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A Cough in the Water¹: Revisiting Natural Resource Restoration Under Superfund

by Selena Kyle

Editors' Summary: Under CERCLA's natural resource damage provision, trustees may recover money damages from polluters. While the money is to be used to restore the damaged resources, trustees have flexible spending guidelines which have led to diverting funds to areas unaffected by the immediate release or overspending on administrative costs. This author queries whether the implementation of the provision could be more effective by restricting trustee spending, creating a Superfund-type trust fund, or increasing the public and judicial scrutiny of trustees.

I. Introduction

This Article is about what happens when environmental litigation ends and environmental restoration begins. It analyzes this question through the natural resource damage (NRD) provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),² better known as Superfund. CERCLA's NRD provisions allow government agencies and tribes, acting as public trustees, to recover money damages from polluters of the natural environment. NRD recoveries, unlike standard civil environmental penalties, may only be used to restore or replace these damaged resources.

There is already an extensive body of legal writing on NRD litigation. By contrast, there is virtually no writing on NRD *implementation*: how trustees have chosen to manage restorations, and the implications of their choices. There are real consequences to this information gap. From a strategy and public resource perspective, it is difficult to assess the merits of NRD litigation. Deterrence considerations aside, why seek damages without assurance that the underlying resources will be restored? From a legislative policy perspective, it makes it difficult to evaluate the merits of the statute and regulations themselves. Have CERCLA's NRD provi-

sions lived up to their promise? Should they be preserved, or (as some have urged) abandoned or drastically overhauled?

This is an especially good time to consider such questions. To date, trustee actions under the NRD provisions have been dwarfed by actions by the U.S. Environmental Protection Agency (EPA) under CERCLA's better-known remediation provisions. There are over 1,500 remediation sites on EPA's national priorities list (NPL),³ and nearly 900 NPL remedial actions have already been completed.⁴ By comparison, one expert estimates that federal, state, and tribal trustees have brought only a few hundred NRD claims nationwide.⁵ However, NRD activity could increase significantly in coming years, as would-be trustees respond to regulatory clarifications, additional cleanups, and a recent spate of large NRD recoveries.⁶ A few commentators fore-

Selena Kyle is a law clerk to the Hon. Susan J. Dlott, U.S. District Judge for the Southern District of Ohio. She received her J.D. from Stanford Law School in 2005, and a B.A. from Stanford University in 2000. The author is grateful to Meg Caldwell, Michelle Friedland, Gerald George, John Lyons, Craig Martz, Buzz Thompson, Dan Welsh, and the editorial staff of the *Environmental Law Reporter* for their input and support. She also thanks the sponsors of the 2005 Olaus and Adolph Murie Award in Environmental Law for their recognition of this research.

1. The title references a lyric from Son Volt's *Ten Second News*, a beautiful song about a Superfund site. SON VOLT, *Ten Second News*, on TRACE (Warner Bros. 1995) ("There's a cough in the water/and it's running into town.").

2. 42 U.S.C. §§9601-9675, ELR STAT. CERCLA §§101-405.

3. FINAL REPORT OF THE SUPERFUND SUBCOMMITTEE OF THE NATIONAL ADVISORY COUNCIL FOR ENVIRONMENTAL POLICY & TECHNOLOGY ch. II, at 12 (2004), available at http://www.epa.gov/oswer/docs/naceptdocs/NACEPT_Superfund_Final-Report.pdf (last visited Oct. 11, 2005) (listing 1,518 sites on the NPL as of fiscal year (FY) 2003).

4. *Id.* (listing 886 completed actions as of FY 2003).

5. Telephone Interview with Gerald F. George, Counsel, Pillsbury Winthrop Shaw Pittman L.L.P., and former Senior Attorney, U.S. Department of Justice (DOJ), Environment and Natural Resources Division (Apr. 22, 2004) [hereinafter George Interview]. There is no current, comprehensive list of NRD sites, and older lists cover only sites involving federal trustees. In 1996, the U.S. Government Accountability Office (GAO) found that federal trustees had settled NRD claims at 98 sites. U.S. GAO, SUPERFUND: OUTLOOK FOR AND EXPERIENCE WITH NATURAL RESOURCE DAMAGE SETTLEMENTS 3 (1996) (GAO/RCED-96-71) [hereinafter GAO SUPERFUND OUTLOOK], available at <http://www.gao.gov> (last visited Oct. 11, 2005) (citing DOJ estimates through April 1995). The GAO also identified an additional 60 sites that might ultimately yield federal NRD claims of at least \$5 million. *Id.* (citing estimates by the U.S. Department of the Interior (DOI) and the National Oceanographic and Atmospheric Administration (NOAA)).

6. See, e.g., Robert L. Glicksman, *Pollution on the Federal Lands IV: Liability for Hazardous Waste Disposal*, 12 UCLA J. ENVTL. L. &

cast a “new wave” of CERCLA litigation, with NRD actions at its crest.⁷

This Article is a modest attempt to restart the debate on the ultimate utility, as opposed to the mere litigative promise, of the NRD provisions. Part II explains how NRD actions fit within CERCLA’s statutory framework, and how they differ from traditional cost recovery actions. Part III details the regulatory and other constraints on NRD trustees. Part IV outlines current NRD criticisms and recommended reforms, with an emphasis on alleged flaws in the restoration process. Part V examines trustee efforts at two active NRD restoration sites in northern California’s Sacramento River watershed: the Iron Mountain Mine outside Redding and the Cantara Loop spill site near Dunsmuir. Finally, Part VI revisits critiques of the restoration process in light of these case studies and discusses nascent reform efforts by trustee agencies. The Article concludes that while some of the current critiques are valid, others are probably exaggerated. Despite problems at some sites, the NRD program creates considerable public value and should not be drastically reworked or abandoned.

II. An Overview of the NRD Provisions

The NRD provisions of CERCLA authorize recovery of “damages for injury to, destruction of, or loss of natural resources,”⁸ including the reasonable costs of assessing such injury, destruction, or loss,⁹ resulting from hazardous substance releases.⁹ Unlike CERCLA’s better-known remediation provisions, which address the control of risks to human health or the environment from hazardous releases, the NRD provisions govern damage claims for injuries to the natural environment *itself*.¹⁰ NRD claims, like cost recovery claims under the remediation provisions, are civil and non-punitive.¹¹ Like cost recovery liability, NRD

liability is strict and may extend to current and former landowners of release sites, as well as waste generators and transporters—collectively known as potentially responsible parties (PRPs).¹²

The NRD provisions differ from the CERCLA remediation provisions in three major respects.¹³ First of all, there is no private right of action; only federal, state, or tribal entities that have been designated as public trustees may sue to recover NRDs.¹⁴ Trustees may only bring NRD claims for injured resources “belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by”¹⁵ federal, state, or tribal¹⁶ entities. For these claims, trustees cannot simply assert that hazardous releases threaten natural resources; instead, they must establish an injury to the resources, and a causal link between the releases and resource injuries.¹⁷ Finally, trustees must use any NRD recoveries only to “restore, replace, or acquire the equivalent of” injured resources, or to reimburse themselves for “reasonable

NRDs: A Proposal for a Reformulated and Rational Federal Program, 8 VILL. ENVTL. L.J. 359, 371-72 (1997). However, some commentators have argued that damage claims may be calculated in ways that are effectively punitive. See, e.g., Kevin R. Murray et al., *Natural Resource Damage Trustees: Whose Side Are They Really On?*, 5 ENVTL. L. 407, 425-26 (1999) (noting that recoveries may exceed what trustees can realistically spend on restoration).

12. 42 U.S.C. §9607(a).

13. CERCLA caps NRD at \$50 million per release or incident and bars claims for injuries prior to CERCLA’s 1980 enactment. 42 U.S.C. §9607(c)(1)(D), (c)(2) (establishing a \$50 million cap for each release or incident involving release, except those stemming from willful misconduct, negligence, or a violation of federal safety standards), 42 U.S.C. §9607(f)(1) (barring claims where damages occurred “wholly before the enactment of this Act”). CERCLA cost recovery claims are not capped and may be retroactive. See, e.g., *Franklin County Convention Facilities Auth. v. American Premier Underwriters*, 240 F.3d 534, 550-53 (6th Cir. 2001). However, both NRD provisions have (arguably) been relaxed through case law. See *United States v. Montrose Chem. Corp. of Cal.*, 104 F.3d 1507, 1520, 27 ELR 20508 (9th Cir. 1997) (a “series of occurrences of relatively short duration involving a single release or a series of releases all resulting from or connected to the event or occurrence” may constitute a single “incident involving release”); *In re Acushnet River & New Bedford Harbor: Proceedings re Alleged PCB Pollution*, 716 F. Supp. 676, 683-85, 19 ELR 21471 (D. Mass. 1989) (holding that releases associated with damages may occur prior to CERCLA’s enactment, and that even pre-enactment damages are recoverable if pre-enactment and post-enactment damages are not readily divisible).

14. 42 U.S.C. §9607(f)(1). By comparison, CERCLA’s cleanup provisions do provide a limited private cause of action. Under certain conditions, PRPs for hazardous substance releases may initiate cleanups and then bring contribution actions against other PRPs. See 42 U.S.C. §9607(a)(4)(B), 9613(b).

15. This includes property with “a substantial degree of government regulation, management, or other form of control.” *Ohio v. Department of the Interior*, 880 F.2d 432, 460-61, 19 ELR 21099 (D.C. Cir. 1989).

16. Tribes may also claim resources held in trust for the tribe or tribe members. 42 U.S.C. §§9601(16), 9607(f)(1).

17. *Ohio*, 880 F.2d at 470-72. By comparison, “a substantial *threat* of release into the environment of a pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare” can justify EPA remediation. *United States v. Dickerson*, 660 F. Supp. 227, 18 ELR 20269 (M.D. Ga. 1987) (emphasis added). Unfortunately, courts have applied varying causation standards to NRD claims. Cf. *United States v. Montrose Chem. Corp. of Cal.*, No. CV 90-3122-AAH (C.D. Cal. Mar. 27), 1991 U.S. Dist. LEXIS 10128, at **2-3 (C.D. Cal. Mar. 29, 1991) (sole or substantially contributing cause) *with In re Acushnet River & New Bedford Harbor: Proceedings re Alleged PCB Pollution*, 722 F. Supp. 893, 897 n.8, 20 ELR 20204 (D. Mass. 1989) (contributing factor), *Idaho v. Bunker Hill Co.*, 635 F. Supp. 665, 674, 16 ELR 20879 (D. Idaho 1986) (causal link).

POL’Y 233, 339-43 (1994); Kenneth R. Dickerson & Warren L. Dean Jr., *Procedure for Measuring Damages to Resources Is a Taint Upon Superfund*, NAT’L L.J., Oct. 14, 1996, at C2; Gerald F. George, *Litigation of Claims for Natural Resource Damages*, SE98 A.L.I.-A.B.A. 397, 399 (1997).

7. Glicksman, *supra* note 6, at 343; see also Michael A. Walker, *CERCLA’s Natural Resource Damage Provisions: A Loophole for Private Landowners?*, 9 ADMIN. L.J. AM. U. 425, 426 (1995), and George, *supra* note 6, at 399-400.

8. CERCLA defines natural resources as:

[L]and, fish, wildlife, biota, air, water, ground water, drinking water supplies and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States (including the resources of the fishery conservation zone established by the Magnuson-Stevens Fishery Conservation and Management Act [16 U.S.C. §§1801 et seq.]), any State or local government, any foreign government, any Indian tribe, or, if such resources are subject to a trust restriction on alienation, any member of an Indian tribe.

