months after completion of the RI/FS, "(s)ubstantial continuos onsite remedial action shall be commenced."[39] Section 120 also addresses applicability of state laws,[40] congressional reporting requirements,[41] settlements with other responsible parties,[42] state and local participation,[43] and property transfer by federal agencies.[44]

CERCLA also provides some other tools to facilitate cleanup of hazardous environmental contamination. The Attorney General can seek relief compelling a PRP to

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35 42 U.S.C.A. § 9620(c).

36 42 U.S.C.A. § 9620(d)(1).

37 42 U.S.C.A. § 9620(e)(1).

38 42 U.S.C.A. § 9620(e)(2).

39 *Id.*

40 42 U.S.C.A. § 9620(a)(4).

41 42 U.S.C.A. § 9620(e)(5).

42 42 U.S.C.A. § 9620(e)(6).

43 42 U.S.C.A. § 9620(f).

44 42 U.S.C.A. § 9620(h).

abate an "imminent and substantial endangerment to the public health or welfare or the environment."[45] Private citizens may also conduct cleanup actions and then seek reimbursement from any PRP for the costs that are consistent with the national contingency plan.[46]

B. THE NATIONAL CONTINGENCY PLAN

The CERCLA cleanup requirements are set forth in the National Contingency Plan.[47] The National Contingency Plan establishes the organizational structure and procedures for effectively responding to oil spills and releases of hazardous substances, pollutants, and contaminants which may present an imminent and substantial danger to public health or welfare of the United States.[48] Contaminated sites can be identified through various means[49] and are generally reported to the National Response Center.[50]

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[45] 42 U.S.C. § 9606(a).

[46] 42 U.S.C. § 9607(a)(4)(B).

[47] 40 C.F.R. pt 300 - National Oil and Hazardous Substances Pollution contingency Plan.
CERCLA § 105 required the revision and republication of the national contingency plan to incorporate the newly promulgated mandates of CERCLA.

[48] 40 C.F.R. §§ 300.1, 300.3(a)(2).

[49] Releases can be discovered through required reports submitted to the EPA, investigations by government authorities, required notifications by permit holders, inventory audits, incidental observations, citizen petitions for preliminary assessments, or other sources. 40 C.F.R. § 300.405(a). In particular, federal facilities are required to provide notice under CERCLA § 120(b) and list their hazardous waste sites on the Federal Agency Hazardous Waste Compliance Docket. CERCLA § 120(c).

[50] 40 C.F.R. § 300.405(c).

The National Response Center promptly notifies the appropriate On-scene Coordinator[51] who is the federal official responsible for coordinating the initial response to a contaminated site. A response determination is made whether removal action[52] (short term), remedial action[53] (long term), or both will likely be required to adequately clean up the site.

A site evaluation (for removal and/or remediation) is accomplished next. A site evaluation consists of a preliminary assessment and a site inspection.[54] A preliminary assessment consists of a review of available information and possibly an off-site reconnaissance to determine if the contaminated property will require additional investigation or action.[55] The site investigation is an on-site investigation that augments the data collected during the preliminary assessment and obtains necessary sampling and field data to determine if the site is in fact contaminated and the nature of the associated threats.[56] This information is used to assess whether further action or investigation is warranted.

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[51] 40 C.F.R. § 300.405(e).

[52] 40 C.F.R. § 300.415.

[53] 40 C.F.R. §§ 300.420 - 300.435.

[54] 40 C.F.R. § 300.410(a) for removal site evaluation; 40 C.F.R. § 300.420(a) for remedial site evaluation.

[55] 40 C.F.R. § 300.5.

[56] *Id.*

Using the information gathered during the site evaluation, the site is scored according to the Hazard Ranking System.[57] The Hazard Ranking System is the method used by the Environmental Protection Agency (EPA) to assign numerical scores to contaminated sites according to their relative potential to cause health or safety problems, or ecological or environmental damage.[58] If a site scores 28.5 or higher, the site is eligible for placement on the National Priorities List (NPL).[59]

The National Priorities List is the list of priority sites for long-term remedial evaluation and response.[60] Theoretically, it includes the most contaminated sites in the country. Importantly, only sites on the NPL are eligible for Superfund-financed remedial action.[61] A site becomes eligible for placement on the NPL in one of three ways.[62] First, it can score 28.5 or higher on the Hazard Ranking System.[63] Second, a state can designate it as its highest priority.[64] Third, a site is eligible if the Agency for Toxic Substances and Disease Registry issues a health advisory to evacuate people from the site, the EPA determines the site poses a significant threat to public health, and the EPA

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[57] 40 C.F.R. pt 300, Appendix A.

[58] 40 C.F.R. § 300.5.

[59] 55 FR 51532, 51569.

[60] 40 C.F.R. § 300.425(b).

[61] 40 C.F.R. § 300.425(b)(1).

[62] 40 C.F.R. § 300.425(c).

[63] 40 C.F.R. § 300.425(c)(1).

[64] 40 C.F.R. § 300.425(c)(2).

anticipates it will be more cost effective to use its remedial authority than to use its removal authority for cleanup.[65]

The next step in the cleanup process is the remedial investigation/feasibility study. The purpose of this stage is to evaluate site conditions in order to develop alternative remedies.[66] The information necessary to develop and evaluate effective remedial alternatives is collected during the remedial investigation.[67] The feasibility study develops and evaluates appropriate remedial alternatives so that the decision-maker can make an informed choice regarding the preferred remedial action alternative.[68] This decision is based on the following nine statutory criteria: overall protection of human health and the environment;[69] compliance with applicable or relevant and appropriate requirements (ARARs);[70] long-term effectiveness and permanence; reduction of toxicity,

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[65] 40 C.F.R. § 300.425(c)(3).

[66] 40 C.F.R. § 300.430(a)(2).

[67] 40 C.F.R. § 300.430(d).

[68] 40 C.F.R. § 300.430(e).

[69] "Alternatives shall be assessed to determine whether they can adequately protect human health and the environment, in both the short- and long-term, from unacceptable risks posed by hazardous substances, pollutants, or contaminants present at the site by eliminating, reducing, or controlling exposures ..." 40 C.F.R. § 300.430(e)(9)(iii)(A).

[70] Applicable requirements are substantive requirements, criteria, or limitations mandated under federal or state environmental laws regarding hazardous substances, pollutants, contaminants, or other circumstances found at the site. Relevant and appropriate requirements are substantive requirements, criteria, or limitations mandated under federal or state environmental laws that are not "applicable" to the site, but address similar site circumstances and are well suited for use at the particular site. 40 C.F.R. § 300.5.

mobility, or volume through treatment; short-term effectiveness; implementability; cost; state acceptance; and community acceptance.[71]

These nine selection criteria are categorized into three groups -- threshold criteria,[72] primary balancing criteria,[73] modifying criteria.[74]

After public notice and comment on the proposed plan, the final plan of action is documented by a record of decision (ROD).[75] For federal facilities on the NPL, the remedial action is jointly selected by the head of the relevant department and the EPA, or if no mutual agreement can be reached, EPA's selection trumps.[76]

Once the remedial action plan is selected, the cleanup process proceeds to remedial design/remedial action.[77] At this time the actual selected remedy gets designed and implemented. This is when the long-term cleanup really begins. If required, an operations and maintenance phase may follow after the remedy has achieved its

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[71] 40 C.F.R. § 300.430(e)(9)(iii).

[72] The threshold criteria, which must be met be each alternative to be eligible for selection, are overall protection of human health and the environment and compliance with ARARs. 40 C.F.R. § 300.430(f)(1)(i)(A).

[73] The five primary balancing criteria are long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, and cost. 40 C.F.R. § 300.430(f)(1)(i)(B).

[74] The modifying criteria are state and community acceptance. 40 C.F.R. § 300.430(f)(1)(i)(C). Although categorized as "modifying" criteria, state and local involvement in the selection of remedies are more important than the name of the category suggests.

[75] 40 C.F.R. § 300.430(f)(1)(ii).

[76] 40 C.F.R. § 300.430(f)(4)(iii).

[77] 40 C.F.R. § 300.435.

objectives and goals set forth in the record of decision.[78] When no further cleanup is appropriate, a site may be deleted from the National Priorities List.[79]

III. FUTURE LAND USE ASSUMPTIONS

One of the most important decisions made early on in the remediation process is future land use assumptions. The anticipated future land use of a site will drive the extent and magnitude of the cleanup process. If a site is expected to be used for residential purposes, exposure scenarios will probably require the maximum amount of cleanup feasible. On the other hand, future industrial use will probably allow a less extensive and more cost effective remedy. Approximately 60% of EPA's Records of Decision incorporate a land use category other than residential land use.[80]

The U.S. Environmental Protection Agency's Office of Solid Waste and Emergency Response has published a directive addressing the importance of incorporating reasonable assumptions regarding anticipated future land uses in the Superfund site remediation process.[81] Entitled "Land Use in the CERCLA Remedy Selection Process," the directive's goal is to provide guidance to the EPA's regional offices on how to use reasonably anticipated future land use assumptions under

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[78] 40 C.F.R. § 300.435(f).

[79] 40 C.F.R. § 300.425(e).

[80] Testimony of Steven A. Herman, Assistant Administrator, OECA, before the Subcommittee on Water Resources and Environment Committee on Transportation and Infrastructure, U.S. House of Representatives, April 10, 1997.

[81] OSWER Directive 9355.7-04, Land Use in the CERCLA Remedy Selection Process, May 25, 1995.

CERCLA[82] at National Priority List sites for the baseline risk assessment, development of alternatives, and remedy selection.[83] The directive establishes its two primary objectives as the promotion of early discussions with the local stakeholders regarding the future anticipated land use of the Superfund site and the promotion of the use of information regarding the reasonably anticipated future uses of the property in the remediation process.[84] The guidance provided in the directive is applicable to Federal Facility sites.[85] Situations regarding future ground water use are specifically not addressed in the directive.[86]

The EPA recognizes that the first step in developing reasonable assumptions regarding future land use is to involve local land use planning authorities, local officials, and the public as soon as possible in the remedial investigation/feasibility study.[87] In addition to input from local stakeholders, the directive sets forth an extensive list of

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[82] The directive makes the point that, although it applies specifically to CERCLA NPL sites, future land use assumptions can also be especially appropriate for RCRA facility cleanups. OSWER 9355.7-04, 2.

[83] OSWER 9355.7-04, 1-2.

[84] OSWER 9355.7-04, 4.

[85] OSWER 9355.7-04, 3. In the directive's only footnote, it is pointed out that the directive does not address Federal agency responsibility for future additional cleanup of the property to allow for unrestricted use under CERCLA § 120(h)(3).

[86] The directive recognizes that its guidance will be particularly applicable to situations where surface soil is the primary exposure pathway and that when a factor, ground water protection may dictate soil cleanup levels. OSWER 9355.7-04, 3. 40 C.F.R. § 300.430(a)(1)(iii)(F) provides that "EPA expects to return useable ground waters to their beneficial uses wherever practicable, within a timeframe that is reasonable given the particular circumstances of the site."

information that EPA should consider in determining the reasonably anticipated future land use.[88] Once determined, future land use assumptions should be incorporated into the baseline risk assessment and the feasibility study in order to focus efforts on cost-effective and practicable remediation alternatives that are consistent with the anticipated future land use.[89]

Why are future land use assumptions vital to accurate baseline risk assessments? The baseline risk assessment evaluates the potential threat to human health and the environment assuming the site contamination is not cleaned up at all.[90] It provides the information required to determine if remedial action is even necessary and justification for remedial action if it is necessary.[91] One of the four major components of a baseline risk assessment is the exposure assessment.[92] The exposure assessment can be further divided into identification of exposure pathways, characterization of potential human

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[87] OSWER 9355.7-04, 4.

[88] The list includes zoning laws and maps, current land use, comprehensive community master plans, population growth patterns and projections, accessibility of site to existing infrastructure, existing institutional controls, site location in relation to urban, residential, commercial, industrial, agricultural, and recreational areas, Federal/State land use designation, historic or recent development patterns, cultural factors, natural resource, geographic, and geologic information, ground water vulnerability, environmental justice issues, location of on-site or nearby wetlands, and proximity of site to a floodplain or critical habitats for endangered or threatened species. OSWER 9355.7-04, 4-5.

[89] OSWER 9355.7-04, 5.