42 U.S.C. §9601(16).

9. 42 U.S.C. §9607(a)(1-4)(C).

10. The NRD provisions do address human harm, just in a more abstract sense than the remediation provisions. NRDs are often quantified (in part) by reference to lost human uses of resources or the existence or option value of these resources to humans. See generally Frank B. Cross, *Natural Resource Damage Valuation*, 42 VAND. L. REV. 269 (1989).

11. 42 U.S.C. §9607(a), (f)(1); William D. Brighton et al., *Natural Resource Damages Under the Comprehensive Environmental Response, Compensation, and Liability Act*, SB91 A.L.I.-A.B.A. 1599, 1605 (1997); Patrick H. Zaepfel, *The Reauthorization of CERCLA*

costs of assessing” damages.¹⁸ These last two requirements form the crux of the recent academic debate over the NRD restoration process, and the timing and methodological issues they raise are the focus of the case studies.

Trustees may seek NRDs at qualifying sites whether or not any remedial action is planned for those sites. At sites undergoing remediation, NRD claims typically cannot be filed until after EPA has investigated and selected a cleanup remedy,¹⁹ and then only for interim or residual natural resource losses the cleanup remedy does not address.²⁰ EPA must notify trustees of any potential natural resource losses and allow them to participate in any remediation investigations or settlement discussions.²¹ Federal trustee consent is also required for the settlement of any potential federal NRD claims at remediation sites.²² Remediation and restoration plans need not be perfectly consistent, but collaboration is encouraged.²³ Trustees can sometimes use studies, such as ecological risk assessment, conducted during the remedial investigation stage as a foundation for subsequent NRD assessments.²⁴ Such coordination can be very advantageous for trustees, since federal Superfund dollars cannot be used to directly finance NRD work.²⁵

III. The NRD Recovery and Restoration Process

This section outlines trustees’ basic authorities and responsibilities under the NRD provisions.

A. Trustee Obligations Under the NRD Provisions

At any given CERCLA site, multiple entities may serve as natural resource trustees. The role of lead federal trustee is typically assumed by the U.S. Fish and Wildlife Service (FWS) of the U.S. Department of the Interior (DOI) or the National Oceanographic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce.²⁶ However, other agencies within the DOI and the U.S. Departments of Agriculture, Defense, and the U.S. Department of Energy (DOE) are designated as trustees for resources under their

direct management. Most states have designated at least one trustee agency, typically an executive department with an environmental mandate.²⁷ Finally, federally recognized Indian tribes may act as trustees for their members.²⁸ Where multiple trustees share jurisdiction over a particular site, they must coordinate any NRD claims.²⁹ However, trustees are not absolutely required to sue in tandem, as long as separate actions do not result in double recovery of damages.³⁰ This Article focuses on state and federal trustees.

1. Formulation of Damage Claims

Trustees may only recover damages for:

- (1) Costs of actual “[r]estoration, rehabilitation,³¹ or acquisition” of the “equivalent of” injured resources (often collectively termed “restoration costs”)³²;
- (2) Interim losses for the period between resource injury and resource restoration³³; and
- (3) Costs of assessing the above.³⁴

The DOI has promulgated detailed NRD assessment procedures.³⁵ Trustees may substitute their own procedures, but only damage estimates prepared in accordance with the DOI’s procedures enjoy a rebuttable presumption of validity in NRD litigation.³⁶

18. 42 U.S.C. §9607(a)(4)(C), (f)(1); 43 C.F.R. §11.15(a). Section 9607(f) expressly applies the “restore, replace and acquire” language only to recoveries by federal and state trustees, suggesting tribes may have more discretion.

19. 42 U.S.C. §9613(g)(1) (barring NRD actions “before selection of the remedial action if the [p]resident is diligently proceeding with a remedial investigation and feasibility study”). However, NRD litigation filed prior to an NPL listing continues in advance of remedy selection. *See, e.g.,* Coeur d’Alene Tribe v. ASARCO, Inc., 280 F. Supp. 2d 1094, 1109 (D. Idaho 2003).

20. *See In re Acushnet River & New Bedford Harbor: Proceedings re Alleged PCB Pollution*, 712 F. Supp. 1019, 1035, 19 ELR 21206 (D. Mass. 1989).

21. 42 U.S.C. §§9604(b)(2), 9622(j)(1), 9621(f)(1)(E)-(F). EPA’s obligations to tribal trustees are not specified.

22. *Id.* §9622(j)(2) (federal trustee may consent if settling PRP “agrees to undertake appropriate actions to protect and restore” injured resources).

23. *See, e.g.,* Kennecott Utah Copper v. Department of the Interior, 88 F.3d 1191, 1219, 26 ELR 21489 (D.C. Cir. 1996).

24. George, *supra* note 6, at 407.

25. *Id.*; *see also* Laura Rowley, *NRD Trustees: To What Extent Are They Truly Trustees?*, 28 B.C. ENVTL. AFF. L. REV. 459, 464 (2001).

26. *See* Exec. Order No. 12580, 52 Fed. Reg. 2923, §1(c) (Jan. 29, 1987); Murray et al., *supra* note 11, at 419. The president designates federal trustees. 42 U.S.C. §9607(f)(2)(A). EPA is not a designated NRD trustee.

27. *See* Lloyd W. Landreth & Kevin M. Ward, *Natural Resource Damages: Recovery Under State Law Compared With Federal Laws*, 20 ELR 10134 (Apr. 1990). Governors appoint state trustees. 42 U.S.C. §9607(f)(2)(B).

28. 42 U.S.C. §§9607(f)(1), 9601(36).

29. *See* 40 C.F.R. §330.615(a) and 43 C.F.R. §11.32(a)(1). CERCLA does not specify how jurisdiction should be divided between federal and state entities. However, states have typically overseen injuries to state-owned lands (parks, forests, etc.), fish, game and wildlife, and groundwater. GAO SUPERFUND OUTLOOK, *supra* note 5, at 3.

30. *See* 42 U.S.C. §9607(f)(1) (barring double recovery) and Coeur d’Alene Tribe v. ASARCO, Inc., 280 F. Supp. 2d 1094, 1115-19 (D. Idaho 2003); *see also* United States v. ASARCO, Inc., No. CV 96-0122-NJL (D. Idaho 1998).

31. Restoration and rehabilitation are often used interchangeably in practice.

32. 42 U.S.C. §9607(f)(1). These damages may also incorporate any indirect or overhead costs necessary to support restoration. *See* Kennecott Utah Copper v. Department of the Interior, 88 F.3d 1191, 1224, 26 ELR 21489 (D.C. Cir. 1996). They may be referred to as restoration costs even where some or all funds are spent on acquisition of equivalent resources. *Id.* at 1230.

33. Ohio v. Department of the Interior, 880 F.2d 432, 454-58, 19 ELR 21099 (D.C. Cir. 1989). These interim damages may incorporate lost human resource uses (recreational, commercial, etc.), lost ecological services (such as wildlife habitat provision), and lost nonpassive or passive resource uses such as existence or option values. *See id.* at 464.

34. *In re Acushnet River & New Bedford Harbor: Proceedings re Alleged PCB Pollution*, 712 F. Supp. 994, 999, 19 ELR 21198 (D. Mass. 1989); *see also* 43 C.F.R. §11.80(b).

35. *See* 42 U.S.C. §9651(c); 43 C.F.R. §§11.60-.84. These procedures are commonly known as the Type B; the DOI also promulgated simplified Type A procedures for certain releases in coastal and marine environments and the Great Lakes. *See* 43 C.F.R. §§11.33-.35 (distinguishing Types A and B), §§11.40-.44 (codifying Type A procedures).

36. *Kennecott*, 88 F.3d at 1200. As a practical matter, many trustees have found the rebuttable presumption too limited a benefit to justify the effort and expense of full compliance with the DOI’s procedures. *See* George, *supra* note 6, at 408-09; GAO SUPERFUND OUTLOOK, *supra* note 5, at 2.

The DOI's formulation divides damage assessment into four phases.³⁷ In the preassessment and assessment planning phases, trustees estimate the likelihood and severity of a potential hazardous release affecting natural resources and develop a plan for assessing damages.³⁸ In the third phase, damage assessment, trustees link hazardous releases to natural resource injuries, characterize those injuries, and quantify damages.³⁹ Post-assessment only occurs when trustees are able to recover NRDs.⁴⁰ In this final phase, trustees design a plan for spending their NRD recoveries.⁴¹ These plans are commonly known as restoration plans, although they may also allocate funds to resource replacement and related activities.⁴² The selection of these remedies is discussed in more detail below.

2. Calculation and Use of Damage Recoveries

In general, NRD trustees enjoy wide discretion in both quantifying damage claims and spending recoveries. CERCLA mandates that damages be used "only to restore, replace, or acquire the equivalent of" injured natural resources.⁴³ "Restoration" describes any efforts to return injured resources to their baseline condition, while replacement and acquisition of the equivalent refer to substitution for injured resources with resources that provide the same or substantially similar services.⁴⁴ However, trustees need not favor restoration over replacement, since CERCLA establishes no clear hierarchy.⁴⁵ Nor are NRD recoveries necessarily limited to those sums which can be used *either* to restore or replace such resources.⁴⁶ Therefore, NRD trustees have latitude in determining the appropriate quantity of damages and remedial approach for any given site.

This latitude has proved controversial, in part because it can be much costlier to restore or replace resources than to develop surrogates for the discrete "services" these resources provide. For instance, it may be cheaper for a

trustee to construct a mechanical water filtration system than to either restore a wetland that once provided natural filtration, or acquire an "equivalent" wetland for the same purpose. The U.S. Court of Appeals for the District of Columbia (D.C.) Circuit confronted this tension in *Ohio v. U.S. Department of the Interior*,⁴⁷ a 1989 challenge to an earlier version of the DOI's damage assessment procedures. The court held that CERCLA embodies a "distinct preference for restoration cost as the measure of recovery," but suggested that an alternative standard might apply where restoration costs are "grossly disproportionate" to the use value of injured resources.⁴⁸

Despite this suggestion in *Ohio*, the current DOI procedures do not require trustees to consider whether restoration cost might be grossly disproportionate to use value.⁴⁹ In fact, under the DOI's rules, services or use values *may not* be replaced independently of the underlying resource—for instance, as by installing a water pipeline to replace fresh water once provided by a natural spring.⁵⁰ The DOI's interpretation has been upheld on the grounds that the rules contain other checks which ensure that trustees do not select options that are excessively costly.⁵¹ For instance, trustees must ensure that their methodologies for estimating damages and restoration costs are "feasible and reliable" and "cost-effective."⁵² Before selecting a restoration approach, trustees must evaluate a range of options against a series of factors.⁵³ Finally, as discussed in the next section, trustees' choices are subject to some public, and occasionally judicial, oversight.⁵⁴

B. Review and Oversight of Trustee Actions

NRD actions are rarely fully litigated.⁵⁵ In fact, there is only one complete CERCLA NRD trial on record.⁵⁶ All other NRD recoveries, including the largest federal recoveries to date, have resulted from pretrial or mid-trial settlements.⁵⁷ Judicial review of NRD settlements, when it occurs, is typically deferential. Public oversight of NRD assessments and plans may do more to constrain trustees' discretion,

37. George, *supra* note 6, at 403; *see also* 43 C.F.R. §11.13.

38. George, *supra* note 6, at 403; *see also* 43 C.F.R. §11.13(b), (c).

39. George, *supra* note 6, at 403-04; *see also* 43 C.F.R. §11.13(e).

40. John C. Cruden, *Natural Resource Damages*, SE98 A.L.I.-A.B.A. 849, 856-57 (2000); *see also* 43 C.F.R. §11.13(f).

41. Cruden, *supra* note 40, at 856-57; *see also* 43 C.F.R. §11.13(f).

42. George, *supra* note 6, at 404.

43. 42 U.S.C. §9607(f)(1). However, tribes may be less restricted than federal and state trustees. *See supra* note 18.