[90] OSWER Directive 9355.3-01, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, October 1988, 45.

[91] 55 FR 8666, 8709.

[92] The other three components are contaminant identification, toxicity assessment, and risk characterization. OSWER 9355.3-01, 45.

receptors, and determination of the extent of exposure.[93] Identification of exposure pathways provides an understanding of how contaminants can migrate from their source to a human and generally consists of the following four elements: "(1) A source and mechanism of chemical release to the environment; (2) An environmental transport medium (e.g., air, ground water) for the released chemical; (3) A point of potential contact with the contaminated medium (referred to as the exposure point); and (4) An exposure route (e.g., inhalation, ingestion) at the point of exposure."[94] Next, the potential for human exposure is analyzed. The frequency and magnitude of human exposure is directly related to and dependent upon the manner in which the property is used.[95] Typically, exposure assessments classify land use as either residential,[96] commercial/industrial, or recreational; however, ecological and agricultural use are also considered when appropriate.[97] Lastly, the information regarding the exposure pathways and potential human receptors is combined to arrive at the expected exposure levels.[98] It should be quite obvious that future land use assumptions can drive the baseline risk

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[93] OSWER 9355.3-01, 46.

[94] OSWER 9355.3-01, 46.

[95] OSWER 9355.3-01, 47.

[96] Although the assumption of residential land use will provide the highest level of protection, EPA does not require this assumption. This assumption may be made based on conservative but realistic predictions of future land use. 55 FR 8666, 8710.

[97] It should be noted that EPA does not believe that "institutional controls" (as opposed to anticipated future land use) should be taken into account during the baseline risk assessment. 5 FR 8666, 8710.

[98] OSWER 9355.3-01, 47.

assessment as it considers exposure scenarios and, in turn, the remedial action alternatives.

Proper use of future land use assumptions can prevent the unnecessary development and consideration of overly ambitious remedial alternatives that can only be justified under a more restrictive land use scenario. Although the directive presents a strong case for the incorporation of land use assumptions to facilitate cost-effective and practicable remedial alternatives, the EPA tempers this with the caveat that the remedy selection expectations set forth in the NCP[99] should still be considered when developing appropriate remedial alternatives.[100]

The EPA encourages the use of institutional controls when the future land use of a site is uncertain or when needed to ensure a remedy remains protective.[101] "In such cases, institutional controls will play a key role in ensuring long-term protectiveness and should be evaluated and implemented with the same degree of care as is given to other elements of the remedy."[102] In evaluating the use of an institutional control as part of a remedial alternative, EPA will consider the type of institutional control proposed, the authority to implement the institutional control, and the appropriate entity's resolve and capability to

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[99] EPA expects remedial alternatives to use treatment to address the principle threats, to use engineering controls such as containment for relatively low long-term threats, to use institutional controls to such as water use and deed restrictions to supplement engineering controls, to consider using innovative technology where appropriate, and to return usable ground waters to their beneficial uses wherever practicable. 40 C.F.R. § 300.430(a)(1)(iii).

[100] OSWER 9355.7-04, 6.

[101] OSWER 9355.7-04, 8.

maintain the institutional control.[103] EPA expects the feasibility study and record of decision to contain sufficient analysis to show that the institutional control will be effectively implemented.[104]

Lastly, the directive addresses future changes in land use.[105] It emphasizes that the EPA will conduct a site review at least every five years to monitor whether the actual land use has deviated from the more restrictive land use assumption of the selected remedy.[106] Landowners may also conduct additional cleanup to make the land use less restrictive provided the integrity of the original remedy is not compromised.[107]

A distinction that is often lost by regulators and commentators alike is that reasonably anticipated land use assumptions are separate and distinct from institutional controls. Although reasonably anticipated future land use "assumptions" are unquestionably authorized, regulators are instead requiring future land use "guarantees" in the form of institutional controls.[108]

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[102] *Id.*

[103] *Id.* Note that 40 C.F.R. § 300.510(c)(1) requires states to certify that institutional controls implemented as part of remedial action are in effect, reliable, and will remain in effect as part of the state's assurance under CERCLA § 104(c)(3)(A) to assume responsibility for operation and maintenance of a Superfund site.

[104] OSWER 9355.7-04, 8.

[105] OSWER 9355.7-04, 9.

[106] *Id.*

[107] *Id.*

[108] Memorandum from Jon D. Johnson, Chief Federal Facilities Branch EPA Region IV, To Federal Facilities Branch, Subject: Assuring Land Use Controls at Federal Facilities,

IV. INSTITUTIONAL CONTROLS

Institutional controls are mechanisms established to impose certain restrictions upon the use of real property. In the environmental remediation context, they are usually, but not always, legal controls intended to restrict activities at a site to prevent or reduce human exposure to hazardous contamination.[109] Institutional controls are normally used to supplement engineering measures, such as treatment or containment, when the engineering measures will not or cannot be sufficiently protective. In certain cases, however, it may be appropriate to use institutional controls as the sole remedy.[110]

A. INSTITUTIONAL CONTROL SCENARIOS

Institutional controls may be particularly helpful in the following scenarios:[111]

1) Where cleanup levels are based on commercial or industrial land use and are not protective for residential use, institutional controls may be used to prevent residential use of the site in the future;
2) Where groundwater contamination levels will remain harmful for a period of time, institutional controls may be necessary to prevent the drilling of wells for drinking water purposes;
3) It may be necessary to issue fishing advisories or impose other restrictions during the remediation process while contamination of surface waters is at harmful levels;
4) Where surface soils are cleaned but contamination of subsurface soils is left at high levels, excavation or gardening restrictions may be necessary to prevent harmful exposure; and
5) Where contamination is capped or otherwise contained, it may be necessary to impose restrictions on activities that will interfere with the containment measures.

April 21, 1998. The EPA Region IV Land Use Control Assurance Policy will be discussed below in Section VII.B.

[109] Draft EPA Institutional Controls Handbook, 2/14/97, 3. The handbook was developed by the EPA Institutional Controls Workgroup for use in evaluating institutional controls in remedial programs. It is must reading for practitioners considering institutional controls as remedial alternatives.

[110] *Id.* at 3 and 12.

[111] *Id.* at 4-5.

Institutional controls can generally be categorized into three groups -- proprietary controls, governmental controls, and statutory enforcement tools.[112] Proprietary controls are governed by private property law and include such property interests as easements and covenants.[113] Governmental controls are authorized by the governmental unit's regulatory authority to impose restrictions on its citizens or property within its jurisdiction such as zoning ordinances or other land use restrictions.[114] The government's statutory enforcement authority in the form of an administrative order or consent decree may also be used to impose land use restrictions.[115]

B. PROPRIETARY INSTITUTIONAL CONTROLS

The most notable proprietary institutional controls are easements, covenants, and equitable servitudes.[116] Easements are defined as "an interest in land in the possession of another" that entitles the easement owner to "limited use or enjoyment" of that land and "is capable of creation by conveyance."[117] Easements can be either "affirmative" or "negative" [118]and either "appurtenant" or "in gross."[119] However, the most important

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[112] *Id.* at 13.

[113] *Id.*

[114] *Id.* at 31.

[115] *Id.* at 37.

[116] *Id.* at 15.

[117] 7 Thomas on Real Property, Thomas Edition, (David A. Thomas ed., 1994), § 60.02(a) citing Restatement of Property § 450 (1944).

thing to remember is that an easement cannot be created unless there is a conveyance of a property right from one party to another.[120] Easements cannot be established unilaterally and there must be a party willing to hold the easement.[121]

Covenants and equitable servitudes are closely related.[122] A covenant is "a promise by the holder of a possessory interest in property to use or refrain from using the property in a certain manner" made in connection with the conveyance of the property.[123] Equitable servitudes[124] were created by courts wanting to enforce agreements that did not meet the formal requirements of covenants.[125]

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[118] Affirmative or positive easements give the easement holder the right to perform some type of activity on the land of another. These are the most typical types of easements. Negative easements give the easement holder the right to prevent the landowner from conducting certain activities on his land that he would otherwise be authorized to do. Negative easements are more prominent in the environmental cleanup context. 7 Thomas on Real Property, Thomas Edition, (David A. Thomas ed., 1994), § 60.02(e).

[119] "Easements that benefit a piece of land have some different characteristics than easements that benefit a person or organization. Easements benefiting a piece of property are 'appurtenant'; those benefiting a person directly, rather than indirectly in the person's status as the owner of the benefited property, are 'in gross.'" 7 Thomas on Real Property, Thomas Edition, (David A. Thomas ed., 1994), § 60.02(f).

[120] Draft EPA Institutional Controls Handbook, 2/14/97, fn. 9.

[121] *Id.*

[122] *Id.* at 19.

[123] *Id.* at 18.

[124] For a discussion regarding equitable servitudes see 7 Thomas on Real Property, Thomas Edition, (David A. Thomas ed., 1994), § 62.12.

[125] Draft EPA Institutional Controls Handbook, 2/14/97, 19; 7 Thomas on Real Property, Thomas Edition, (David A. Thomas ed., 1994), § 62.01(3). The elements for a real covenant are privity between original parties, privity between original parties and their successors, intent to run, and touch and concern the land. *Id.* at § 62.03.

The questions of whether an easement or covenant is recognizable or if their burden runs with the land depends on common law and varies between jurisdictions.[126] While such issues are vital to an institutional control's effectiveness as a remedial alternative, the intricacies of the various, and often conflicting, rules of law are beyond the scope of this paper.[127]

Still another real property tool that can be used in some situations to establish an institutional control is the "possibility of reverter."[128] A "possibility of reverter"[129] can be created when an owner transfers his property to another with the deed provision that the property will revert to the original owner under certain conditions.[130] These conditions could specify certain land use restrictions that are part of any remedial action at the property.

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[126] For instance, historically easements in gross did not run with the land where easements appurtenant did. However, some jurisdictions now allow easements in gross to run with the land if their intent is clear and the subsequent owner had sufficient notice. Draft EPA Institutional Controls Handbook, 2/14/97, 18, citing American Law of Real Property (Arthur L. Gaudio ed., 1994) §§ 6-55,6-56. Also, like other interests in real property, easements must comply with the recording acts. Jurisdictions differ as to an easement's validity if it is not recorded. 7 Thomas on Real Property, Thomas Edition, (David A. Thomas ed., 1994), § 60.03(a)(8).

[127] For an comprehensive discussion of these issues see 7 Thomas on Real Property, Thomas Edition, (David A. Thomas ed., 1994), Chapter 60.

[128] Draft EPA Institutional Controls Handbook, 2/14/97, 20. Although the handbook speaks of a "reversionary interest," the property interest in mind is more accurately called a "possibility of reverter." For the distinction, see 3 Thomas on Real Property, Thomas Edition (David A. Thomas ed., 1994), § 24.01.

[129] A "possibility of reverter" is defined as "any reversionary interest which is subject to a condition precedent." Restatement of Property, § 154, (3).

[130] Draft EPA Institutional Controls Handbook, 2/14/97, 20.

C. GOVERNMENTAL POLICE POWER

The second category of institutional controls is the regulatory power of the government. Probably the most familiar governmental tool to control land use is the local governments regulatory zoning authority[131] to restrict property to certain land use categories.[132] The government can also control access to certain sites by fencing and posting or place use restrictions in particular areas such as bans on fishing or swimming.[133] Groundwater use restrictions, such as limitations on well drilling and well water use, can also be imposed by the government.[134] Some states have created state registries of hazardous waste sites that have provisions that serve as institutional controls.[135] On the furthest extreme, governments can also exercise the power of eminent domain and condemn the property it wants to control.[136] The linchpin to the effectiveness of governmental controls is the local government's willingness and ability to establish the controls and enforce them in the long term.[137]

D. STATUTORY ENFORCEMENT

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[131] "The power to zone is an exercise of the police power which rests inherently with the state governments so that they may provide for the health, safety and welfare of the people." 8 Thomas on Real Property, Thomas Edition (David A. Thomas ed., 1994), § 74.02(c)(1).

[132] Draft EPA Institutional Controls Handbook, 2/14/97, 31.

[133] *Id.* at 32.

[134] *Id.* at 32-33.

[135] *Id.* at 34.

[136] *Id.* at 34-35.

The third category of institutional controls is statutory enforcement under CERCLA and RCRA. Section 106 of CERCLA grants the EPA broad authority to issue administrative "orders as may be necessary to protect public health and welfare and the environment" when public health or welfare or the environment may be an imminent and substantial danger.[138] Administrative orders can directly restrict the recipient's use of property and require notification to the EPA if the property is transferred so a determination can be made regarding the issuance of a continuing administrative order to the new owner.[139] Consent decrees pursuant to enforcement actions under section 107 of CERCLA[140] can require the creation of specific institutional controls, such as easements, and/or restrict the named party from certain land uses.[141]

E. THE NATIONAL CONTINGENCY PLAN AND INSTITUTIONAL CONTROLS

The National Contingency Plan's Hazardous Substance Response (Subpart E) provides some authority for the use of institutional controls. Examples of institutional controls envisioned by the NCP include land and resource use and deed restrictions, building permits, well-drilling prohibitions, well-use advisories, and deed notices.[142] EPA believes that institutional controls play a vital role in the development of remedial

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[137] *Id.* at 35.

[138] 42 U.S.C.A. § 9606.

[139] Draft EPA Institutional Controls Handbook, 2/14/97, 37-38.

[140] 42 U.S.C.A. § 9607.

[141] Draft EPA Institutional Controls Handbook, 2/14/97, 37.

[142] 55 FR 8666, 8706.

alternatives and that they are allowed under CERCLA; however, special precautions must be taken to ensure that they are reliable.[143]

Four sections of the NCP's Hazardous Substance Response directly address institutional controls. First, institutional controls are discussed as they relate to EPA's expectations regarding the development of appropriate remedial alternatives.[144] These expectations acknowledge that in certain site situations treatment may not be practicable and that other types of controls will be more effective.[145] EPA anticipates site situations where institutional controls may be used to provide protection from treatment residuals and untreated wastes.[146] EPA also expects institutional controls to be used to supplement engineering controls (e.g., containment) for short - and long-term protection, during the remedial investigation/feasibility study and remedial action phase, and as part of a completed remedy.[147] However, under the NCP, institutional controls may not be solely used as a substitute for active response measures that reduce, minimize, or eliminate contamination unless active measures are not practicable as determined by the remedy selection criteria.[148]

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[143] *Id.*

[144] 40 C.F.R. § 300.430(a)(1)(iii).

[145] 55 FR 8666, 8706.

[146] 40 C.F.R. § 300.430(a)(1)(iii)(C).

[147] 40 C.F.R. § 300.430(a)(1)(iii)(D).

[148] *Id.* EPA has resisted suggestions to expand the use of institutional controls in lieu of active remediation measures. EPA maintains the position that the nine evaluation criteria (40 C.F.R. § 300.430(e)(9)(iii)) will be used to determine the practicability of active

Second, institutional controls are addressed regarding the feasibility study.[149] The feasibility study must develop a range of alternatives where treatment is emphasized and one or more alternatives with little or no treatment but where protection is provided by engineering and institutional controls.[150]

Third, institutional controls are addressed in the discussion of the nine criteria for evaluating remedial alternatives.[151] Specifically, when considering the long-term effectiveness and permanence of a remedial alternative, consideration must be given to the adequacy and reliability of institutional controls that are necessary for protection against treatment residuals and untreated wastes.[152]

Fourth, when a state provides its assurance to assume responsibility for operation and maintenance under CERCLA § 104(c)(3)(A), the assurance must include the continued implementation and reliability of the institutional controls.[153]

Thus far this paper has provided the statutory and regulatory framework of CERCLA and the National Contingency Plan, addressed the importance of future land use assumptions, explained institutional controls, and set forth the authority for implementing institutional controls as part of CERCLA remedial actions. This paper will now focus on the Air

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remedial measures and the extent to which institutional controls may be part of a final remedy. 55 FR 8666, 8706.

[149] 40 C.F.R. § 300.430(e).

[150] 40 C.F.R. § 300.430(e)(3).

[151] 40 C.F.R. § 300.430(e)(9)(iii).

[152] 40 C.F.R. § 300.430(e)(9)(iii)(C)(2).

[153] 40 C.F.R. §§ 300.430(f), 300.510(c)(1).

Force's commitment and capability to ensure the long-term effectiveness and reliability of institutional controls. First however, in order to give the reader a complete appreciation of the environmental issues confronting DoD and DoD's commitment to the environment, DoD's overall environmental policy and the Defense Environmental Restoration Program (DERP) will be discussed.

V. THE DEPARTMENT OF DEFENSE ENVIRONMENTAL POLICY

> "The mission of the Department of Defense is more than just aircraft, guns, and missiles. Part of the defense job is protecting the land, water, timber, and wildlife -- the priceless natural resources that make this great nation of ours worth defending."[154]
>
> General Thomas D. White
> Former Air Force Chief of Staff (1957-60)

DoD's environmental policy is explained by looking at three major priorities of the defense mission, the missions of the Defense Environmental Security Program, and DoD's four-part environmental strategy. Further insight is then provided by a discussion of DoD's Superfund reform principles and the seven remedy selection modifications supported by DoD.

The Department of Defense's environmental program is the responsibility of the Office of the Deputy Under Secretary of Defense for Environmental Security,[155] currently

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[154] Testimony of Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security), given on 11 May 1995 before the Senate Armed Services Committee, Subcommittee on Readiness.

[155] The Deputy Under Secretary of Defense for Environmental Security is responsible to the Under Secretary of Defense for Acquisition & Technology for "global Environmental Security policy, oversight, advocacy, representation, and implementation of environmental, safety, occupational health, and fire and emergency services programs for defense activities, including the relationship between the environment and the military

headed by Sherri W. Goodman.[156] DoD's environmental policy can be understood by examining why environmental security is part of the defense mission, looking at the five missions of the Defense Environmental Security Program, and studying the DoD's environmental strategy.

A. THE DEFENSE MISSION[157]

As evidenced by General White's statement many years ago, it has long been recognized that environmental security is part of the defense mission. The main reason this is true is because environmental security supports DoD's major priorities of readiness, quality of life, and modernization. Environmental security helps ensure this nation's fighting men and women are ready to carry out their assigned missions while affording them a quality of life worthy of persons who sacrifice numerous personal privileges for the sake of their country. Environmental security also enhances modernization, which in turn facilitates the accomplishment of the first two priorities -- readiness and quality of life.[158]

Armed forces' readiness is promoted by environmental security programs in a number of ways. First, environmental security programs protect the health and welfare of

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missions of the Department of Defense." Office of the Deputy Under Secretary of Defense (Environmental Security) Home Page. Available on the World Wide Web at http://www.acq.osd.mil/ens/.

[156] Unless otherwise noted, this discussion of the DoD's environmental policy is derived from the testimony of Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security), given on 11 May 1995 before the Senate Armed Services Committee, Subcommittee on Readiness.

[157] *Id.*

[158] *Id.*

the millions of military personnel, their families, the civilian work force, contractors, and visitors who work, live, and play on our military installation across the globe. Second, environmental security programs protect the land upon which our troops must work, live, and train. As a consequence, our vast natural resources and archeological and historic sites are preserved. Third, environmental security programs ensure compliance with the myriad of environmental statutes and regulations imposed upon the Department of Defense.[159] Responsible military personnel, civilian employees, and contractors can be held criminally and civilly liable for violating environmental laws. In a nutshell, environmental security programs improve armed forces readiness by protecting the health of our troops from adverse environmental factors and by preserving the 25 million acres of land managed by DoD so that our forces will continue to have land upon which they can train and operate.[160]

Quality of life of military personnel and their families is also protected by environmental security programs.[161] Hazardous waste cleanup programs and environmental compliance programs ensure that our troops and their families will not be exposed to an unhealthy, polluted environment.[162] Service members also enjoy some of the greatest outdoor recreation opportunities available.[163]

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[159] *Id.*

[160] *Id.*

[161] *Id.*

[162] *Id.*

[163] *Id.*

Modernization is enhanced by the investments environmental security programs place in developing environmental cleanup and pollution prevention technologies. DoD now factors life-cycle costs of hazardous materials in its acquisition process -- leading to weapons systems with much better environmental characteristics. DoD is also on the cutting edge of development of technologies for environmental cleanup and pollution management and prevention.[164]

B. MISSIONS OF THE DEFENSE ENVIRONMENTAL SECURITY PROGRAM[165]

Now that we have examined why environmental security is part of the defense mission, we turn our attention to the five missions of the Defense Environmental Security Program -- Compliance, Pollution Prevention, Conservation, Cleanup, and Environmental Technology.

The compliance mission ensures that DoD complies with the federal, state, and local environmental, safety, and health laws.[166] The mission is divided into operations & services, and projects.[167] Compliance operations & services include such tasks as sampling and testing sewage treatment plant discharges, and storage and disposal of

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[164] DERP Fact Sheet - Environmental Technology. Available on the World Wide web at http://www.dtic.mil/envirodod/derpreport96/vol1/fact8.html.

[165] Unless otherwise noted, this section on the Defense Environmental Security Program missions is derived from the testimony of Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security), given on 11 May 1995 before the Senate Armed Services Committee, Subcommittee on Readiness.

[166] *Id.*

[167] *Id.*

hazardous materials. Compliance projects include new construction, modification, or repair of various pollution control and pollution generating facilities. Compliance projects also include the removal or upgrade of underground storage tanks to ensure they remain in compliance with new or existing environmental regulations. The compliance mission's success is measured by the reduced number of notices of violation.[168]

The pollution prevention mission is aimed towards reducing the use and emissions of toxic and hazardous materials in order to protect health and the environment, save and avoid costs, and meet legal requirements. This goal is achieved by assessing current military operations, as well as earlier in the process through weapons systems acquisition, design, manufacturing, and operations and maintenance. By reducing or eliminating products that contain hazardous materials or processes that produce hazardous wastes, DoD can substantially reduce the costs required to comply with environmental regulations and the expensive disposal of hazardous wastes.[169]

The conservation mission preserves the land and water and historic sites that make up the over 25 million acres that DoD manages. The land and water upon which our troops train and operate and upon which our weapon systems are tested are difficult to come by. DoD protects these resources vigorously to ensure access for years to come. DoD managed properties support over 300 threatened or endangered species,[170] some

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[168] *Id.*

[169] *Id.*

[170] In February of 1997, there were a total of 850 (332 animals, 518 plants) endangered species and 221 (116 animals, 105 plants) in the United States. Endangered Species Bulletin, Vol. XXII No. 1, U.S. Department of Interior, Fish and Wildlife Service, January/February 1997.

existing only on military lands, and contain over 100,000 archeological sites.[171] There are properties eligible or listed on the National Register of Historic Sites at 150 military installations.[172] Conserving these priceless national resources supports military readiness and quality of life.

The DoD environmental cleanup mission is accomplished by the Defense Environmental Restoration Program (DERP)[173] that is funded by the Defense Environmental Restoration Account (DERA).[174] The goal of DERP is to restore DoD facilities contaminated with hazardous wastes, toxics, and explosives to acceptable conditions. Contamination of military sites occurred during a period of environmental ignorance when it was not illegal and the nation was still unaware of the dangerous legacy posed by the use and disposal of hazardous and toxic materials. Since DoD does not have the funding to clean up all of its contaminated sites at once, relative risk site evaluations are used to prioritize sites in the environmental restoration program into high, medium,

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[171] Testimony of Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security), given on 11 May 1995 before the Senate Armed Services Committee, Subcommittee on Readiness.

[172] *Id.*

[173] 10 U.S.C.A. §2701.

[174] The Defense Environmental Restoration Account has been devolved into five separate environmental restoration accounts -- Army, Navy, Air Force, Defense, and Formerly Used Defense Sites. 10 U.S.C.A. §2703(a) and 111 Stat 1629, 1670.

and low relative risk categories. DoD has 85 active installations[175] with sites on the National Priorities List.[176]

The fifth and final mission of the Defense Environmental Security Program is environmental technology.[177] The environmental technology mission develops and applies modern technologies for environmental restoration and resource protection that are cheaper, quicker, safer, and more effective.[178] The funding dedicated to research and development of environmental technology is a wise investment. Innovative environmental technologies have saved DoD millions of dollars by reducing maintenance, operating costs, cleanup times, fuel usage, and hazardous waste generation.[179]

C. DOD's ENVIRONMENTAL STRATEGY

Recognizing the realities of ever tightening funding constraints, DoD has developed a 4-part environmental strategy.[180] First, DoD plans to reduce the future costs for handling and disposing of hazardous waste and for environmental compliance by

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[175] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, Appendix A, p.A-ix.