44. *See* 43 C.F.R. §11.82(b)(1)(i), (ii). "Baseline" refers to the "condition or conditions that may have existed at the assessment area had the discharge of oil or release of the hazardous substance under investigation not occurred." *Id.* §11.14(e). This may be defined by reference to the "physical, chemical, or biological properties that the injured resources would have exhibited or the services that would have been provided by those resources" prior to the release triggering injury. *Id.* §11.82(b)(1)(i).

45. *See* *Kenecott Utah Copper v. Department of the Interior*, 88 F.3d 1191, 1229-31, 26 ELR 21489 (D.C. Cir. 1996).

46. *Id.* (emphasis added). Courts have recognized that damage *claims* for interim lost uses are separately compensable, despite CERCLA's mandate that all damage *recoveries* be spent on resource restoration, rehabilitation, or replacement/acquisition. *Id.* at 1228. Lost use damages could presumably be used to cover gaps between estimated and actual restoration costs (if actual costs prove higher), or between estimated total restoration costs and the amount trustees are able to recover for restoration (if recoveries prove lower). Some courts have suggested lost use damages could also be spent to replace resources temporarily, through land or other acquisitions, until physical restoration is complete. *See* *Ohio v. Department of the Interior*, 880 F.2d 432, 454 n.34, 19 ELR 21099 (D.C. Cir. 1989).

47. 880 F.2d 432, 441-59, 19 ELR 21099 (D.C. Cir. 1989).

48. *Id.* at 459.

49. *See Kenecott*, 88 F.3d at 1218.

50. *See* Comments to Proposed Rules for Type B Natural Resource Damage Assessments, 58 Fed. Reg. 39328, 39340 (July 22, 1993). However, trustees can use the services once provided by injured resources as a guide in determining what restoration, replacement, or acquisition of equivalent resources is necessary. For instance, trustees could buy alternative land with freshwater supplies in lieu of restoring the original spring, or treat contaminated water to drinking water standards.

51. *Kenecott*, 88 F.3d at 1218. Some commentators have suggested that the "gross disproportionality" test could still be applied in litigation against NRD trustees who deviated from the DOI standards. *See, e.g.,* Cruden, *supra* note 40, at 869.

52. *Kenecott*, 88 F.3d at 1217.

53. *Id.* at 1218.

54. *Id.* at 1217-18.

55. George, *supra* note 6, at 399; *see also* GAO SUPERFUND OUTLOOK, *supra* note 5, at 4-5.

56. *See, e.g.,* George, *supra* note 6, at 399 n.4 (noting one completed trial and two pending trials as of June 2000), and George Interview, *supra* note 5 (confirming that of the two actions pending trial in 2000, one has settled and the other has been litigated to completion only on liability).

57. GAO SUPERFUND OUTLOOK, *supra* note 5, at 5; George Interview, *supra* note 5.

but this oversight is also limited. These issues are discussed, in turn, below.

1. Judicial and Quasi-Judicial Oversight of Trustee Actions

Because NRD cases usually settle, the most significant opportunities for judicial oversight of trustees may come through review of settlements, damage assessments, and restoration plans. Most NRD settlements, and particularly those involving federal trustees, are secured in court-approved consent decrees.⁵⁸ In theory, judges could review these decrees to confirm both: (1) that trustees' damage assessments and recoveries are adequate in light of the circumstances; and (2) that trustees' restoration choices (to the extent these have been made) are reasonable.

However, in applying the traditional standard for settlement approval (fair, reasonable, and consistent with the statute),⁵⁹ different NRD courts have applied divergent levels of scrutiny.⁶⁰ Some courts, emphasizing the public's interests in avoiding risky and protracted litigation,⁶¹ have given great deference to trustee agencies and reviewed proposed settlements mainly to ensure that they are fair and reasonable.⁶² Others have been more willing to second-guess trustees, occasionally to the point of invalidating settlements that appear to seriously undervalue underlying resources or claims.⁶³

Certain NRD cases may present opportunities for quasi-judicial, quasi-public oversight by juries or third-party intervenors. Several courts have held that CERCLA NRD defendants are entitled to jury trials on factual aspects of their cases,⁶⁴ despite the fact that CERCLA cost recovery

suits are almost always tried before a bench.⁶⁵ With respect to intervenors, a few courts have allowed public interest groups or non-trustee public agencies to challenge trustee damage claims as inadequate.⁶⁶ However, successful interventions remain rare.⁶⁷ Intervenor must show that the existing parties to a case do not adequately represent their interests, and NRD trustee agencies are—essentially by definition—presumed to act in the public interest.⁶⁸

2. Public Oversight of Trustee Actions

CERCLA's NRD provisions provide for some public oversight of trustees. Before any formal damage assessment may take place, trustees must make their assessment plans available for public review and comment.⁶⁹ Similarly, trustees must publicize their restoration and compensation determination plans (listing and selecting among restoration alternatives and describing damage estimation methodologies).⁷⁰ Any significant changes between these plans and final restoration plans (in the event of a recovery) must be disclosed before restoration begins.⁷¹ In the event of an actual NRD recovery, trustees are not required to pursue the precise restoration approach envisioned in earlier plans. Trustees' final restoration plans, developed after NRD damages are recovered to guide actual expenditures, are also subject to public review regardless of whether the plans are developed after litigation or pursuant to a settlement.⁷² Trustees must also respond to public comments on their earlier plans and disclose any significant modifications to those plans.⁷³

The DOI has characterized the provisions for public review and potential judicial review of NRD assessments as important checks on potential abuses of discretion by trustee officials.⁷⁴ This emphasis is significant, because the DOI drafted the NRD regulations so as to afford trustees considerable flexibility in formulating assessment and response strategies for a variety of damage scenarios.⁷⁵ On balance, NRD trustees are still subject to considerably *less* oversight than parties operating under CERCLA's remediation provisions.⁷⁶ This contrast has become more pronounced in re-

58. George Interview, *supra* note 5.

59. *See, e.g.*, *United States v. Davis*, 261 F.3d 1, 20 (1st Cir. 2001) (citing *United States v. Cannons Eng'g Corp.*, 899 F.2d 79, 84, 20 ELR 20845 (1st Cir. 1990)).

60. A similar uncertainty pervades judicial review of damage assessments. Some commentators have focused on the highly technical nature of these assessments, and the opportunities for public comment on trustee actions, to advocate deferential record review. *See, e.g.*, Cruden, *supra* note 40, at 870. This standard—in which a judge examines the administrative record to ensure that trustee actions were not “arbitrary and capricious”—already governs EPA cost recovery actions under CERCLA's remediation provisions. 42 U.S.C. §9613(j); *see also* George, *supra* note 6, at 590. However, other commentators have argued that NRD claims resemble common-law tort claims more than CERCLA cost recovery claims, and should therefore receive some heightened level of scrutiny, possibly as high as *de novo* review. *See, e.g.*, David Elbaum, *Judicial Review of Natural Resource Damage Assessments Under CERCLA: Implications of the Right to Trial by Jury*, 70 N.Y.U. L. REV. 352, 395-96 (1995). True *de novo* review of damage assessments would be very time-consuming and probably impracticably technical for most courts. Therefore, it is not surprising that NRD courts that have rejected the record review standard have often opted for an intermediate standard that stops well short of *de novo* review. *See, e.g.*, *United States v. ASARCO, Inc.*, 28 F. Supp. 2d 1170, 29 ELR 20188 (D. Idaho 1998) (endorsing a “rebuttable presumption” approach where “the court exercises its own judgment” to evaluate opposing party evidence contesting the validity of damage assessments, and opposing parties need not show that assessments are “arbitrary and capricious” based on record evidence alone).

61. *In re Acushnet River & New Bedford Harbor: Proceedings re Alleged PCB Pollution*, 712 F. Supp. 1019, 1027-31, 19 ELR 21210 (D. Mass. 1989).

62. *See, e.g., id.* at 1032.

63. *See, e.g.*, *Utah v. Kennecott Corp.*, 801 F. Supp. 553, 567-72, 23 ELR 20257 (D. Utah 1992).

64. *See, e.g.*, *United States v. Montrose Chem. Corp. of Cal.*, No. CV 90-3122 AAH (C.D. Cal. Mar. 27, 1991); *In re Acushnet River &*

New Bedford Harbor: Proceedings re Alleged PCB Pollution, 712 F. Supp. 994, 1006-07, 19 ELR 21198 (D. Mass. 1989).

65. *See, e.g.*, George, *supra* note 6, at 591. One court has refused to try an NRD claim before a jury, but this appears to be an isolated decision. *See United States v. Wade*, 653 F. Supp. 11, 13 (E.D. Pa. 1984) (denying demand for jury trial in CERCLA case incorporating an NRD claim).

66. *See Utah*, 801 F. Supp. at 571-72 (authorizing intervention by county water conservation district); *In re Acushnet River & New Bedford Harbor*, 712 F. Supp. at 1022-26 (authorizing intervention by the National Wildlife Federation (NWF)).

67. *See Murray et al.*, *supra* note 11, at 435-36.

68. *See id.* at 435 n.115.

69. 43 C.F.R. §11.32(c)(1); *see also id.* §11.32(e)(2) (requiring public review of significant changes).

70. *Id.* §§11.80(c) and 11.81(d)(1), (2), (4).

71. *Id.* §11.93(c).

72. *Natural Resource Damage Assessments, Part II*, 59 Fed. Reg. 14262, 14273 (Mar. 25, 1994) (to be codified at 43 C.F.R. pt. 11) [hereinafter DOI NRD Rules].

73. 43 C.F.R. §§11.32(c)(2), 11.81(d)(3), 11.90.

74. DOI NRD Rules, *supra* note 72, at 14273.

75. *Id.* at 14267.

76. George Interview, *supra* note 5.

cent years, as government trustees have increasingly opted for settlement-based approaches that allow parties to circumvent many of the formal damage assessment procedures and attendant public review provisions.⁷⁷

C. Duty Standards for NRD Trustees

CERCLA is virtually silent on the duty standard applicable to trustees. Unlike some classes of public and private trustees, NRD trustees are not subject to any explicit common-law standard of care such as fiduciary duty.⁷⁸ The lack of a clear duty standard for trustees, combined with the relative flexibility of the regulations guiding trustee conduct, can make it hard to determine when trustees are acting within the bounds of their authority. This problem underlies many common critiques of the NRD restoration process, discussed in the next section.

IV. Critiques of the Natural Resource Restoration Process

Relatively few NRD restorations have taken place since CERCLA's inception. In early 1996, the U.S. General Accountability Office (GAO) analyzed restorations at what were then the five largest federal NRD sites and found that only 11% of the total damages recovered had actually been disbursed to trustees.⁷⁹ While all five sites were undergoing restoration planning, no restoration work had begun at any of them.⁸⁰ In late 1996, the GAO conducted a follow-up survey of the 62 other federal NRD sites where monetary damages had been obtained. This survey found that 80% of total damages had been collected and that restoration planning or restoration was underway or completed at 42% of sites.⁸¹ On the other hand, restoration planning had not even begun at the majority (58%) of sites.⁸² Because the GAO's surveys are the most comprehensive to date, there is a dearth of current data on the status of restoration efforts across NRD sites. Despite this information gap, a number of CERCLA

commentators—drawing primarily on experiences at a handful of large sites—have argued that the NRD restoration process is irretrievably broken. Their salient criticisms and reform proposals are summarized here.⁸³

A. Common Criticisms of the NRD Process

Most critics of the NRD program have focused on loose trustee spending guidelines, the potentially perverse incentives underlying trustee claims and settlements, and the limited public transparency of damage assessment and restoration. This overview, like the subsequent case study analysis, highlights these issues as they affect NRD restoration.