[176] Of the 1195 sites on the Final NPL (available on the World Wide Web at http://www.epa.gov/superfund/oerr.impm/products/npl/nplfin.htm), there are a total of 165 federal facilities. Federal Facility Sites Page available on the World wide Web at http://www.epa.gov/swerffrr/sitemaps.htm.

[177] Testimony of Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security), given on 11 May 1995 before the Senate Armed Services Committee, Subcommittee on Readiness.

[178] *Id.*

[179] *Id.*

[180] *Id.*

reducing or eliminating the hazardous materials in the first place. This falls under the Defense Environmental Security Program mission of pollution prevention as discussed above.[181] Second, DoD plans to continue investing in the development and implementation of modern environmental technologies that are cheaper, quicker, safer, and more effective -- the environmental technology mission.[182] Third, DoD utilizes relative risk site evaluations to establish priorities for completing environmental restoration activities to ensure the most dangerous sites are cleaned up first.[183] And fourth, DoD is taking an active role in responsible regulatory reform to ensure that DoD will be able to make the most effective environmental use of our limited resources.[184]

Now that DoD's overall environmental policy has been covered, the discussion will focus on one aspect of DoD environmental policy. Specifically, DoD's Superfund reform principles and remedy selection modifications are highlighted.

D. SUPERFUND REFORM POLICIES

(1) DOD SUPERFUND REFORM PRINCIPLES[185]

In furtherance of DoD's environmental strategy to pursue responsible regulatory reform, DoD has developed the following three basic principles for Superfund reform.[186]

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[181] *Id.*

[182] *Id.*

[183] *Id.*

[184] *Id.*

[185] Unless otherwise noted, the following discussion of DoD's Superfund reform principles is derived from the testimony of Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security), given on 23 April 1996 before the Senate Committee on Environment and Public Works.

First, the polluter should pay. Parties responsible for environmental contamination, even if it is the military, should pay to clean up their own pollution. Reform should not allow polluters to escape their responsibility.[187] Second, the Superfund remedy selection process should be reformed to allow the use of reasonably foreseeable future land use and realistic risk assumptions.[188] A more realistic approach to cleanup levels will lead to quicker and less costly cleanups while still protecting human health and the environment. And third, Superfund reform should facilitate the economic redevelopment of our communities, specifically in the context of military base closures.[189]

(2) REMEDY SELECTION MODIFICATIONS[190]

In accordance with DoD's Superfund reform principle for faster and more cost-effective cleanups, DoD has supported the following seven modifications to the remedy selection process:

1. The use of standardized risk analysis that incorporates realistic assumptions, particularly future land use assumptions. The wide variety of methodologies currently used are not adequately accounting for the future use of sites. Additionally, the

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[186] *Id.*

[187] *Id.*

[188] *Id.*

[189] *Id.*

[190] Unless otherwise noted, the following discussion of DoD's remedy selection modifications is derived from the testimony of Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security), given on 23 April 1996 before the Senate Committee on Environment and Public Works.

methodologies compound conservative assumptions resulting in remedies that are unnecessarily expensive and time consuming.[191]

2. The remedy selection process should incorporate reasonably future land use when deciding the appropriate level of cleanup. When sites are unlikely to convert to residential use in the future, it is wasteful and a lengthy process to restore these sites to such high protective levels.[192]

3. The mandatory preference for treatment of contamination should be eliminated except for "hot spots." While treatment of hazardous contamination is preferred at the worst hot spots, the search for innovative technology alternatives that are more realistic and cost effective while still protective of health and the environment should be encouraged.[193]

4. Eliminate the application of relevant and appropriate requirements under federal and state environmental laws, regulations, and standards that were not specifically designed to address environmental restoration. Mandatory application of laws passed for purposes other than environmental cleanup results in an inefficient determination of cleanup standards.[194]

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[191] *Id.*

[192] *Id.*

[193] *Id.*

[194] *Id.*

5. Cost considerations should carry more weight in relation to the other eight remedy evaluation criteria.[195] Only by serious consideration of cost effectiveness will DoD be able to accomplish the greatest amount of environmental restoration with its limited resources.[196]

6. The use of presumptive remedies should be permitted and encouraged. It is often unnecessary to "recreate the wheel" for certain categories of sites when effective remedies have already been developed and proven. The mandated investigations and studies can be shortened when we know up front what the solution will be.[197]

7. Innovative technologies that are more cost-effective should be encouraged. Since it is difficult to precisely predict how long it will take an innovative technology to work, their application is hampered by a system that emphasizes deadlines and schedules. Innovative technologies should be allowed some leeway in order for more cost-effective remedies to be developed and proven.[198]

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[195] The other eight evaluation criteria are overall protection of human health and the environment; compliance with applicable or relevant and appropriate requirements; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; state acceptance; and community acceptance. 40 C.F.R. 300.430(e)(9)(iii).

[196] Testimony of Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security), given on 23 April 1996 before the Senate Committee on Environment and Public Works.

[197] *Id.*

[198] Id.

With an understanding of DoD's overall environmental policy and specific DoD policies regarding environmental cleanup, the discussion will focus on DoD's environmental cleanup workhorse -- the Defense Environmental Restoration Program.

VI. THE DEFENSE ENVIRONMENTAL RESTORATION PROGRAM

A. BACKGROUND

DoD's Office of Environmental Cleanup,[199] within the Office of the Deputy Under Secretary of Defense for Environmental Security, is responsible for developing policy and overseeing the Defense Environmental Restoration Program (DERP).[200] The mission of the Office of Environmental Cleanup is "to protect the environment while reducing the risks to U.S. troops, their families, and local communities from pollutants due to past practices."[201] Since 1984, DoD has discovered that over 1,700 of its installations contain more than 21,000[202] potentially contaminated sites with an additional 3,200 potentially contaminated sites located at formerly used defense sites in the United States.[203] Even though the annual costs for compliance-related activities have overtaken environmental

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[199] Office of the Assistant Deputy Under Secretary of Defense for Environmental Cleanup.

[200] DoD Environmental Cleanup Home Page. Available on the World Wide Web at http://www.dtic.mil/envirodod/about.html.

[201] *Id.*

[202] Federal Facilities Restoration & Reuse Office Home Page available on the World Wide Web at http://www.epa.gov/swerffrr/.

[203] GAO Testimony Before the Subcommittee on Military Procurement and Military Readiness, Committee on National Security, House of Representatives, by Victor S. Rezendes, Director, Energy, Resources and Science Issues, Development Division. 21 March 1996.

restoration costs, DoD's cleanup expenses are still quite substantial.[204] Through FY96, DoD spent nearly $15 billion for the environmental restoration program.[205] DoD's budget request for FY 1999 environmental cleanup for active and formally used defense sites is $1.2 billion.[206] Including the $670 million request for BRAC installations, the total DoD cleanup estimate for FY 1999 is approximately $1.8 billion.[207] DoD plans to spend a total of about $27 billion for site cleanup at its installations.[208]

Funding for the Defense Environmental Restoration Account (DERA) has been anything but stable. Starting with $150 million in FY84, the funding level gradually increased to a high of $1,965.0 million in FY94 as the nation was coming to grips with the extent of our hazardous pollution problem.[209] After FY 94, funding dropped drastically to $1,482.1 million for FY95 and to an estimated $1,289.0 million for FY99.[210]

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[204] *Id.*

[205] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.4. This figure includes approximately $11.4 billion in DERA and approximately $3.5 billion in the BRAC account for closing or realigning installations.

[206] Testimony of Sherri W. Goodman, Deputy Under Secretary of Defense for Environmental Security, Before the Senate Armed Service Committee Subcommittee on Readiness, March 11, 1998.

[207] *Id.*

[208] Environmental Protection: Information Used for Defense Environmental Management, Letter Report, 06/1/97, GAO/NSIAD-97-135.

[209] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.5.

[210] *Id.*

With ever tightening fiscal constraints, DoD is under pressure to get more "cleanup bang" for the buck. One of the major criticisms was that DoD was spending too much money on administration, support, studies, and investigations, and not enough on actual cleanup.[211] However, in 1994 DoD began spending more on actual cleanup than on studies.[212] The trend is encouraging. In FY93, studies, investigations, administration, and support consumed 61% of the DERA budget, while only 39% was spent on cleanup. In FY97, this ratio improved dramatically to 32% for studies, investigation, administration, and support, and 68% for actual cleanup.[213] This turn around can be attributed to many of DoD's environmental restoration initiatives and policies.

B. STATUTORY OVERVIEW

Congress finally created the Defense Environmental Restoration Program (DERP)[215] in 1986 to address DoD's environmental cleanup responsibilities as part of the

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[211] Congress imposed a DoD goal to limit spending on administration, support, studies, and investigations under DERP by the end of FY97 to 20 percent of the Defense Environmental Restoration Account. Section 323(a) of the National Defense Authorization Act for Fiscal Year 1996. 110 Stat 186, 252.

[212] DoD Environmental Cleanup Home Page. Available on the World Wide Web at http://www.dtic.mil/envirodod/about.html.

[213] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.7. Note that in FY96 the Air Force spent 72 percent of program funds on cleanup and only 17 percent on investigations. Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.38.

[214] Note that in FY96 the Air Force spent 72 percent of program funds on cleanup and only 17 percent on investigations. Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.38.

[215] 10 U.S.C.A. §2701.

Superfund Amendments and Reauthorization Act.[216] In establishing DERP, congress mandated that the program be implemented subject to, and in a manner consistent with, section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)(42 U.S.C. 9601 et seq.).[218] The program is administered by an office within the Office of the Secretary of Defense and run in consultation with the Administrator of the Environmental Protection Agency.[219] DERP applies to all hazardous release response actions at all sites owned by, leased to, or otherwise possessed by the United States and under DoD jurisdiction, all former such sites if the contamination occurred while DoD was in control, and for each vessel owned and operated by DoD.[220] A report on the progress of the DERP must be submitted to Congress annually.[221]

Congress established the following program goals for DERP:

"(1) The identification, investigation, research and development, and cleanup of contamination from hazardous substances, pollutants, and contaminants.
(2) Correction of other environmental damage (such as detection and disposal of unexploded ordinance) which creates an imminent and substantial endangerment to the public health or welfare or to the environment.

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[216] Pub. L. No. 99-499, 100 Stat. 1613.

[217] 10 U.S.C.A. §2701.

[218] 10 U.S.C.A. §2701(a)(2).

[219] 10 U.S.C.A. §§2701(a)(3)-(4).

[220] 10 U.S.C.A. §2701(c)(1)

[221] 10 U.S.C.A. §2706(a).

(3) Demolition and removal of unsafe buildings and structures, including buildings and structures of the Department of Defense at sites formerly used by or under the jurisdiction of the Secretary."[222]

One component of DERP is the research, development, and demonstration program for hazardous wastes.[223] The purposes of the program are to find ways to reduce hazardous waste generation by DoD, develop new methods of treatment, disposal, and management of DoD's hazardous wastes, develop more cost-effective technologies to clean up hazardous contamination, collect toxicological and risk exposure data regarding DoD's hazardous wastes, and to test, evaluate, and field demonstrate innovative technology, processes, and equipment regarding the management of hazardous substances.[224] DoD is tasked with disseminating the information and technology developed under the research, development, and demonstration program.[225]

DoD's environmental restoration funds can only be used to accomplish environmental restoration functions[226] and remain available until expended.[227] In addition to amounts authorized by Congress, the appropriate environmental restoration

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[222] 10 U.S.C.A. §2701(b)

[223] 10 U.S.C.A. §2702.

[224] 10 U.S.C.A. §2702(a).

[225] 10 U.S.C.A. §2702(d)(1).

[226] The environmental restoration accounts are explicitly prohibited from the payment of fines or penalties (including any supplemental environmental project that is part of a penalty) unless the fine or penalty arises out of activity funded by the particular environmental restoration account and the payment is specifically authorized by law. 10 U.S.C.A. §2703(e).

[227] 10 U.S.C.A. §2703(b).

account is credited for any amounts recovered under CERCLA response actions[228] and any amounts recovered from contractors, insurers, sureties, or other persons as reimbursement for environmental response activities.[229]

C. DOD IMPLEMENTATION

DoD has implemented DERP through Department of Defense Instruction (DODI) 4715.7, Environmental Restoration Program.[230] The DODI states that the goal of DERP is "to reduce, in a cost-effective manner, the risks to human health and the environment attributable to contamination resulting from past DoD activities."[231] The following policies are implemented to achieve this goal:

"1. Identify, evaluate, and, where appropriate, remediate contamination resulting from past DoD activities.
2. Ensure immediate action to remove imminent threats to human health and the environment.
3. Comply with statutes, regulations, Executive Orders, and other legal requirements governing cleanup of contamination.
4. Conduct DERP and BRAC environmental restoration program activities to meet program goals as stated in the Defense Planning Guidance (DPG).
5. Develop partnerships regarding restoration activities with the U.S. Environmental Protection Agency (EPA) and appropriate State, local, and territorial regulatory agencies.
6. Promote and support public participation in the DERP and the BRAC environmental restoration program.
7. Support the development and use of cost-effective innovative technologies and process improvements in the restoration process.

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[228] See 42 U.S.C.A. §9607.

[229] 10 U.S.C.A. §2703(d).

[230] DODI 4715.7, Environmental Restoration Program, April 22, 1996, USD(A&T). In addition to DERP, this instruction also implements the Base Realignment and Closure (BRAC) environmental restoration program.

[231] DODI 4715.7, Environmental Restoration Program, April 22, 1996, USD(A&T), section D.

8. Support community reinvestment initiatives at closing and realigning installations through the selection of remedies, where practicable, that are consistent with redevelopment actions."[232]

Recent DERP initiatives include devolvement of the Defense Environmental Restoration Account (DERA),[233] implementation of the relative risk site evaluation concept, and establishment of new program goals and performance measures.[234] Devolvement divided the DERA account into five[235] separate accounts in order to improve planning and budgeting, accountability, and oversight.[236] Devolvement also increases military chain-of-command awareness of DoD's environmental restoration responsibilities and should provide better information and performance data.[237] Instead of one centralized account, DERA is now divided into accounts[238] for the Army, Navy,

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[232] *Id.*

[233] Section 322 of the National Defense Authorization Act for Fiscal Year 1997. 110 Stat 2422, 2477. In addition, Section 325 of the National Defense Authorization Act for Fiscal Year 1997 authorizes the development and implementation of land use plans at up to 10 defense sites for the Defense Environmental Restoration Program. 110 Stat 2422, 2481.

[234] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.3.

[235] Although 10 U.S.C.A. §2703(a) only establishes four environmental restoration accounts (Defense, Army, Navy, Air Force), the environmental restoration account for Formerly Used Defense Sites is established by virtue of the appropriations process. National Defense Authorization Act for Fiscal Year 1998, section 301(18), 111 Stat 1629, 1670.

[236] DERP Fact Sheet - Devolvement. Available on the World Wide Web at http://www.dtic.mil/envirodod/derpreport96/vol1/fact1.html.

[237] *Id.*

Air Force, the Formerly Used Defense Sites (FUDS) program[239], and a DoD account for the Defense Logistics Agency, the Defense Special Weapons Agency, and the Office of the Secretary of Defense.[240] Relative risk site evaluations use three factors (contaminant hazard, migration pathway, and receptors)[241] to categorize the risk posed by contaminated sites into high, medium, or low relative risk categories.[242] This method allows DoD to establish cleanup priorities that ensure the most dangerous sites receive allocation of appropriate resources first.[243] Measures of merit are used by DoD to measure progress towards the established DERP goals. The following three categories of measures of merit are used to determine program progress and effectiveness: 1) Milestones achieved, such

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[238] The National Defense Authorization Act for Fiscal Year 1998, section 301, authorized the following amounts for environmental restoration: Army - $375,337,000; Navy - $275,500,000; Air Force - $376,900,000; Defense-wide - $26,900,000; and Formerly Used Defense Sites - $202,300,000. 111 Stat 1629, 1670.

[239] The FUDS environmental restoration account is administered by the Department of the Army.

[240] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.5.

[241] The contaminant hazard factor considers how high contaminant factors are relative to appropriate standards. The migration pathway factor evaluates whether the contamination is moving or likely to move. The receptor factor considers whether people or sensitive environments are affected or potentially affected by the contamination. DERP Fact Sheet - Relative Risk Site Evaluation Framework. Available on the World Wide Web at http://www.dtic.mil/envirodod/derpreport96/vol1/fact6.html.

[242] *Id.*

[243] DoD's relative risk site evaluation program has be criticized because too many sites are categorized as high relative risk (more than one-half of evaluated sites) with no further risk distinctions made within the high relative risk category. GAO Testimony Before the Subcommittee on Military Procurement and Military Readiness, Committee on National Security, House of Representatives, by Victor S. Rezendes, Director, Energy, Resources and Science Issues, Development Division. 21 March 1996.

as interim actions taken, 2) Stage of progress at sites, such as investigation, design, cleanup, or response complete, and 3) Relative risk reduction.[244]

D. AIR FORCE IMPLEMENTATION

The Air Force has, in turn, implemented DERP through Air Force Instruction (AFI) 32-7020.[245] The Air Force's Installation Restoration Program (IRP) identifies, evaluates, and restores contaminated sites caused by past Air Force activities at active Air Force installations; government-owned, contractor-operated facilities; locations where contamination may have migrated off-site; third party sites; and sites that were formerly used or owned by the Air Force.[246] The Installation Restoration Program also encompasses toxicological data collection and the development through implementation of cost-effective innovative environmental restoration technology.[247] IRP is managed by the Air Force Major Commands (MAJCOMS) in accordance with the National Contingency Plan (NCP)[248] and the Resource Conservation and Recovery Act (RCRA) Corrective Action Process[249], as appropriate.[250] The MAJCOMS are allocated their

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[244] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.12.

[245] AFI 32-7020, The Environmental Restoration Program, 19 May 1994, Civil Engineer.

[246] *Id.* at paragraph 1.1.1.

[247] *Id.* at paragraph 1.1.2.

[248] 40 C.F.R. Part 300 - National Oil and Hazardous Substances Pollution Contingency Plan.

[249] See 42 U.S.C.A. §6928(h) and 42 U.S.C.A. §6924(v).

portion of DERA funding based on "risk-plus" factors.[251] "Risk-plus" factors include not only the site risk evaluations, but other factors such as legal issues, economic impacts, program execution, and local and state concerns.[252] The Air Force keeps track of the progress of all its IRP sites using the Work Information Management System - Environmental System (WIMS-ES).[253] Each installation is responsible for developing and implementing a Management Action Plan that sets forth its strategy and master schedule regarding the environmental restoration projects for the installation.[254] An installation Management Action Plan must directly reference the installation's land use master plan.[255] Additionally, MAJCOMS are tasked with ensuring that the IRP for each installation does not conflict with the goals and objectives of the Base Comprehensive Plan.[256]

(1) AIR FORCE DERP GOALS

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[250] AFI 32-7020, The Environmental Restoration Program, 19 May 1994, Civil Engineer, paragraph 2.2.1.

[251] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.36.

[252] *Id.* at 40.

[253] AFI 32-7020, The Environmental Restoration Program, 19 May 1994, Civil Engineer, paragraph 2.2.7.2. See AFI 32-7002, Environmental Information Management System.

[254] AFI 32-7020, The Environmental Restoration Program, 19 May 1994, Civil Engineer, paragraph 2.2.11.

[255] *Id.* at paragraph 2.2.16.1.

[256] *Id.* at paragraph 2.2.16. See AFI 32-7062, Air Force Comprehensive Planning, 1 October 1997, Civil Engineer.

The Secretary and Chief of Staff of the Air Force established the following DERP goals: "(1) sustain the readiness of the Air Force by creating the basis for a stable environmental restoration budget through the life of the program; (2) be a good neighbor by enhancing and sustaining the Air Force's credibility through effective communication, while seeking opportunities to enhance the local economic benefits of the environmental restoration program; and (3) leverage the Air Force's resources by reducing the total cost of the cleanup program through effective application of scientific, engineering, management, information, and human technologies."[257]

(2) MANAGEMENT INITIATIVES

The Air Force is not complacent with its effective cleanup program. It actively seeks innovations to improve the process. Accordingly, the Air Force has developed four management initiatives to achieve fiscally stable cleanup programs: "(1) the Work In Progress (WIP) Inventory Control Matrix, (2) the Schedule To Complete (STC), (3) Restoration Advisory Board (RAB) educational tools, and (4) improved consultation with various regulatory agencies and funding for those agencies."[258] The Work In Progress Inventory Control Matrix is a control tool used to manage the Air Force IRP. It can be used to verify that higher relative risk sites are being cleaned up quicker than lesser sites and to identify bottlenecks in the restoration process.[259] The most significant bottleneck in the cleanup process observed thus far involves the appropriate regulatory

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[257] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.40.

[258] *Id.* at 36.

agencies concurring with the Air Force's assessment that no further action is required at a significant number of sites.[260]

The Schedule To Complete is a tool used to ensure that all DoD cleanup goals are achieved.[261] Along with the WIP, the STC is used by the Air Force and appropriate regulatory agencies to reach agreement on restoration projects that account for Air Force priorities and projected funding levels.[262] One of the Restoration Advisory Board (RAB) educational tools developed by the Air Force is videos explaining the restoration process from beginning to end.[263] Highlighted are the opportunities for individuals and local citizen groups to become meaningfully involved in the cleanup process.[264] Lastly, the Air Force is attempting to improve the Cooperative Agreement process.[265] The Air Force has a stake in ensuring that state governmental agencies are adequately funded to support restoration projects through to site closeout.[266]

E. STAKEHOLDER INVOLVEMENT

One way to ensure institutional controls are observed in the long term and unsafe land uses are not allowed is to make the local citizens aware of the land use restrictions

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[259] *Id.* at 37.

[260] *Id.*

[261] *Id.*

[262] *Id.*

[263] *Id.* at 38.

[264] *Id.*

[265] *Id.*

by allowing them to participate in the process. An overarching precept of DERP is stakeholder involvement, also known as "partnering."[267] The three primary benefits of partnering have been identified as 1) more cost-effective remediation projects because of better communication and teamwork among installations, contractors, and communities, 2) reduced time delays between studies and actions, and 3) sustained program performance in the face of reduced budgets.[268] The bottom line is that local communities and states want and deserve a say in how DoD performs its cleanup responsibilities. Two of the major programs developed to encourage stakeholder involvement in DoD environmental restoration activities are the Defense State Memorandum of Agreement (DSMOA) program and Restoration Advisory Boards.

(1) DEFENSE STATE MEMORANDUM OF AGREEMENT

The DSMOA program allows states and territories to become meaningfully involved in DoD's environmental restoration program.[269] DSMOAs have been signed with Forty-three states, four territories, and the District of Columbia.[270] Cooperative

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[266] *Id.*

[267] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 1, p.4.

[268] *Id.*

[269] 10 U.S.C.A. §2701(d)(1) allows DoD to enter into agreements on a reimbursable or other basis with any state to obtain services relating to the DERP. The National Defense Authorization Act for Fiscal Year 1996 limited expenditures under this provision to $10,000,000 for FY96. 110 Stat 186, 251.

[270] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, Appendix H.

Agreements[271] (CA) have been approved for forty-two states, two territories, and the District of Columbia.[272] DSMOAs and CAs provide a mechanism for states and territories to be reimbursed for activities in support of DoD's environmental restoration program.[273] Some of the services that qualify for reimbursement under the DSMOA program included: technical review of documents or data, site visits, Technical Review Committee (TRC)[274] or Restoration Advisory Board (RAB)[275] participation, Cooperative Agreement and DSMOA preparation and administration, technical review and comment regarding site prioritization, independent quality assurance and quality control samples, and other services negotiated on a case-by-case basis.[276] However, in order to qualify, states or territories must have an approved Cooperative Agreement.[277] Since 1990, states and territories have been reimbursed more than $142.5 million under the program for qualifying services at approximately 1,000 DoD installations.[278] The executive agent for the DSMOA/CA program is the Army, acting through the Army Corps of Engineers.[279]

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[271] See 42 U.S.C.A. §9604(d)(1)

[272] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, Appendix H.

[273] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 1, p.6. Note that DSMOAs also support BRAC programs.

[274] See 10 U.S.C.A. §2705(c).

[275] See 10 U.S.C.A. §2705(d).