1. Regulatory Flexibility and Spending Discretion

Virtually all NRD commentators have emphasized the enormous case-by-case discretion trustees enjoy.⁸⁴ As seen above, the DOI's procedures not only give trustees considerable flexibility in conducting damage assessments and designing restorations, but the procedures are themselves optional. Critics argue that trustees can exploit this flexibility to misspend NRD funds.

Because government trustees are typically natural resource agencies, they may be tempted to apply NRD funds to environmental projects that fall within their general mandates, but are only tangentially related to underlying damage claims.⁸⁵ For instance, the GAO has suggested that the trustee council administering the \$900 million NRD recovery for the *Exxon Valdez* oil spill improperly funded salmon and killer whale studies that may duplicate existing mandates of the Alaska Department of Fish and Game and NOAA, both of which served as trustees.⁸⁶ In some cases, trustees may seek to divert funds to areas unaffected by the immediate release—for instance, by developing drinking water supplies in watersheds unconnected to a contaminated aquifer.⁸⁷ In extreme cases, these external projects may involve resources very different from the ones dam-

77. E-mail Comments by Gerald F. George, former Senior Attorney, U.S. DOJ, Environment and Natural Resources Division (Sept. 2, 2005) (e-mail on file with author) [hereinafter George E-mail Comments].

78. See generally Rowley, *supra* note 25; see also Murray et al., *supra* note 11, at 422.

79. GAO SUPERFUND OUTLOOK, *supra* note 5, at 6 (estimate as of July 1995). These sites were Elliott Bay (Seattle, Wash.); Commencement Bay (Tacoma, Wash.); New Bedford Harbor (Acushnet River, Mass.); Montrose/Palos Verdes (offshore Los Angeles County, Cal.); and Cantara Loop (Dunsmuir, Cal.). *Id.* The Cantara site is profiled in a case study at Part V.B. *infra*. The GAO did not include the *Exxon Valdez* site, which generated a \$900 million NRD recovery, in its *Superfund Outlook*. Although NRD claims for the *Exxon Valdez* spill were brought under CERCLA and the Clean Water Act, NRDs resulting solely from oil spills are now governed by the Oil Pollution Act (OPA) and its implementing regulations, enacted in the wake of the spill. See Scott Kerin, *Alaska Sport Fishing Ass'n v. Exxon Corporation Highlights the Need to Take a Hard Look at the Doctrine of Parens Patriae When Applied in Natural Resource Damage Litigation*, 25 ENVTL. L. 897, 905 (1995) (*Exxon Valdez* claims); Judith Robinson, *The Role of Nonuse Values in Natural Resource Damages: Past, Present, and Future*, 75 TEX. L. REV. 189 (1996) (scope of CERCLA NRD provisions).

80. GAO SUPERFUND OUTLOOK, *supra* note 5, at 6-7.

81. U.S. GAO, STATUS OF SELECTED FEDERAL NATURAL RESOURCE DAMAGE SETTLEMENTS 1, 3 (1996) (GAO/RCED-97-10), available at <http://www.gao.gov> (last visited Oct. 11, 2005).

82. *Id.* at 3.

83. This Article does not discuss comparative valuation (CV) methodologies for NRD assessment. These methodologies have been extensively analyzed in the extant NRD literature. For a sample, see Danielle Marie Stager, *From Kepone to Exxon Valdez Oil and Beyond: An Overview of Natural Resource Damage Assessment*, 29 U. RICH. L. REV. 751 (1995); Jeffrey C. Dobbins, *The Pain and Suffering of Environmental Loss: Using Contingent Valuation to Estimate Nonuse Damages*, 43 DUKE L.J. 879 (1994); Judith Robinson, *The Role of Nonuse Values in Natural Resource Damages: Past, Present, and Future*, 75 TEX. L. REV. 189 (1996); and Dale B. Thompson, *Valuing the Environment: Courts' Struggles With Natural Resource Damages*, 32 ENVTL. L. 57 (2002). In addition, the high cost of and poor judicial response to past CV studies has discouraged recent trustees from undertaking them. Written comments of Gerald F. George, Counsel, Pillsbury Winthrop Shaw Pittman L.L.P., and former Senior Attorney, U.S. DOJ, Environment and Natural Resource Division (June 2005) [hereinafter George Comments].

84. Richard B. Stewart, *Liability for Natural Resource Injury: Beyond Tort*, in ANALYZING SUPERFUND: ECONOMICS, SCIENCE, AND LAW 228 (Richard L. Revesz & Richard B. Stewart eds., 1995); see also Robinson, *supra* note 79, at 203.

85. See, e.g., Murray et al., *supra* note 11, at 424-27.

86. See U.S. GAO, NATURAL RESOURCES RESTORATION: USE OF EXXON VALDEZ OIL SPILL SETTLEMENT FUNDS 26-27 (1993) (GAO/RCED-93-206BR), available at <http://www.gao.gov> (last visited Oct. 11, 2005); see also Murray et al., *supra* note 11, at 447-48.

87. See, e.g., Murray et al., *supra* note 11, at 453-54 (discussing potential plans for a settlement, later invalidated by the district court in Utah v. Kennecott Corp., 801 F. Supp. 553, 23 ELR 20257 (D. Utah 1992)).

aged in the spill. The *Exxon Valdez* trustees have been criticized for contributing over \$25 million to the construction of the Alaska SeaLife Center, a research museum.⁸⁸ The center is only partially dedicated to research on natural resources affected by the spill,⁸⁹ although it includes a trustee-sponsored exhibit showcasing restoration efforts.⁹⁰

NRD critics have also suggested that trustees may abuse the restoration process by overspending on administrative costs. Because all reasonable costs of assessing damages are reimbursable out of NRD recoveries, trustees may face incentives to “gold-plate” their NRD expenses.⁹¹ For instance, they may charge agency personnel expenses that have already been budgeted, or are otherwise part of their regular agency obligations, to their NRD accounts.⁹² Trustees may also be tempted to divert NRD recoveries to fund assessments of entirely new damage claims, especially given the liquidity constraints discussed below.⁹³

2. Structural Constraints and Conflicts of Interest

NRD critics have also noted that trustees may have structural incentives to underrecover or restore NRDs. These include financial exposure, liability exposure, and conflicting public duties.

a. Financial Exposure

NRD assessments at complex sites can cost tens of millions of dollars.⁹⁴ However, as noted above, these assessments cannot be financed with federal Superfund dollars.⁹⁵ Therefore, trustees must often spend significant sums of their own money to evaluate and establish NRD claims.⁹⁶ This financial exposure can undermine restoration efforts in several respects. Critics allege that trustees are often forced to settle quickly with select PRPs in order to generate “seed money” for more comprehensive damage assessments that may be used to support NRD claims against other PRPs.⁹⁷ Because

these seed settlements are reached before trustees fully evaluate their claims, they may significantly understate true liability and foreclose opportunities for larger damage recoveries.⁹⁸ In the event that damages turn out to be significant, trustees may not be able to recover enough to finance complete restorations. More starkly, the large upfront costs of exploring and developing NRD claims, and the risk of ultimately failing to recoup these costs, may discourage prospective trustees from ever seeking damages.⁹⁹

b. Liability Exposure

Trustee agencies may face potential NRD liability of their own, on account of their current or past ownership of release sites or generation or transportation of hazardous wastes.¹⁰⁰ While there are no comprehensive estimates of trustee NRD liability, CERCLA remediation liabilities across federal agencies have been estimated at close to \$400 billion—suggesting that total federal NRD exposure could be substantial even if there are cognizable NRD claims at only a fraction of these remediation sites.¹⁰¹ Indeed, the GAO has estimated that DOE alone could have as much as \$20 billion in NRD liability exposure.¹⁰²

Agencies may be appointed as trustees for the very same sites where they were responsible for hazardous releases (for instance, as in the case of hazardous releases from former military operations at a site where DOE now serves as trustee).¹⁰³ Where multiple trustees share NRD responsibilities at a given site, the remaining trustees could theoretically sue the liable trustee for NRDs. Government trustees, however, are unlikely to sue sister government agencies for damages. The unitary executive theory typically precludes federal agencies from suing each other under CERCLA,¹⁰⁴ leaving only state and tribal trustees to prosecute such claims. Government trustees’ ability to circumvent NRD liability can greatly undermine restoration, because trustee groups may never recover enough to fully restore or replace damaged resources unless they are able to shift the entire damage burden to other PRPs.¹⁰⁵

88. See, e.g., Rowley, *supra* note 25, at 487; Lisa Busch, *Marine Center Is Lightning Rod in Dispute Over Restoration; Alaska SeaLife Center in Seward Funded by Exxon Valdez Oil Spill Trustee Council*, 270 SCIENCE 159 (1995); EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL, ALASKA SEALIFE CENTER CONSTRUCTION (2004), available at http://www.evostc.state.ak.us/restoration/projects_facilities ASLC.html (last visited Oct. 12, 2005) [hereinafter EXXON VALDEZ OIL SPILL].

89. See EXXON VALDEZ OIL SPILL, *supra* note 88.

90. See EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL, PROJECT 513: EXHIBIT: THE CONTINUING LEGACY (2004), available at http://www.evostc.state.ak.us/restoration/projects_admin513.html (last visited Oct. 12, 2005).

91. Stewart, *supra* note 84, at 229.

92. See *id.* at 228-29; George Comments, *supra* note 83.

93. See Murray et al., *supra* note 11, at 427-28.

94. For instance, NRD trustees at the Montrose/Palos Verdes Shelf DDT site off the coast of Los Angeles spent over \$35 million on damage assessment in the 1990s alone. Restoration planning is still underway, with a draft restoration plan expected in late 2004. Telephone Interview with Greg Baker, Project Manager (Apr. 27, 2004).

95. See discussion *supra* Part II.

96. See, e.g., Murray et al., *supra* note 11, at 427-28.

97. See *id.* On the other hand, some critics argue that the NRD provisions actually encourage excessive NRD assessment efforts because trustees know that in the event of an NRD recovery, they may be able to reimburse themselves for personnel and other costs (some of which may have already been budgeted by the agency). Stewart, *supra* note 84, at 229.

98. See, e.g., Rowley, *supra* note 25, at 464-65.

99. George Interview, *supra* note 5. This problem is exacerbated by the requirement (absent in cost recovery claims for remediation) that NRD trustees prove causation. See *supra* note 16 and accompanying text. Trustees must not only assess resource damages, but also trace damages to specific releases—often a scientifically complex and costly task.

100. See, e.g., Murray et al., *supra* note 11, at 442. Because sovereign immunity does not apply under CERCLA, federal agencies may be liable in the same manner as private parties. See 42 U.S.C. §9620(a); Dickerson & Dean, *supra* note 6.

101. Dickerson & Dean, *supra* note 6.

102. U.S. GAO, NATURAL RESOURCE DAMAGES AT DOE 2 (1996) (GAO/RCED-96-206R), available at <http://archive.gao.gov/paprr2pdf/157492.pdf> (last visited Oct. 12, 2005); Murray et al., *supra* note 11, at 443.