[276] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 2, p.11.

[277] *Id.* at 10.

(2) RESTORATION ADVISORY BOARD

While the DSMOA program focuses on state involvement, Restoration Advisory Boards (RABs)[280] empower the local stakeholders. RABs provide forums for local citizens, installations, and regulatory and governmental entities to share information, concerns, and ideas about specific DoD environmental restoration projects and they allow stakeholders to participate in the cleanup process.[281] RABs provided citizen forums at more than 250 active, closing or realigning installations, and formerly used defense sites (FUDS).[282] RAB memberships include representatives from the local community, installation, Environmental Protection Agency (EPA), and state, tribal, and local governments.[283] RABs represent diverse interests within communities with 60 percent reporting local environmental group participation, 67 percent reporting business community participation, 31 percent reporting low income/minority participation, 79

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[278] *Id.*

[279] *Id.*

[280] 10 U.S.C.A. §2705(d) allows a RAB to be established in lieu of a technical review committee (TRC) under 10 U.S.C.A. §2705(c). DoD RAB policy is to convert TRCs into RABs instead of creating a separate committee. The conversion requires the addition of a community co-chair, increased community representation, and making all the meetings open to the public. Restoration Advisory Board Implementation Guidelines, September 1994 (available on the World Wide Web at http://dtic.mil/envirodod/rab/finalrab.html).

[281] Restoration Advisory Board (RAB) Report to Congress for Fiscal Year 1996, Supplement to the Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, p.2.

[282] Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, Volume 1, p.8.

[283] DERP Fact Sheet - Restoration Advisory Boards. Available on the World Wide Web at http://www.dtic.mil/envirodod/derpreport96/vol1/fact3.html.

percent reporting local government officials as members, and 99 percent reporting local homeowner and installation resident participation.[284] RAB activities include reviewing plans and technical documents, commenting and advising on environmental restoration issues, receiving training, establishing operating procedures, reviewing relative risk site evaluations, improving credibility and establishing partnerships among stakeholders, conducting regularly announced public meetings, and educating members of the RAB and the community.[285] RABs are eligible for funding from the appropriate environmental restoration account.[286] Through the use of "partnering," DoD has streamlined the environmental restoration process by incorporating state and local concerns into the decision making process at an early stage.

It should now be unquestionably clear that DoD is committed, with the participation of local citizens, to cleaning up environmental contamination caused by its past practices. Now that DoD's commitment to the environment has been established through DoD's overall environmental policy and DERP, the Air Force's capability to realize this commitment in the context of environmental remediation institutional controls will be examined.

VI. AIR FORCE COMPREHENSIVE PLANNING

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[284] Restoration Advisory Board (RAB) Report to Congress for Fiscal Year 1996, Supplement to the Defense Environmental Restoration Program Annual Report to Congress for Fiscal Year 1996, p.10.

[285] *Id.* at 11.

[286] 10 U.S.C.A. §2705(d)(3). In FY96, Congress limited the amount available under DERA for RABs to $6,000,000. Section 324 of the National Defense Authorization Act for Fiscal Year 1996. 110 Stat.186, 254.

Land use planning on Air Force installations is governed by Air Force Instruction 32-7062, Air Force Comprehensive Planning.[287] The instruction sets forth "(t)he ongoing, iterative, participatory process addressing the full range of issues affecting or affected by an installations development. Through this process, goals and objectives are defined, issues are identified, information is gathered, alternative solutions are developed, and a sound decision-making process is employed to select a preferred alternative for implementation."[288] The Air Force Comprehensive Planning Program also furthers the national policies declared by the National Environmental Policy Act (NEPA)[289] to "improve and coordinate plans, and to use the physical and social sciences in planning and decision-making."[290] It should be noted that compliance with Air Force Instructions is mandatory and violations are punishable under the Uniform Code of Military Justice or the appropriate civil service regulations.

The responsibilities for managing the Air Force Comprehensive Planning Program run from the Assistant Secretary of the Air Force for Manpower, Reserve Affairs, Installations, and Environment (SAF/MI), through Headquarters USAF Civil Engineer (HQ USAF/ILE), the major commands, to the individual installation commanders.[291]

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[287] AFI 32-7062, Air Force Comprehensive Planning, 1 October 1997, Civil Engineer.

[288] *Id.* at Attachment 1.

[289] 42 U.S.C.A. §§ 4321 - 4370d.

[290] AFI 32-7062, Air Force Comprehensive Planning, 1 October 1997, Civil Engineer, 1.1.

[291] AFI 32-7062, Air Force Comprehensive Planning, 1 October 1997, Civil Engineer, 1.3.

Planning guidance and technical support is provided by Headquarters Air Force Center for Environmental Excellence (HQ AFCEE)[292] and the Headquarters Air Force Civil Engineer Support Agency (HQ AFCESA).[293] The installation commanders have the initial responsibility to ensure appropriate comprehensive planning documents are prepared, maintained, and properly used and they are the approval authorities for the installation General Plan.[294]

Air Force comprehensive planning creates a systematic method for decision makers regarding the development of Air Force Installations.[295] "It incorporates Air Force programs such as operational, environmental, urban planning, and others, to identify and assess development alternatives and ensure compliance with applicable federal, state and local laws, regulations, and policies."[296] The Comprehensive Plan[297] consists of documents and graphics distilled from other Air Force plans and programs

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[292] *Id.* at 1.3.4.1.

[293] *Id.* at 1.3.4.2.

[294] *Id.* at 1.3.6.

[295] *Id.* at 2.1.

[296] *Id.*

[297] A Comprehensive Plan is defined as "(t)he combination of the General Plan, Component Plans, Special Plans and Studies, and Maps that document a wide range of information necessary for decision making. It encompasses those specific resource documents and processes determined to be essential to planning and managing an installation's physical assets in support of the mission. The comprehensive plan is the all-encompassing description of the products, whereas comprehensive planning is the action associated with the process and implementation." *Id.* at Attachment 1.

that address the development and management of Air Force lands, facilities, and resources.[298]

A. COMPONENTS OF A COMPREHENSIVE PLAN

(1) THE GENERAL PLAN

The Comprehensive Plan has four fundamental parts -- the General Plan, Component Plans, Special Plans and Studies, and Maps.[299] The installation General Plan[300] is a "decision-makers summary document" that provides information at an appropriate condensed level of detail in the form of text, maps, plan graphics, and photographs to portray the installation's structure and development potential.[301] All major installations are required to develop and maintain a General Plan[302] and to review its accuracy annually.[303] Air Force-wide consistency of comprehensive planning documents is ensure by the Master Statement of Work and the General Plan Template and Guide.[304]

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[298] *Id.* at 2.2

[299] *Id.* at 2.3.

[300] A General Plan is defined as "(t)he document that provides the installation commander and other decision-makers a condensed picture of an installation's capability to support the mission with its physical assets and delivery systems. It is a general assessment of the installation's infrastructure and attributes for the purpose of gauging development potential." *Id.* at Attachment 1.

[301] *Id.* at 2.3.1.

[302] *Id.*

[303] *Id.* at 2.6.

(2) COMPONENT PLANS

There are four types of Component Plans[305] and they provide detailed information on specific functional areas -- Composite Constraints and Opportunities, Infrastructure, Land Use and Transportation, and Capital Improvements Program.[306] The Composite Constraints and Opportunities Plan highlights areas that have restricted development potential because of various constraints such as environmental quality issues, natural and cultural resources, airspace restrictions, and safety issues.[307] This plan supports compliance with environmental regulatory requirements.[308] In addition to the appropriate maps, the Composite Constraints and Opportunities Plan appears to be the most appropriate mechanism to document institutional controls. The Infrastructure Plan is a macro view of the installation that includes a consolidated graphic presentation of the facility's infrastructure and utility systems and describes their current conditions and capacities.[309] The Land Use and Transportation Plan defines the process of determining

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[304] *Id.* at 2.4 and 2.5. In addition, the Air Force publishes numerous planning bulletins, instructions, regulations, manuals, pamphlets, handbooks, and guidance regarding the development of Comprehensive Planning documents and the Air Force Comprehensive Planning Program. Some of these include Land Use Planning (AFP 86-7), Utility Systems Planning, Long Range Facilities Development Planning, Environmental Quality Protection Planning, and Area Development Planning. *Id.* at Attachment 2.

[305] A Component Plan is defined as "a detailed document comprised of graphics, textual data, and narrative that focuses on functional areas that support the General Plan and the overall comprehensive planning effort." *Id.* at Attachment 1.

[306] *Id.* at 2.3.2.

[307] *Id.* at A4.1.

[308] *Id.*

[309] *Id.* at A4.2.

future land use by analyzing the functional relationship between all installation activities.[310] The future land use plan governs the future development of the installation.[311] The Capital Improvements Program Plan "(i)ntegrates all the primary elements of traditional physical planning, current land use, vicinity land use, existing base layout and facilities, existing transportation systems, and each of the corresponding future plans into one document."[312] It focuses on and integrates all projects that have been programmed or approved for funding by the various funding sources.[313]

(3) SPECIAL PLANS AND STUDIES

The third part of a Comprehensive Plan is Special Plans and Studies. Special Plans and Studies are a compilation of the information, graphics, and reports that are mandated by other Air Force programs such as Air Installation Compatible Use Zone Studies, Integrated Natural Resource Management Plans, Housing Community Plans, Air Quality Studies, and Transportation Studies.[314]

(4) MAPS

Maps[315] are the fourth part of a Comprehensive Plan and they are simply a visual depiction of the narrative in the General Plan.[316] Maps are divided into the following

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[310] *Id.* at A4.3.

[311] *Id.*

[312] *Id.* at A4.4.

[313] *Id.*

[314] *Id.* at 2.3.3.

detailed subject areas: Areas of Critical Concern,[317] Management Areas,[318] Environmental Regulatory,[319] Environmental Emissions,[320] Layout and Vicinity Maps, Land Use Planning,[321] Airfield Operations, Air Installation Compatible Use Zone, Utilities System Plan,[322] Communications and NAVAID Systems, Transportation System,

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[315] A Map is defined as "a graphic representation, usually on a plane surface, and at an established scale, of natural or built features on the earth surface, that generally encompasses the installation, surrounding area, and region. The features are positioned relative to a coordinate reference system. Maps in most cases will be computer generated. Maps support the General Plan, Component Plans, and Special Plans and Studies." *Id.* at Attachment 1.

[316] *Id.* at 2.3.4.

[317] Areas of Critical Concern include historic preservation and archeology; threatened and endangered species; wetlands and floodplains; state coastal zones; lakes, rivers, streams, and waterbodies; and soil borings and soil types. *Id.* at Attachment 7.

[318] Management Areas include geology, including surface features; topography and physiology; hydrology; vegetation types; forest (commercial timber); agricultural grazing/crops; fish and wildlife; prime and unique soils; grounds categories; climate and weather; bird aircraft strike hazard; outdoor recreation; and pest management. *Id.*

[319] Environmental Regulatory includes hazardous waste generation points, permitted hazardous facilities, solid waste generation points, solid waste disposal locations, fuel storage tanks, and Installation Restoration Program. *Id.*

[320] Environmental Emissions include air emission, waste water NPDES discharge, storm water NPDES discharge, drinking water supply sources, electromagnetic and radiation sources, and radon sources. *Id.*

[321] Land Use Planning includes existing land use plan, future land use plan, off-base sites land use, off-base sites future land use, vicinity existing land use, vicinity existing zoning, real estate, composite installation constraints and opportunities, functional relationship, explosive safety quantity-distance, hazard analysis constraints, and area development plan. *Id.*

[322] The Utilities System Plan includes water supply system, sanitary sewerage system, storm drainage system, electrical distribution system (street and airfield), central heating and cooling system, natural gas distribution system, liquid fuel system, cathodic protection system, cathodic protection system details, industrial waste and drain system,

Energy Plan, Architectural Compatibility, Landscape Development, Future Development Plans, Fire Protection, and Contingency Planning.[323]

B. SITE PLANNING REQUIREMENTS

The Air Force Comprehensive Planning Instruction also sets forth specific site planning requirements.[324] Air Force policy requires the management of "the lands, facilities, and resources under Air Force control in a manner that provides maximum mission effectiveness"[325]while recognizing the "importance of conservation of resources, preservation of the quality of the natural and human environment, cost effectiveness, personnel safety, and functional efficiency."[326] Specifically addressed are explosives safety siting, airfield and heliport planning criteria, environmental siting constraints, security, and urban planning and design standards and requirements.[327] In particular, some environmental siting constraints considered are buildings and archeological sites on or eligible for the National Register of Historic Places, wetlands, natural resources, threatened and endangered species habitats, noise, and environmentally-impacted sites.[328]

C. INTEGRATION OF THE BASE COMPREHENSIVE PLAN

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composite utility system constraints, central aircraft support system, and other utility systems. *Id.*

[323] *Id.*

[324] AFI 32-7062, Air Force Comprehensive Planning, 1 October 1997, Civil Engineer, Chapter 3.