103. Murray et al., *supra* note 11, at 442.

104. See generally Glicksman, *supra* note 6, at 295-97 (discussing theory in the context of EPA remediation actions).

105. See Murray et al., *supra* note 11, at 442. Because joint and several liability applies under CERCLA, trustees can theoretically recover full damages from a single PRP. See, e.g., Cruden, *supra* note 40, at 564. However, PRPs can limit damages by establishing divisible harm. *Id.* Moreover, insolvency may limit actual recoveries.

c. Conflicting Public Duties

Trustees' status as public agencies may also create other conflicts. Social or political considerations may discourage trustees from aggressively pursuing recoveries. For instance, trustees may hesitate to bankrupt or jeopardize working relationships with private PRPs who generate significant employment or taxes, demonstrate a willingness to cooperate on other remediation and restoration efforts, or wield considerable political power.¹⁰⁶ State trustees are probably more sensitive to these conflicts,¹⁰⁷ but even federal trustees may be influenced through lobbying and other channels. As noted above, natural resource trustee agencies may also seek to divert NRD recoveries to their higher priority environmental projects rather than pursue on-site or compensatory off-site restoration.

3. Inefficiency

The NRD restoration process is often characterized as grossly inefficient. Critics argue that the NRD provisions unduly restrict the types of resource investments trustees may make, even as they permit trustees to overspend on individual investments. They also point to a variety of transaction costs that reduce the share of NRD recoveries actually invested in natural resources.

a. Restrictions on Reallocation of Funds

The restriction of NRD spending to restoration and replacement of damaged resources may limit trustees' ability to optimize their use of NRD dollars. Critics note that the cost of replacing or restoring specific injured resources may greatly exceed the prospective public benefits of these resources. A more efficient model might allow trustees to divert NRD spending to other resources or aggregate multiple recoveries to fund larger scale environmental projects where appropriate, rather than limit spending of each individual recovery to restoration or replacement of the immediately injured resources.¹⁰⁸

b. Overspending on Restoration and Replacement Projects

Restricting outlets for NRD spending may also discourage trustees from conserving NRD funds and encourage them to overspend on restoration and replacement projects. Here again, critics point to the experiences of the Exxon Valdez Trustee Council (Exxon Valdez Council). A GAO study strongly suggests that the Exxon Valdez Council overpaid for undeveloped lands it acquired to replace spill-damaged habitat in Alaska's Prince William Sound.¹⁰⁹ The Exxon Valdez Council spent over \$200 million dollars to acquire nine large parcels comprising approximately 400,000

acres.¹¹⁰ Five of these nine parcels reportedly had very minor commercial value,¹¹¹ and three of the nine were subject to restrictive deeds limiting development and giving the United States a right of first refusal on purchase.¹¹² Nevertheless, the Exxon Valdez Council paid an average of 56% over the government-appraised value of these lands, with select parcels selling for nearly four times their appraised values.¹¹³ It is unclear how much of the alleged overspending can be attributed to structural inefficiencies in the NRD process, as opposed to the particularities of the *Exxon Valdez* case. However, the incident is widely cited as an illustration of how, under the current NRD rules, trustees can easily waste NRD funds.¹¹⁴

c. Transaction Costs

Critics also argue that transaction costs in the NRD process delay restoration and shrink the share of damages actually invested in natural resources. While critics have generally focused on coordination costs, other species of transaction costs may be equally significant.

With respect to coordination costs, critics observe that many NRD sites involve multiple trustees. These trustees may have conflicting interests in or agendas for the site.¹¹⁵ Even where trustees' goals for the site are roughly aligned, the complex overlap of agency jurisdictions can complicate planning and delay restoration.¹¹⁶ These complexities can drive up administrative costs, decreasing the funds available for physical resource restoration and replacement. But restoration delays—whether or not they stem from coordination problems—can be costly in other ways. A key issue that has been virtually ignored in the literature is the time value of NRD recoveries. Because the real value of cash awards tends to diminish over time with inflation, delayed restorations may yield fewer longer term benefits.¹¹⁷ The most concrete illustration of this dynamic occurs through the investment of settlement funds. NRDs are often held in low-interest-bearing government trust accounts. If the returns on these accounts fail to keep pace with inflation (reflected in the market prices of restoration investments), the funds available for physical restoration and replacement effectively decrease over time even if no money is spent. Other features of some NRD trust accounts, like high management fees and unwieldy cash transfer systems, may exacerbate this problem.¹¹⁸

110. *Id.* at 14.

111. *Id.* at 16.

112. *Id.* at 18.

113. *Id.* at 13-15.

114. *See, e.g.,* Murray et al., *supra* note 11, at 448-49; Diane S. Calendine, *Investigating the Exxon Valdez Restoration Effort: Is Resource Acquisition Really Restoration?*, 9 DICK J. ENVTL. L. & POL'Y 341, 352, 357 (2000).

115. *See, e.g.,* Murray et al., *supra* note 11, at 443-44.

116. Stewart, *supra* note 84, at 228. NRD sites that are also undergoing traditional remediation are particularly complex, because federal and state oversight may be split between remediation agencies like EPA and NRD trustee agencies like the DOI. *Id.* at 229.

117. Delays may be beneficial, despite these costs, if they lead to appreciably better-designed, or more cost-effective, restorations. This issue will be explored in the case studies and analysis at Parts V and VI *infra*.

118. For instance, the Exxon Valdez Council spent or lost almost nearly \$700,000 (almost 1% of the total recovery) in a few FYs, through

106. *See* Murray et al., *supra* note 11, at 434-35; Rowley, *supra* note 25, at 467; Zaepfel, *supra* note 11, at 424.

107. *See* Zaepfel, *supra* note 11, at 424; George Interview, *supra* note 5.

108. Stewart, *supra* note 84, at 229-30; *see also* George E-mail Comments, *supra* note 77.

109. *See* U.S. GAO, STATUS OF PAYMENTS AND USE OF EXXON VALDEZ OIL SPILL SETTLEMENT FUNDS 3, 13-18 (1998) (GAO/RCED-98-236), available at <http://www.gao.gov/archive/1998/rc98236.pdf> (last visited Oct. 12, 2005).

A more abstract version of the inflation problem threatens interim losses recovered in NRD settlements. As discussed earlier, trustees are authorized to recover interim damages for lost values of resources from the time of injury until completion of restoration.¹¹⁹ Because monetary damages are typically established well before restoration actually begins, trustees must estimate the appropriate time period for lost uses. If restoration takes significantly longer than anticipated, interim damage estimates may significantly understate and fail to fully compensate true interim losses to the public.

Finally, the damage assessment process may have inherently high transaction costs. Under the current process, trustees must first assess damages to natural resources, then attempt to price these damages in dollar terms in anticipation of litigation. If damages are recovered, trustees must then re-exchange their dollar damages for physical restoration and replacement. This pricing process is often criticized as costly, complex, and inaccurate.¹²⁰ A few commentators have advocated an alternative “project-based” or “in-kind” model, in which trustees and PRPs agree on restoration objectives to be implemented at each site instead of fixed dollar penalties.¹²¹ While NRD trustees are increasingly accepting in-kind settlements, dollar-denominated damages have historically dominated the settlement field.¹²² As a result, many pending restorations, such as those in the case studies below, are financed by traditional dollar recoveries.

4. General Abdications of Duty and Preclusion of Private Claims

In short, critics argue that NRD trustees are both able and likely to abuse their recovery authority under CERCLA. Some abuse may also occur in CERCLA cost recovery situations. However, abuse is particularly unfortunate in the NRD context, where action by government agencies or other designated statutory trustees can bar otherwise meritorious private damage claims. The boundaries of the NRD preclusion doctrine are fuzzy. Although CERCLA creates no private right-of-action for NRD recoveries,¹²³ private parties could theoretically use alternative causes of action, such as common-law nuisance theories, to seek damages for hazardous releases at NRD sites. While trustees cannot sue over purely private property damages, CERCLA suggests that trustees have jurisdiction over quasi-private lands with a mix of public and private interests.¹²⁴ The extant case law

suggests that if NRD trustees bring damage claims for even these quasi-private resources, the doctrine of *res judicata* may bar all subsequent private damage suits.¹²⁵

NRD trustees are, of course, presumed to represent the collective interests of their constituent citizens or members.¹²⁶ So to the extent that trustees are motivated to pursue their claims aggressively and restore resources quickly, preclusion may be appropriate.¹²⁷ But where trustees face conflicting incentives and oversight of their work is limited, preclusion may shortchange the public by leaving critical resources unrestored. For instance, the 1991 *Exxon Valdez* oil spill settlement between Exxon, the United States, and Alaska included provisions releasing Exxon from any future government claims—including NRD claims—arising out of the spill.¹²⁸ A group of recreational fisherman sued Exxon around the time of the settlement, claiming private spill damages under various state-law theories.¹²⁹ The district court dismissed their suit as precluded by the government settlement.¹³⁰ The U.S. Court of Appeals for the Ninth Circuit upheld the dismissal, emphasizing the “presumption that a state will adequately represent the position of its citizens” in pursuing NRD claims.¹³¹ Critics now argue that this presumption was unfounded. For instance, the Exxon Valdez Council trustees were unable to restore damaged salmon populations to pre-spill levels—devastating recreational fishing opportunities and driving local fishermen into bankruptcy.¹³²

B. Recommended Reforms to the NRD Process

NRD commentators have used the criticisms above to advocate a series of NRD reforms. Those most relevant to NRD restoration (as opposed to pure litigation) are outlined below.

1. Restrictions on Trustee Spending Discretion

Most NRD critiques suggest that tightening the NRD spending guidelines, so that trustees have less discretion in deciding what constitutes “restoration” or “replacement” of injured resources, would do the most to limit the potential for waste and abuse.¹³³ For instance, one commentator has recommended establishing a fixed hierarchy of alternatives that would allow trustees to acquire land for resource replacement only where direct restoration of damaged lands is infeasible, and limit land acquisitions to conservation ease-

lost interest on nonelectronic cash transfers and payment of high management fees. See *supra* note 109, at 13-18, 21-24 (estimating \$242,000 in lost interest income over FYs 1995 to 1997 and \$439,000 in management fees for 1997 alone, and recommending management changes).

119. See *supra* Part II.A.1.

120. See, e.g., Stewart, *supra* note 84, at 223-24, 231.

121. George Interview, *supra* note 5.

122. U.S. GAO, SUPERFUND: STATUS OF SELECTED FEDERAL NATURAL RESOURCE DAMAGE SETTLEMENTS 4-5 (1996) (GAO/RCED-97-10), available at <http://www.gao.gov/archive/1997/rc97010.pdf> (last visited Oct. 12, 2005); George Comments, *supra* note 83.

123. See *supra* note 13 and accompanying text.

124. See 42 U.S.C. §9601(16) (including resources “managed by, held in trust by, appertaining to, or otherwise controlled by” the United States, state governments or tribes in the definition of natural resources); see also Carol A. Jones et al., *Public and Private Claims in Natural Resource Damage Assessments*, 20 HARV. ENVTL. L. REV. 111, 117-21 (1996).

125. See Jones et al., *supra* note 124, at 118-20.

126. See 42 U.S.C. §9607(f)(2)(A)-(B) (describing federal and state trustees as acting on behalf of the public).

127. For instance, preclusion may simply reinforce CERCLA’s bar on double recovery of NRD. See 42 U.S.C. §9607(f)(1); see also *supra* note 11 and accompanying text.

128. Kerin, *supra* note 79, at 905-06; see also Murray et al., *supra* note 11, at 450.

129. Kerin, *supra* note 79, at 906-07. These suits were later consolidated into a single class action claiming public harms supplemental to those addressed in the government consent decree. *Id.* at 907-08.