[325] *Id.* at 3.1.

[326] *Id.*

[327] *Id.* at 3.1.1-3.2.

It is not enough that the Air Force has a program for base comprehensive planning. The best Base Comprehensive Plan could be rendered virtually useless unless there is a mechanism in place to advertise its existence and direct is use. The Air Force has exactly such a mechanism. Through the numerous Air Force Instructions that cover virtually every installation activity, personnel are constantly directed to reference the Base Comprehensive Plan when appropriate. The following discussion covers some examples of how the Base Comprehensive Plan is incorporated into day-to-day Air Force activities.

Major Commands are required to ensure that Installation Restoration Programs are consistent and compatible with the Base Comprehensive Plans.[329] Also, the Management Action Plans must directly reference the installation's land use plan and the Installation Restoration Program databases must be compatible with other natural resource databases that are incorporated into the Base Comprehensive Plan database.[330]

Installations must develop a housing community plan to construct, replace, maintain, improve, and repair family housing facilities.[331] One of the requirements for this plan is the inclusion of the land use plans as defined by the Base Comprehensive Plan.[332]

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[328] *Id.* at 3.1.3.

[329] AFI 32-7020, The Environmental Restoration Program, 19 May 1994, Civil Engineer, 2.2.16.

[330] *Id.* at 2.2.16.1 and 2.2.16.2.

[331] This requirement applies to bases with more than 100 housing units. AFI 32-6002, Family Housing Planning, Programming, Design, and Construction, 12 May 1994, Civil Engineer, 1.3.4.

[332] *Id.*

Planners and programmers for Air Force construction projects must ensure that there are no land use restrictions impacting the project and the siting and construction will not adversely affect Installation Restoration Program activities.[333] In fact, the Certificate of Compliance for Critical Planning Actions must specifically address compatibility with the Base Comprehensive Plan land use category.[334] The Air Force Instruction that covers the design and construction standards and the execution of facility construction projects also refers to the Base Comprehensive Plan.[335] The Major Command Civil Engineer, as well as the Base Civil Engineer, are required to ensure compliance and conformance with the Base Comprehensive Plan.[336] Simply put, all facility construction projects must be consistent with the Base Comprehensive Plan.[337] Moreover, changes in the use of Air Force facilities must also be consistent with the Base Comprehensive Plan.[338]

Air Force compliance with the National Environmental Policy Act (NEPA)[339] is governed by the Environmental Impact Analysis Process.[340] The Environmental Analysis

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[333] AFI 32-1021, Planning and Programming of Facility Construction Projects, 12 May 1994, Civil Engineering, 2.1.12.

[334] AFI 32-1021, Planning and Programming of Facility Construction Projects, 12 May 1994, Civil Engineering, Chapter 2.

[335] AFI 32-1023, Design and Construction Standards and Execution of Facility Construction Projects, 19 July 1994, Civil Engineering, 4.2.1, 4.2.2.

[336] *Id.* at 4.1.2.4, 5.25, and 5.27.

[337] AFI 32-1022, Planning and Programming Nonappropriated Fund Facility Construction Projects, 29 June 1994, Civil Engineering, 2.4; AFI 32-1021, Planning and Programming of Facility Construction Projects, 12 May 1994, Civil Engineering, 2.1.17.

[338] AFI 32-9002, Use of Real Property Facilities, 15 April 1994, Civil Engineering, 2.4.

Impact Process requires the integration of the Base Comprehensive Plan with the requirements of NEPA and analyzes the environmental impacts that could result from proposals in the Base Comprehensive Plan.[341]

Air Force Integrated Natural Resource Management Plans (INRMPs)[342] also interface with Base Comprehensive Planning. INRMPs highlight natural resource constraints for future land use planning in the Base General Plan[343] and use a geographic information system database that is compatible with the Base Comprehensive Plan.[344] The INRMP also explains how the plan integrates with the base comprehensive planning process and discusses how it interfaces with the Base General Plan.[345]

Additionally, installation bioenvironmental engineers are directed to ensure that environmental constraints are identified in Base Comprehensive Plans.[346] Command, Control, Communications, and Computer (C4) systems planners are required to review

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[339] 42 U.S.C.A. §§ 4321 - 4370d.

[340] AFI 32-7061, The Environmental Impact Analysis Process, 24 January 1995, Civil Engineering.

[341] *Id.* at 2.8.2.

[342] Integrated Natural Resource Management Plan is a "natural resources management plan based on ecosystem management that shows the interrelationships of the individual component plans as well as mission and land use activities affecting the basic land management plans. AFI 32-7064, Integrated Natural Resources Management, 1 August 1997, Civil Engineering, Glossary.

[343] *Id.* at 2.3.2.

[344] *Id.* at 2.5.2.

[345] *Id.* at Attachment 2, A.2 and F.11.

the Base Comprehensive Plan regarding the installation's C4 infrastructure.[347] The Air Installation Compatible Use Zone Program also interfaces with the Base Comprehensive Plans.[348]

If you get the feeling that the Base Comprehensive Plan is integrated into virtually all activities on Air Force installations, you right. Even though the Base Comprehensive Plan is the mechanism to successfully implement institutional controls at active installations, that still leaves the issue of what happens when the property is transferred out of Air Force control. As the next section will explain, the Air Force has this situation covered also.

D. TRANSFER OF PROPERTY IMPACTED BY INSTITUTIONAL CONTROLS

The three primary Air Force Instructions regarding real property transfers cover disposal of real property,[349] granting temporary use of Air Force real property,[350] and Environmental Baseline Surveys.[351]

(1) DISPOSAL OF REAL PROPERTY

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[346] AFI 48-119, Medical Service Environmental Quality Programs, 25 July 1994, Aerospace Medicine, 10.3.

[347] AFI 33-104, Hbase-Level Planning and Implementation, 1 August 1996, Communications and Information, 3.8.7.

[348] AFI 32-7063, Air Installation Compatible Use Zone Program, 31 March 1994, Civil Engineering, Preface.

[349] AFI 32-9004, Disposal of Real Property, 21 July 1994, Civil Engineering.

[350] AFI 32-9003, Granting Temporary Use of Air Force Real Property, 19 August 1997, Civil Engineering.

When the Air Force disposes of its excess real property, the real estate office notifies the environmental office as soon as possible so that all of the environmental requirements can be satisfied, including the Environmental Impact Analysis Process (EIAP)[352] and the Environmental Baseline Survey (EBS).[353] The EIAP and EBS both require integration of the Base Comprehensive Plan. In addition to the EIAP and EBS, real estate transaction packages must include, among other documents, a Notice of Contamination or Finding of No Contamination,[354] a description of past and current uses of the property,[355] and identification of any interests that the Air Force plans to retain.[356] As a further safeguard, the installation must forward the real estate transaction package to its Major Command where the environmental office reviews and approves the required environmental documents prior to further processing.[357]

(2) TEMPORARY USE OF REAL PROPERTY

Air Force grants of temporary use of real property (leases, easements, permits, and other such agreements) must be compatible with safety.[358] Among other requirements,

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[351] AFI 32-7066, Environmental Baseline Surveys in Real Estate Transactions, 25 April 1994, Civil Engineer.

[352] This is the Air Force's NEPA process.

[353] AFI 32-9004, Disposal of Real Property, 21 July 1994, Civil Engineering, 1.7.

[354] *Id.* at A2.1.4.

[355] *Id.* at A2.5.

[356] *Id.* at A2.12. This could include negative easements or other land use restrictions.

[357] *Id.* at A2.1.

outgrant requests must include identification of special conditions, limitations, or restrictions on use and occupancy,[359] a statement that the real property is safe and, if not, why the outgrant should be approved in spite of the contamination,[360] an EIAP report,[361] and an EBS.[362] As with real property disposals, outgrant requests are reviewed and approved by the installation's Major Command.[363]

(3) ENVIRONMENTAL BASELINE SURVEY

The Air Force conducts Environmental Baseline Surveys for real estate transactions regarding all real property identified for acquisition, outgrant, or disposal.[364] Environmental Baseline Surveys document the nature, magnitude, and extent of any environmental contamination of these properties and serve as the basis for the notice of environmental condition when required under CERCLA section 120(h)(1).[365] The Environmental Baseline Surveys are required to incorporate relevant information from

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[358] AFI 32-9003, Granting Temporary Use of Air Force Real Property, 19 August 1997, Civil Engineering, 1.1.

[359] *Id.* at 1.8.5.

[360] *Id.* at 1.8.7.

[361] *Id.* at 1.8.9 and 1.18.2.

[362] *Id.* at 1.8.9.1, 1.17.1, and 1.18.2.

[363] *Id.* at 1.8.

[364] AFI 32-7066, Environmental Baseline Surveys in Real Estate Transactions, 25 April 1994, Civil Engineer, 1.4.

[365] *Id.* at 1.1. CERCLA section 120(h)(1) provides in part that "any contract for the sale or other transfer of real property which is owned by the United States and on which any hazardous substance was stored for one year or more, known to have been released, or disposed of" shall include a proper notice of the surrounding facts.

Base Comprehensive Plans, as well as other land use information.[366] The state regulatory agencies must concur with Environmental Baseline Surveys and, in the case of National Priorities List sites, so must the EPA.[367]

(4) DOD POLICY

In addition to the three Air Force Instructions just described, it is DoD policy to "ensure that transfer documents for real property being transferred out of federal control reflect the use restrictions and enforcement mechanisms specified in the remedy decision document."[368] It should now be clear that it is highly unlikely that the Air Force could transfer any of its real property without the protections of any required institutional controls being made a condition of the transaction.

VII. RECENT DEVELOPMENTS

Two recent examples illustrated how federal and state regulators treat the issue of using institutional controls in remedial actions at federal facilities. The first is the Institutional Control Protocol at Open Bases developed by the California Military Environmental Coordination Committee (CMECC) Site Cleanup Performance Action Team. The second is the EPA Region IV Federal Facilities Branch policy[369] on assuring land use controls at federal facilities.

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366 *Id.* at 2.1.1.1.

367 AFI 32-9004, Disposal of Real Property, 21 July 1994, Civil Engineering, 1.7.4., A2.1.3.

368 Under Secretary of Defense Memorandum, Responsibility for Additional Environmental Cleanup after Transfer of Real Property, July 25, 1997.

A. THE INSTITUTIONAL CONTROL PROTOCOL AT OPEN BASES

The Institutional Control Protocol at Open Bases was developed by a multi-agency working group, comprised of representatives of EPA Region IX, California regulatory agencies, and the military services in California, and marks the first time that environmental cleanup institutional controls at active installations have been addressed on a statewide and multi-service basis.[370] The protocol recognizes that institutional controls maybe necessary to "guarantee that the public and the environment are fully protected from residual hazardous substances during and after remediation, particularly where the cleanup levels or containment remedies are not compatible with unrestricted use."[371] It acknowledges that the "Base Master Plan"[372] is the most appropriate mechanism for implementing institutional controls with the caveat that the DoD Installation and the regulatory agencies must verify that the existing process for land use planning and project approval must contain sufficient references to the Base Master Plan and effective checks and balances to ensure long-term adherence to the institutional

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[369] Memorandum from Jon D. Johnson, Chief Federal Facilities Branch EPA Region IV, To Federal Facilities Branch, Subject: Assuring Land Use Controls at Federal Facilities, April 21, 1998.

[370] Electronic mail from Paul D. McHugh, SAF/MIIT, to Prof. Larry Hourcle', Subject: Land Use Controls, 5 Jan 1998, containing an article entitled "Multi-Agency Group Develops Active Base Institutional Controls Guidance."

[371] Institutional Control Protocol at Open Bases, Prepared by California Military Environmental Coordination Committee (CMECC) Site Cleanup Performance Action Team, para. 2.