130. *Id.* at 908-09.

131. Alaska Sport Fishing Ass’n v. Exxon Corp., 34 F.3d 769, 773, 24 ELR 21378 (9th Cir. 1994); see also Murray et al., *supra* note 11, at 450, and Kerin, *supra* note 79, at 909.

132. Murray et al., *supra* note 11, at 449-50.

133. See *id.* at 424-25.

ments.¹³⁴ Others have suggested that trustees be explicitly prohibited from using damages to acquire or restore resources that are very geographically remote and/or different in character from injured resources.¹³⁵ There have been also legislative proposals that would force trustees to adopt the most “cost effective” of their restoration options.¹³⁶

On the other hand, one prominent NRD commentator argues that *relaxing* the current guidelines would do more to promote trustee responsibility than tightening them. Trustees would be free to spend damages restoring resources *not* injured in the claimed release, wherever restoration of these other resources would provide greater public environmental benefits.¹³⁷ More flexibility in the use of NRD recoveries would also reduce trustee incentives to manipulate their assessment budgets at NRD sites.¹³⁸

2. Creation of an NRD Trust Fund

In response to the trustee liquidity problems discussed above, some commentators have urged the creation of an NRD trust fund.¹³⁹ Like the eponymous Superfund that has historically supported CERCLA remediation actions,¹⁴⁰ this NRD trust fund could be financed—at least in part—through taxes on risky industries or activities.¹⁴¹ Trustees could tap the fund to finance damage assessments and (in some cases) restorations.¹⁴² The availability of government seed money for new damage assessments would encourage undercapitalized, risk-averse trustees to explore NRD claims. It would also reduce pressure on trustees to settle early for amounts that may significantly understate true damages.¹⁴³ Finally, the fund could help ensure that restorations take place even where trustees are unable to recover sufficient damages. However, some NRD practitioners speculate that a trust fund would do little to accelerate the overall pace or frequency of NRD restoration, because it could be easily drained by a few large projects and the administering parties might choose to reserve scarce fund dollars for more urgent cleanup and response work.¹⁴⁴

134. Calendine, *supra* note 114, at 343.

135. *See, e.g.*, Rowley, *supra* note 25, at 486-89 (discussing gray areas in the current rules).

136. *See, e.g.*, Leslie M. Turner, *Reforming CERCLA's Natural Resource Damage Provisions: A Challenge to the 105th Congress From the Clinton Administration*, 27 ELR 10121, 10124-25 (Mar. 1997).

137. *See* Stewart, *supra* note 84, at 242-43.

138. *Id.* at 243.

139. *See, e.g.*, Murray et al., *supra* note 11, at 465; Stewart, *supra* note 84, at 242-43.

140. By some recent accounts, the Superfund is dwindling fast and may soon be exhausted. *See, e.g.*, SIERRA CLUB AND THE U.S. PUBLIC INTEREST RESEARCH GROUP (PIRG) EDUCATION FUND, THE TRUTH ABOUT TOXIC WASTE CLEANUPS: HOW EPA IS MISLEADING THE PUBLIC ABOUT THE SUPERFUND PROGRAM 9 (2004), available at <http://www.uspirg.org/reports/TruthaboutToxicWasteCleanup04.pdf> (last visited Oct. 12, 2005).

141. *See* Stewart, *supra* note 84, at 242-43. Richard Stewart also suggests replacing the current tort-like model of damage litigation with an administrative system of scheduled damages. These damages would also be paid into the fund. *Id.* at 239-43.

142. The federal OPA, passed one decade after CERCLA and shortly after the *Exxon Valdez* spill, established such a fund. *See* 33 U.S.C. §§2701(11), 2712, and 2713. The inclusion of a trust fund in OPA was motivated at least in part by recognition of this liquidity problem. George Comments, *supra* note 83.

143. *See* Stewart, *supra* note 84, at 243.

144. *See* George E-mail Comments, *supra* note 77.

3. Application of Common-Law Trust Duties to NRD Trustees

Commentators have also argued that NRD trustees should be treated more like common-law fiduciary trustees. Most have simply called for judicial or legislative application of fiduciary or public trust duty standards to current government trustees.¹⁴⁵ One critic has argued that government resource agencies are too inherently conflicted to oversee NRD claims, and should be supplanted by private, appointed trustees like the ones used in federal bankruptcy proceedings.¹⁴⁶

4. Expanded Non-Trustee Participation in NRD Litigation

Commentators have also argued that non-trustees should be freer to participate in NRD litigation, either to second-guess trustee resolution of primary damage claims or to raise supplemental damage claims. The most common proposal is to add a citizen suit provision to the NRD rules. A narrow version of this citizen suit provision might allow only procedural actions forcing trustees to pursue certain NRD claims on behalf of the public.¹⁴⁷ A broader version would enable private parties to sue trustees for damages wherever trustees mishandle NRD claims or restorations or otherwise breach the duties inherent in trusteeship.¹⁴⁸ An alternative solution would forego citizen suit provisions but relax the standards for intervention in trustee-PRP NRD litigation. This would allow private parties to challenge or even appeal final settlements they believe are not adequately restorative—reducing the risk that preclusion of private NRD lawsuits will result in underrestoration of critical resources.¹⁴⁹ To date, certain courts have proved reluctant to grant third parties standing to challenge proposed settlements on the basis that they are not sufficiently protective, making it difficult for these parties to provide an effective check on trustees.¹⁵⁰

5. Heightened Scrutiny of NRD Trustees

A number of commentators have suggested that heightened public and judicial scrutiny of trustees could reduce waste, accelerate restorations, and keep conflicts in check. Unfortunately, there are few specific proposals for increasing scrutiny. One commentator has argued that the current no-

145. *See, e.g.*, Rowley, *supra* note 25, at 494-95; James P. Power, *Reinvigorating Natural Resource Damage Actions Through the Public Trust Doctrine*, 4 N.Y.U. ENVTL. L.J. 418, 443-45 (1995).

146. Murray et al., *supra* note 11, at 458-68.

147. *See, e.g.*, Power, *supra* note 145, at 445-57. CERCLA includes a procedural citizen suit provision, but it applies only to nondiscretionary statutory duties. 42 U.S.C. §9659(a)(2). While the NRD provisions state that government “shall” sue to recover NRDs, enforcement actions are generally considered discretionary duties. 42 U.S.C. §9607(f)(1).

148. *See, e.g.*, Rowley, *supra* note 25 at 290.

149. One commentator suggests that another solution to the preclusion problem would be for trustees to simply abstain from “actions that would preclude private claims.” Carter H. Strickland Jr., *The Scope of Authority of Natural Resource Trustees*, 20 COLUM. J. ENVTL. L. 301, 322-23 (1996). However, it is unclear how these claims could be isolated in advance, or whether the private parties would be willing or able to pursue these claims in lieu of trustees.

150. *See, e.g.*, *United States v. AVX Corp.*, 962 F.2d 108 (1st Cir. 1992) (denying an intervenor environmental group, the NWF, standing to contest an NRD consent decree endorsed by government trustees and PRPs).

tice process for restoration plans does not do enough to ensure that trustees act in accordance with the public interest.¹⁵¹ Building on the third-party intervention models discussed above, he argues that groups particularly affected by NRDs—like the Alaskan fishermen in the *Exxon Valdez* case—should have direct, independent representation in NRD proceedings.¹⁵² With respect to judicial scrutiny, most commentators have simply suggested that judges use their existing discretion to limit deference and actually ensure that trustees' actions remain consistent with their public and statutory obligations.¹⁵³

6. Merger of the CERCLA Remediation and NRD Provisions

A few commentators have recommended integrating elements of the NRD provisions into CERCLA's remediation provisions.¹⁵⁴ At sites undergoing both remediation and NRD restoration, government agencies would address hazardous releases threatening human health and natural resources through a single, coordinated administrative process. Superfund or a similar NRD trust fund, financed through industry taxes or civil penalties, could be tapped to fund damage assessments and restoration planning.¹⁵⁵ Remediation plans would embrace restoration, instead of preceding and potentially conflicting with NRD restoration plans. This integration could expedite restorations and lower transaction costs.

V. Case Studies in Natural Resource Restoration

A handful of large NRD restoration sites have been extensively analyzed in the NRD literature. Aside from the *Exxon Valdez* oil spill site in Prince William Sound, Alaska, these include the Kennecott Copper mine site outside Salt Lake City, Utah, and the Acushnet River/Bedford Harbor polychlorinated biphenyl (PCB) deposit site in Massachusetts.¹⁵⁶ Experiences at these locations seem to undergird many of the NRD critiques discussed above. However, there has been little academic analysis of restoration efforts at

other NRD sites, and much of the existing analysis is out of date.

This section analyzes restoration experiences at one relatively new CERCLA NRD site: the Iron Mountain Mine near Redding, California. It also updates and expands the NRD literature on a neighboring, but older, site: the Cantara Loop spill outside Dunsmuir, California.

A. Iron Mountain Mine

In the late 19th century, the Mountain Copper Company began mining Iron Mountain, just northwest of the present-day Redding, California.¹⁵⁷ Over the next seven decades, vast quantities of copper, zinc, cadmium, and iron were extracted through underground tunnels and open pits.¹⁵⁸ Precipitation percolating through the mine dissolved these minerals into an acid broth, which then seeped to tributaries of the Sacramento River. Miners abandoned the site in 1963, but the acid mine drainage (bearing an estimated daily ton of copper and zinc) kept flowing into the watershed—devastating salmon populations and making Iron Mountain the single largest point source of toxic metals in the United States.¹⁵⁹ EPA designated Iron Mountain a federal Superfund site in 1983.¹⁶⁰ In fall 2000, the United States and California entered a consolidated settlement to fund both remediation and restoration at the mine.¹⁶¹ The settlement included \$9 million in NRD recoveries, to be administered by a council of five federal and state trustees: NOAA, the Bureau of Land Management (BLM), the Bureau of Reclamation, the FWS, and the California Department of Fish and Game (CDFG).¹⁶²

In the wake of the settlement, the Iron Mountain Mine Trustee Council (Council) began restoration planning and drafted several governance documents. In the fall of 2001, the Council executed a memorandum of understanding (MOU).¹⁶³ While the MOU's stated purpose was to "provide a framework for coordination and cooperation among the [t]rustees in the use of settlement dollars,"¹⁶⁴ it contained only one specific limitation on the use of NRD funds: a \$500,000 cap for administrative costs associated with meetings, legal review, development of a restoration plan, and

151. Murray et al., *supra* note 11, at 466.

152. *Id.* at 464, 466 (suggesting that groups be represented by a committee or given class status in court and settlement proceedings).

153. *See, e.g., id.* at 466; Power, *supra* note 145, at 443-45. There have also been proposals to subject restoration plans to administrative record review. *See, e.g.,* Turner, *supra* note 136, at 10125-27. Because the current review standards for NRD settlements are so unsettled, it is unclear whether this change would increase or decrease scrutiny. Damage assessments done in accordance with the DOI regulations are already entitled to rebuttable presumption of validity in court, but this presumption is rarely used by trustees and not well-understood. *See, e.g.,* George, *supra* note 6, at 408; record review is a relatively deferential standard, in that it would allow trustee actions to be overturned only where challengers could establish they were arbitrary and capricious in light of the record. *See, e.g.,* Cruden, *supra* note 40, at 858; George, *supra* note 6, at 408. However, one commentator has argued that uniform application of this standard could "impose a measure of accountability and consistency on trustees' implementation of the NRD program." *See* Turner, *supra* note 136, at 10127.

154. *See* Stewart, *supra* note 84, at 243-44; George Interview, *supra* note 5.

155. *See* Stewart, *supra* note 84, at 241-43.

156. For an overview of the Acushnet River site, see GAO SUPERFUND OUTLOOK, *supra* note 5, at 6, 20-22. For brief overviews of the Kennecott Copper and Coeur d'Alene sites, see Murray et al., *supra* note 11, at 452-59. The Coeur d'Alene site is still in active litigation.

157. *See* Press Release, U.S. DOJ, California Announce Settlement to Clean Up One of the Country's Most Toxic Sites 3 (Oct. 19, 2000), available at <http://www.usdoj.gov/enrd/iron.htm> (last visited Oct. 12, 2005).

158. *Id.*

159. *Id.* at 1, 3.

160. *Id.* at 3.

161. IRON MOUNTAIN TRUSTEE COUNCIL, FINAL RESTORATION PLAN FOR NATURAL RESOURCE INJURIES FROM IRON MOUNTAIN MINE 4 (2002), available at <http://www.darp.noaa.gov/southwest/iron/pdf/imm-rp.pdf> (last visited Oct. 12, 2005) [hereinafter IRON MOUNTAIN RESTORATION PLAN]; *see also* Consent Decree, United States v. Iron Mountain Mines et al. and State of California v. Iron Mountain Mines et al., No. 2-91-0768 DFL/JFM (E.D. Cal. filed Dec. 8, 2000), available at <http://www.darcnw.noaa.gov/imm-cd0.pdf> (last visited May 22, 2004) [hereinafter Iron Mountain Consent Decree].

162. *Id.* The settlement also included approximately \$2 million to reimburse the trustees for their assessment costs. *Id.*

163. Memorandum of Understanding Between the California Department of Fish and Game, the U.S. Bureau of Land Management, the U.S. Bureau of Reclamation, the U.S. Fish and Wildlife Service, and the U.S. National Oceanic and Atmospheric Administration Relating to the Restoration of Natural Resources Injured by Releases of Hazardous Substances From the Iron Mountain Superfund Site (on file with author) [hereinafter Iron Mountain MOU].

164. *Id.* at 3.

restoration monitoring and oversight.¹⁶⁵ More specific details were reserved for the final restoration plan, adopted after public review in April 2002.¹⁶⁶ The plan emphasizes restoration of the mainstem Sacramento between the Keswick Dam and the Red Bluff Dam and the tributaries draining to this segment of the mainstem, because the Keswick Dam is an absolute barrier to upstream travel by affected salmonid populations.¹⁶⁷ It establishes a grant-based funding approach, in which the Council uses NRD funds to finance third-party resource restoration or replacement, in lieu of designing its own projects. The plan also allows the Council to leverage existing grant screening processes. For restoration projects, the Council piggybacks on the California Bay-Delta (CALFED) Ecosystem Restoration Program (ERP), a comprehensive federal-state restoration effort. Lost use projects are filtered through a regional interagency recreation plan overseen by BLM.¹⁶⁸ The Council considers only those proposals that pass the CALFED and/or BLM screens, then undertakes its own review to ensure that any proposals the Council ultimately funds are sufficiently “specific to [Iron Mountain’s] natural resource injuries.”¹⁶⁹

The Iron Mountain restoration plan predicts that by relying on the CALFED and BLM processes, the Council will be able to streamline administrative costs and maximize the funds available for actual restoration and replacement.¹⁷⁰ A Council representative has indicated that reliance on CALFED and BLM also expedited development of the restoration plan itself, because the trustees were not required to develop an original or customized screening process.¹⁷¹ Moreover, it appears to have satisfied the trustees’ goal of confining administrative costs. Costs for all five agencies through 2004 were approximately \$350,000, a figure that Council representatives argue compares favorably with other NRD sites.¹⁷²

In April 2004, two years after the final Iron Mountain restoration plan was adopted, the Council funded its very first project: a \$540,000 package of BLM trail extensions and other recreational investments designed to replace “lost human use[s] near Iron Mountain Mine.”¹⁷³ In the fall of 2004, the Council committed a sum of \$2.2 million, to be paid over the course of three years, to a second project administered

by The Nature Conservancy, a private land trust.¹⁷⁴ The Nature Conservancy is using the funds to finance a series of land and conservation easement acquisitions along Battle Creek, a tributary of the mainstem Sacramento south of Iron Mountain Mine that is expected to provide valuable habitat for recovering salmonid populations.¹⁷⁵ The remainder of the Iron Mountain Fund—a sum of almost \$6.6 million—remained uncommitted as of early fall 2005, although the trustees appeared poised to contribute much of the balance¹⁷⁶ toward an \$85 to \$92 million *instream* restoration project at Battle Creek.¹⁷⁷ This final project, overseen by a coalition of four federal agencies and the private Pacific Gas and Electric Company, would provide for the removal of five hydroelectric dams, construction of fish screens and ladders on three other dams, and modification of other hydropower facilities in order to improve salmon habitat along 48 miles of Battle Creek and its tributaries.¹⁷⁸

While a three- to four-year gap between publication of a final NRD restoration plan and virtual exhaustion of the NRD fund may not seem excessive, it is striking in light of the fact that the Council has been considering funding both The Nature Conservancy and instream restoration projects for Battle Creek since the fall of 2002.¹⁷⁹ As discussed below, the slow pace of NRD implementation may stem from unresolved structural problems in the original MOU and restoration plan. The Council’s exclusive reliance on outside grant processes has apparently impeded identification of suitable projects. The Council may also have been hampered by an absence of clear internal guidelines for project selection. Vague project selection standards—coupled with a lack of regular reporting requirements—have also made it difficult to manage trustee conflicts of interest. These conflicts, in turn, appear to have reduced the transparency of the restoration process and created opportunities for misuse of funds.

1. Overreliance on External Grantmaking

While the Council’s desire to reduce administrative costs is commendable,¹⁸⁰ its decision to rely entirely on outside grant processes seems flawed in retrospect. As a threshold matter, the Iron Mountain restoration plan has a very different geographic scope than the CALFED and BLM programs

165. *Id.* at 4.

166. IRON MOUNTAIN RESTORATION PLAN, *supra* note 161, at 4-5. The plan was adopted after a public review-and-comment period, including a public meeting on the draft plan. E-mail from Daniel Welsh, Division Chief of Environmental Contaminants, FWS, to author (Oct. 19, 2004) [hereinafter Welsh E-mail].

167. Welsh E-mail, *supra* note 166. Some of the streams closest to the mine site, and most immediately effected by acid mine drainage, lie upstream of the Keswick Dam and will remain inhospitable to salmon under even the positive restoration scenario. *Id.*

168. IRON MOUNTAIN RESTORATION PLAN, *supra* note 161, at 13, 15.

169. *Id.* at 12-13.

170. *Id.* at 12, 16.

171. Welsh E-mail, *supra* note 166.

172. *Id.*

173. See Trustee Council Resolution 04-01, Resolution Regarding the Allocation of Funds for Recreation Enhancement Projects on Affected Public Lands (adopted Apr. 16, 2004) (on file with author) [hereinafter Iron Mountain Lost Use Resolution], and Proposal to Iron Mountain Mine Trustee Council for Lost Human Use Restoration Near Iron Mountain Mine, Redding Field Office, Bureau of Land Management (Jan. 14, 2004) (on file with author) [hereinafter Iron Mountain Lost Use Proposal].

174. Telephone Interview with undisclosed Trustee Council member (Sept. 1, 2005) [hereinafter Trustee Interview].

175. *Id.*; see also Battle Creek Restoration Project March 2005 Final Revised ERP PSP (Revised Proposal (Mar. 2005), at 35 and explaining Battle Creek’s role in salmonid recovery, at 4), available at http://calwater.ca.gov/Programs/EcosystemRestoration/Ecosystem_BattleCreek.asp (last visited Oct. 12, 2005) [hereinafter Battle Creek Proposal].

176. The trustees may also consider funding a few additional, smaller projects. These include a proposed recreational rail-trail extension by the Bureau of Reclamation and BLM and a proposal by a coalition of local environmental groups and land trusts to purchase BLM land for the purpose of permanently dedicating it for public recreational use. Trustee Interview, *supra* note 174.

177. *Id.*; see also Battle Creek Proposal, *supra* note 175, at 32.

178. See Battle Creek Proposal, *supra* note 175, at 1, 6, 12.

179. Telephone Interview with undisclosed Trustee Council member (Apr. 23, 2004); E-mail from Council member to Council (Sept. 30, 2002) (on file with author).

180. From 2001 to 2004, total allocations of settlement money for restoration planning and administration, across all five agencies, totaled approximately \$350,000. *Id.* These figures compare favorably with those at other NRD sites, including Cantara. *Id.*

that serve as its funding screens. The Iron Mountain restoration plan covers natural resource injuries to four on-site creeks and a stretch of the Sacramento River south of the mine and restricts instream restoration work to the salmon-supporting stretches of the mainstem Sacramento and tributaries between the Keswick Dam and the Red Bluff Dam.¹⁸¹ By comparison, CALFED's ERP covers the entire Bay-Delta ecosystem, which includes portions of the Sacramento and San Joaquin River watersheds and the Bay-Delta estuary both rivers feed.¹⁸² BLM's recreation plan is tailored to an area around Lake Shasta known as the Interlakes Special Recreation Management Area (ISRMA).¹⁸³ While the Council may only consider plans relevant to Iron Mountain resources, CALFED and BLM may not have adequate incentives to develop or solicit projects for those specific resources. Moreover, because the CALFED and BLM processes were designed to serve different objectives, they may prematurely eliminate or bypass proposals suitable for Iron Mountain.¹⁸⁴ On the other hand, the CALFED process is highly visible in the restoration community, and its relative rigor has apparently helped to ensure that the few projects that do pass the screens are high quality.¹⁸⁵

Council records suggest that some trustees began questioning the efficacy of the external grant approach shortly after its adoption. In fall 2002, one agency representative to the Council complained that the Council was at the mercy of the CALFED process for evaluating certain proposals.¹⁸⁶ Another noted that representatives of the local conservation community had voiced concerns about CALFED, noting the agency's potential insensitivity to local knowledge and needs.¹⁸⁷ Only a trickle of projects have made it through CALFED's screens to the Council over the past few years.¹⁸⁸ While the Council has already financed two restoration projects screened through CALFED, and may soon

devote many of its remaining trust funds to a third, it is unclear that the Council would have elected to finance the same projects if it had been able to choose from a larger pool of proposals.¹⁸⁹

The Iron Mountain restoration plan empowers the Council to develop an independent grant solicitation process in the event it cannot identify a sufficient range of restoration projects through CALFED.¹⁹⁰ Nevertheless, the Council has yet to formally consider an independent approach—perhaps out of concern that this would further delay restoration funding or trigger a burdensome environmental review of the Iron Mountain restoration plan.¹⁹¹ Moreover, the Council has publicly defended its reliance on CALFED, even as it has questioned this reliance internally. For instance, when a local conservation district wrote to criticize use of the CALFED process, the Council responded with a letter reiterating its belief that the process remained “the most cost effective, efficient and technically sound method for implementing restoration projects that fully compensate for natural resource injuries” at Iron Mountain Mine.¹⁹² One Council member acknowledges that restoration under CALFED has not been rapid, but insists that the long-term results will be both cost effective and environmentally sound.¹⁹³

2. Vague Restoration Guidelines

Another weakness of the restoration plan is that it does not seem to afford the Council any consistent basis for selecting projects from within the pools pre-screened by CALFED and BLM. The final restoration plan lists a series of screening and ranking criteria for the trustees to apply to restoration projects.¹⁹⁴ The screening criteria are ostensibly designed to eliminate projects that are obviously inconsistent with trustee goals, while ensuring that all projects “address resources or services at least broadly connected to those injured by [Iron Mountain] releases” and are otherwise technically and legally feasible.¹⁹⁵ The ranking criteria are designed to order these screened projects according Council priorities.¹⁹⁶ However, the criteria themselves are not ranked, nor does the plan describe how individual projects should be evaluated or scored against these criteria. For lost use and recreational projects, the plan offers no specific criteria beyond those established by BLM.