[372] A "Base Master Plan" is the same thing as the Air Force's Base Comprehensive Plans.

controls.[373] The protocol also mentions that a Memorandum of Agreement (MOA) between the DoD installation and regulatory agencies may be another option for implementing institutional controls.[374]

The following is a summary of the protocol provisions[375] that CMECC recommends should be incorporated at active DoD installations:

1. Institutional controls should be included as part of response actions when necessary to protect human health or the environment or to ensure protectiveness of a remedy.

2. The type of institutional controls and reasons they are necessary should be thoroughly explained in the Record of Decision (ROD).

3. Construction of permanent warning markers at the site, such as concrete landmarks and signs, should also be considered as part of institutional control implementation.

4. The DoD installation and regulatory agencies must verify that the Base Master Plan will be an effective mechanism for recording and implementing institutional controls.

5. The language in the Base Master Plan should explain the institutional control and specify what activities are not allowed at the site. The boundaries of the site should be surveyed and recorded on the appropriate base maps. The ROD should require the installation to provide notice to regulatory agencies with proof that the institutional controls are recorded in the Base Master Plan.

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[373] Institutional Control Protocol at Open Bases, Prepared by California Military Environmental Coordination Committee (CMECC) Site Cleanup Performance Action Team, para. 3.

[374] *Id.* at para. 4.

[375] *Id.* at para 5, 1-8.

6. The ROD should require installations to notify and seek concurrence from regulatory agencies prior to any anticipated major land use changes. Major land use changes are defined as changes in land use that are inconsistent with the exposure assumptions in the risk assessment, any activity that may negate the protectiveness of the remedial action, or any other action that may alter or alleviate the necessity of institutional controls.

7. The ROD should require the installation to inspect institutional controls through the CERCLA 5-year review process. At this time, minor land use changes should also be reported to regulatory agencies.

8. The ROD should require installations to notify regulatory agencies whenever sites subject to institutional controls are expected to be transferred and such controls should be established as restrictions on the property when transferred.[376]

The Institutional Control Protocol at Open Bases is comprehensive and, with the recognition of the comprehensive base master planning process, it balances the need to ensure long-term effectiveness of institutional controls with the efficient use of limited DoD resources. The next example is an illustration of where the EPA was a bit more heavy handed.

B. EPA REGION IV LAND USE CONTROL ASSURANCE POLICY

EPA Region IV Federal Facilities Branch policy on assuring land use controls[377] at federal facilities requires the creation of Land Use Control Assurance Plans (LUCAPs)

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[376] It should be noted that it is already DoD policy to require transfer documents transferring real property out of federal control to establish land use restrictions and enforcement mechanisms that will assure continued effectiveness of any remedial action. Under Secretary of Defense Memorandum, Responsibility for Additional Environmental Cleanup after Transfer of Real Property, July 25, 1997.

and Land Use Control Implementation Plans (LUCIPs).[378] A LUCAP "is a written installation-wide plan that sets out the procedure to assure LUCs remain effective over the long-term for all areas at the particular installation where they are required."[379] A LUCIP "is a written plan, normally developed after a decision document has required one or more LUCs for some particular area (operable unit, contaminated unit, and/or solid waste management unit) which 1) identifies each LUC objective for that area (e.g., to restrict public access to the area for recreational use) and 2) specifies those actions required to achieve each identified objective (e.g., install/maintain a fence, post warning signs, record notice in deed records)."[380] The policy suggests that LUCAPs be documented in a Memorandum of Agreement[381] or Federal Facilities Agreement between the installation, EPA, and state.[382] It also recommends that the Base Master Plan reference the LUCAP.[383]

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[377] EPA Region IV defines "land use controls" very broadly with "institutional controls" as a subset of "land use controls." On the other hand, this paper uses the term "institutional controls" very broadly and is consistent with the Draft EPA Institutional Controls Handbook, 2/14/97.

[378] Memorandum from Jon D. Johnson, Chief Federal Facilities Branch EPA Region IV, To Federal Facilities Branch, Subject: Assuring Land Use Controls at Federal Facilities, April 21, 1998, Section I.

[379] *Id.* at Section II.

[380] *Id.*

[381] The EPA, Florida Department of Environmental Protection, and Navy have recently developed a Memorandum of Agreement under Region IV's new land use control assurance policy regarding the Jacksonville Naval Base.

The Region IV policy sets forth the following minimum requirements for LUCAPs:[384]

1) Any time land use controls are selected as part of a remedial action, a LUCIP must be developed, approved, and incorporated into the LUCAP.

2) The installation office that is responsible for the LUCAP and the monitoring, maintaining, and enforcing the specific land use controls must be identified.

3) Federal facilities must request funds for maintaining the LUCs in the budget allocation process.

4) Quarterly on-site inspections of the LUCs during the remediation period are required, unless otherwise approved in the LUCIP.

5) Federal facilities must properly notify and seek written concurrence from the EPA and state regulators when major land use changes are anticipated.

6) Annual field inspections are required to assure current land uses at the LUC impacted sites are consistent with the LUCs.

7) A designated installation official must certify an annual report to the EPA and state regulators that the installation is in compliance with the site-specific LUCIPs. The annual report will also give notification of minor land use changes and changes in the designated installation official.

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[382] Memorandum from Jon D. Johnson, Chief Federal Facilities Branch EPA Region IV, To Federal Facilities Branch, Subject: Assuring Land Use Controls at Federal Facilities, April 21, 1998, Section IV.A.

[383] *Id.*

[384] *Id.* at Section IV.A1-9.

8) EPA and the state must be immediately notified upon discovery of an unauthorized major land use change or activities inconsistent with the LUCIP. The installation must address what corrective measures are planned.

9) EPA and the state must be notified of any anticipated transfers, by sale or lease, of sites impacted by LUCs to assure appropriate measures are taken to continue the protectiveness of the remedial action.

The Region IV policy also requires that decision documents that incorporate LUCs must specify the general land use designation, current and future land use exposure assumptions, the LUC objectives and measures to achieve those objectives, and a requirement to develop a site-specific LUCIP.[385]

The LUCAP/LUCIP process has been criticized as redundant and cumbersome where installations have Base Comprehensive Plans that can already assure the reliability and long-term effectiveness of land use controls.[386]

VIII. RECOMMENDATIONS

Although the Air Force base land use planning and project approval processes are capable of ensuring the long-term viability of institutional controls, a few additional checks and balances can be incorporated into various Air Force Instructions. Since the Base Comprehensive Plan (General Plan) is thoroughly incorporated into day-to-day installation processes, the following recommendations generally take the form of

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[385] *Id.* at Section IV.B.

[386] Memorandum from Air Force Regional Environmental Office, Eastern Region, To Mr. Jon Johnson, Chief Federal Facilities Branch EPA Region IV, Subject: Region IV's Draft Policy on the Use of Land Use Restrictions at Federal Facilities, 29 Jan 98, 1.b.

language to highlight the importance of specifically checking for and ensuring institutional controls.

1) AFI 32-7062, Air Force Comprehensive Planning[387] - Environmental restoration institutional controls can be added as a separate subject to the list of map and plan graphics at Attachment 7, A-1 Areas of Critical Concern and B-1 Environmental Regulatory. Also, institutional controls should be added to areas considered in the Composite Constraints & Opportunities Plan as described by paragraph A4.1.

2) AFI 32-7020, The Environmental Restoration Program[388] - A paragraph requiring the consideration of institutional controls and an explanation of their benefits should be added after paragraph 2.2.3.2. The discussion of Management Action Plans at paragraph 2.2.11 can specifically require the documentation of environmental restoration institutional controls as part of the installation's consolidated strategy.

3) AFI 32-1021, Planning and Programming of Facility Construction Projects[389] - The Certificate of Compliance for Critical Planning Actions in Chapter 2 already has checklist item number 17 to certify that the site is compatible with the land use category specified in the Base Comprehensive Plan. However, an additional checklist item can be added to certify compatibility with and enforcement of existing institutional controls. Additionally, paragraph 2.1.12 can be reworded as follows: "Installations must make sure

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[387] AFI 32-7062, Air Force Comprehensive Planning, 1 October 1997, Civil Engineer.

[388] AFI 32-7020, The Environmental Restoration Program, 19 May 1994, Civil Engineer.

[389] AFI 32-1021, Planning and Programming of Facility Construction Projects, 12 May 1994, Civil Engineering.

that siting and construction will not adversely affect IRP activities and there are no land use constraints, such as institutional controls, impacting siting or construction."

4) AFI 32-9002, Use of Real Property Facilities[390] - One of the required criteria for changes in the use of facilities in paragraph 2.4 is that the change must be consistent with the Base Comprehensive Plan. A caveat can be added after this item to require an affirmative action to check for institutional controls that might prohibit the proposed change.

5) AFI 32-7066, Environmental Baseline Surveys in Real Estate Transactions[391] - Paragraph 2.1.1.1 of this instruction requires the review of all relevant Air Force, federal, regulatory agency, state and local government studies and records. The list includes the Base Comprehensive Plan, environmental impact analysis documents, bioenvironmental engineering case files, Environmental Compliance Assessment and Management Program reports, Installation Restoration Program studies, and real property records or other available documents to ascertain prior land uses that involved hazardous substances or may have otherwise contaminated the property. Although the list is already quite comprehensive and will likely lead to the detection of any institutional controls, a specific reference that requires the search for environmental restoration institutional controls might be added.

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[390] AFI 32-9002, Use of Real Property Facilities, 15 April 1994, Civil Engineering.

[391] AFI 32-7066, Environmental Baseline Surveys in Real Estate Transactions, 25 April 1994, Civil Engineer.

6) AFI 32-7061, The Environmental Impact Analysis Process[392] - Paragraph 2.8.2 requires the integration of base comprehensive planning with the requirements of the EIAP and NEPA process. However, language should be added to require the EIAP to review the Base Comprehensive Plan. Specifically, the following language could be included at the end of paragraph 2.8.2: "Conversely, the EPF must also review the Base Comprehensive Plan during the EIAP to ensure environmental constraints, such as institutional controls, are properly addressed."

7) AFI 32-9004, Disposal of Real Property[393] - Attachment 2 requires Declaration of Excess packages to include a comprehensive list of environmental documents and information that would encompass institutional controls. However, once again specific requirements to document institutional controls can be added to paragraphs A2.5 (Present Use) and A2.12 (Future Use).

8) AFI 32-7045, Environmental Compliance Assessment and Management Program[394] - The Environmental Compliance Assessment and Management Program is used to periodically inspect Air Force installations for environmental compliance by conducting record searches, interviews, and site surveys. The instruction could require the compliance checklist (AF Forms 1954, Environmental Compliance Requirement) to

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[392] AFI 32-7061, The Environmental Impact Analysis Process, 24 January 1995, Civil Engineering.

[393] AFI 32-9004, Disposal of Real Property, 21 July 1994, Civil Engineering.

[394] AFI 32-7045, Environmental Compliance Assessment and Management Program, 5 April 1994, Civil Engineering.

include a section that specifically verifies compliance with environmental restoration institutional controls.

9) Lastly, Records of Decision implementing institutional controls at Air Force installations should also require the that sites be permanently marked in some manner (e.g., concrete posts with signs, fences, etc.) to visually warn personnel of the danger.

These recommendations should not be construed to suggest that the current Air Force processes are inadequate to ensure long-term reliability of institutional controls. They are merely suggested as additional checks and balances on the system to prevent the unintentional lapse of an institutional control.

IX. CONCLUSION

Institutional controls that establish land use restrictions to limit or prohibit exposure to contamination at Superfund sites are becoming increasingly important as a means to reduce the unjustified costs of unnecessary environmental remediation. They allow contamination to be left in place while providing the required protectiveness consistent with the future land use of the site. The Air Force should take advantage of these tools to ensure the taxpayers' limited dollars are spent in a wise and justified manner. As evidenced by DoD's overall environmental policy and the Defense Environmental Restoration Program, the Air Force is committed to achieving and maintaining a clean and safe environment. The Air Force is also capable of ensuring the long-term adherence to institutional controls through the base comprehensive planning and project approval processes. The required establishment of additional programs specifically designed to address institutional controls is redundant and wasteful. While I'm not a fan of fixing a system that is not broke, the recommendations herein can be used

as additional checks and balances to make certain that institutional controls are not forgotten in the years to come.