The Iron Mountain restoration plan also lacks clear targets and timelines for disbursement of NRD settlement

181. As noted earlier, these segments support recovering salmon populations who progress upstream on the mainstem Sacramento, which is ultimately blocked by Keswick. Welsh E-mail, *supra* note 166. Also, as a practical matter, the creek segments closest to the mine may be difficult or impossible to restore until EPA's remedial efforts have progressed). IRON MOUNTAIN RESTORATION PLAN, *supra* note 161, at 5, 11.

182. See INTRODUCTION TO CALFED ECOSYSTEM RESTORATION PLAN, STRATEGIC PLAN FOR ECOSYSTEM RESTORATION I (2000), available at http://calwater.ca.gov/programs/ecosystemrestoration/adobe_pdf/304c_Pages1_10.pdf (last visited Oct. 12, 2005); see also CALFED regional map at http://calwater.ca.gov/programs/ecosystemrestoration/adobe_pdf/304c_Pages1_10.pdf (last visited Oct. 12, 2005).

183. See IRON MOUNTAIN RESTORATION PLAN, *supra* note 161, at 13, 15; Summary of Restoration Activities, NOAA Damage Assessment and Restoration Program Website for Iron Mountain Mine, at <http://www.darp.noaa.gov/southwest/iron> (last visited Oct. 12, 2005).

184. This problem is likely exacerbated by CALFED's recent shift to a thematic approach. Under this approach, only proposals addressing a particular environmental issue will be considered in a given year. The current theme is agriculture-related, so the CALFED process is highly unlikely to generate any new projects in the near future that are even remotely consistent with the Council's restoration objectives. Trustee Interview, *supra* note 174.

185. Welsh E-mail, *supra* note 166.

186. E-mail from Council member to Council (Nov. 19, 2002) (on file with author) [hereinafter Nov. 19, 2002 E-mail].

187. E-mail from Council member to Council (sent Aug. 20, 2002 and forwarded to Council Aug. 23, 2002) (on file with author).

188. Telephone Interview with undisclosed Trustee Council member (Mar. 30, 2003).

189. Welsh E-mail, *supra* note 166; Trustee Interview, *supra* note 174.

190. IRON MOUNTAIN RESTORATION PLAN, *supra* note 161, at 19.

191. *Id.* at 12 (noting that “the Trustees will also be able to expedite the environmental analysis of the restoration process” by working through CALFED); e-mail from Council member to Council (Aug. 23, 2002) (on file with author) (expressing concerns that “if we stray from the [Iron Mountain Mine] Restoration Plan and the use of the CalFed process, we may trigger the need for programmatic [California Environmental Quality Act] compliance”); forwarded e-mail from Council member to Council (Aug. 20, 2002) (on file with author).

192. Copy of Letter from Iron Mountain Trustee Council to Stuart Gray, President, Board of Directors, Western Shasta Resource Conservation District (Sept. 2002) (on file with author).

193. Telephone Interview with Daniel Welsh, Division Chief of Environmental Contaminants, FWS (Apr. 26, 2004) [hereinafter Welsh Telephone Interview].

194. IRON MOUNTAIN RESTORATION PLAN, *supra* note 161, at 18-19.

195. *Id.* at 18.

196. *Id.* at 19.

funds. While it is hard to gauge how much of an impact this has had on the Council, several members have expressed frustration with the current pace of restoration.¹⁹⁷ As early as the fall of 2002, one member worried that implementation had stalled and that “the momentum that carried the Council through the completion of the restoration plan has faltered.”¹⁹⁸ More specific goals could have motivated the trustees to move faster, particularly in the early phases of implementation.¹⁹⁹

There are obvious opportunity costs to delay. Like some of the trustee groups discussed in earlier critiques, the Council initially chose to lodge its settlement funds in flexible accounts that in some years have returned an average of less than 2%.²⁰⁰ In retrospect, to the extent that the Council did not capitalize on this liquidity by funding large projects in its first few years, it might have been better off with a less liquid but higher yield account. Nevertheless, if the Council’s delay ultimately promotes the selection of better, more cost-effective projects, it may be financially justified in the long run. As one Iron Mountain trustee explained in the context of the CALFED strategy, the Council has “traded time for money,” and it is not too late for the trade to pay dividends.²⁰¹

3. Uneven Distribution of NRD Funds

There are also indications that the Council may ultimately spend the vast majority of its \$9 million in NRD funds on the restoration of a single waterway, Battle Creek. If the Council ultimately decides to follow The Nature Conservancy riparian grant with an instream restoration grant, Battle Creek-related projects will ultimately consume over three-quarters of the Council’s entire NRD restoration budget.²⁰² Battle Creek is within the target riparian restoration area identified in the Iron Mountain restoration plan.²⁰³ A focus on Battle Creek, which drains to the Sacramento from the east and represents some of the best remaining or prospective habitat for salmonids in the target reach of the river, is also consistent with the plan’s emphasis on compensatory

restoration of streams that were not directly impacted by acid mine drainage (which enters the Sacramento farther north, and from the west), and are therefore more readily recoverable. However, the Council has been unable to give equivalent consideration to restoration projects on other qualified streams—such as Clear Creek, west of the mainstem Sacramento—because no proposals concerning those streams have passed CALFED’s screens.²⁰⁴ Some outside parties have expressed concern over the Council’s emphasis on Battle Creek, and one Council member has suggested that the instream restoration project to which the Council is considering dedicating most of its remaining funds is poorly administered and would make inefficient use of remaining NRD funds.²⁰⁵

The \$540,000 BLM recreational project the Council funded outside Battle Creek is also problematic. While BLM’s grant does not represent a large outlay of funds, some of the funded activities seem at odds with the Council’s restoration objectives. BLM’s project will extend and enhance non-vehicular trails and related amenities in BLM’s interlakes special recreation management area.²⁰⁶ However, according to the Council’s resolution approving the proposal, NRD funds could also support enhanced off-road vehicle (ORV) access.²⁰⁷ Because BLM’s proposal is not a restoration proposal, it is not formally subject to the Council’s restoration screening criteria. Nevertheless, the Council’s financial support of ORV use—which is notoriously disruptive of wildlife and landscapes—seems to fly in the face of its fundamental statutory mandate to use NRD funds only to restore, replace, or acquire the equivalent of natural resources.²⁰⁸

4. Weak Conflicts Management and Low Public Transparency

Other aspects of the Iron Mountain program increase the risk that remaining NRD funds may not be allocated to the most restorative projects available. The relative vagueness of the project selection guidelines could make it easier for trustees to introduce personal biases and agendas into the grantmaking process. Moreover, the absence of conflict management standards and regular public reporting requirements could exacerbate the risk of interference.

As a starting point, it is worth noting that several of the projects the Council has recently funded or considered funding—including BLM’s recreational proposal and the pending Battle Creek instream restoration proposal—are being implemented by federal agencies also serving as Iron Mountain trustees. This is not surprising, in that NRD trustees are typically environmental or natural resource agencies. But it underscores the importance of objective, predetermined screening criteria. These criteria can help ensure

197. Telephone Interviews with undisclosed Council member (Apr. 23, 2004 and Mar. 31, 2004).

198. Nov. 19, 2002 E-mail, *supra* note 186.

199. While the Council is meant to convene monthly, there have been points over the past few years where the trustees were unable to meet for several months at a time. *See, e.g.*, Trustee Council Meeting Agenda for Dec. 10, 2003 (on file with author) (noting last meeting held Sept. 2003); Trustee Council Meeting Agenda and Minutes for Sept. 24, 2003 (on file with author) (noting last meeting held Apr. 2003); E-mail from Council member to Council (Oct. 28, 2002) (on file with author) (observing that “we have not meet [sic] as a council since May”). However, such gaps can be fairly typical of NRD trustee groups given the logistical difficulties of convening individuals based in different agencies and (often) cities. Welsh E-mail, *supra* note 166.

200. Telephone Interview with undisclosed Council member (Apr. 23, 2004). Actual yields on Iron Mountain funds have varied from 1.9% to 5.3% in 2001, 1.2% to 1.8% in 2002, 0.89% to 1.3% in 2003, and 0.89% to 2.4% through the spring of 2004. Welsh E-mail, *supra* note 166.

201. Welsh Telephone Interview, *supra* note 193.

202. Telephone Interview with Daniel Welsh, Division Chief of Environmental Contaminants, FWS (Mar. 23, 2004); Trustee Interview, *supra* note 174.

203. *See IRON MOUNTAIN RESTORATION PLAN*, *supra* note 161, at 11 (stating that “compensatory instream restoration will take place within the Keswick-Red Bluff Diversion Dam Reach), at 2 (map indicating Battle Creek drainage within this reach).

204. Welsh E-mail, *supra* note 166; *see also id.* at 2 (map indicating relative locations of Battle and Clear Creek).

205. E-mail from Council member to Council, forwarding comment e-mail from outside party (Sept. 4, 2002) (on file with author); Trustee Interview, *supra* note 174.

206. *See* Iron Mountain Lost Use Resolution, *supra* note 173, at 1; *see generally* Iron Mountain Lost Use Proposal, *supra* note 173.

207. Iron Mountain Lost Use Resolution, *supra* note 173, at 1.

208. *See supra* Part II.A.2. For a recent of discussion of the environmental damage wrought by ORVs, *see generally* Jack Hope, *Hell on Wheels*, ONEARTH, Spring 2004, at 32, available at <http://www.nrdc.org/onearth/04spr/atv1.asp> (last visited Oct. 12, 2005).

that the trustees favor those projects most likely to further their restoration goals, rather than those most connected to individual trustee agencies. It also suggests the virtues of a recusal policy. The Iron Mountain MOU provides that Council decisions “will focus on the [t]rustees’ mutual purposes of restoring injured natural resources rather than individual [t]rustee control or trusteeship over these resources,” but only trustees with a personal financial interest in a project must recuse themselves.²⁰⁹ Iron Mountain trustees are not only permitted to vote (along with the other trustees) on grant proposals from their own agencies, but encouraged to comment on, or solicit fellow agency staff to comment on, those proposals.²¹⁰

In fact, these connections, and related political pressures on Iron Mountain trustees, may have already influenced the restoration program. Use of the CALFED and BLM processes ensures that initial project screening is handled by entities relatively independent of the Council, but the Council retains authority over final funding decisions. One representative has alleged that BLM wields disproportionate influence within the Council, and speculated that the recreational lost-use project would not have been funded—at least not so early in the process—absent this influence.²¹¹ There are also indications that certain trustees are disinclined to fund projects that are too remote from the Redding area to attract much public support.²¹² While this apparent bias toward nearby projects is consistent with the Council’s restoration objective, it suggests how image concerns may distort project selection. One member has argued that the Council is most inclined to fund high-profile recreational projects that may be less restorative, but are easy to brand as Council efforts.²¹³ Personal disputes may also unduly influence disbursement. For instance, the Council was apparently poised to fund one of the Battle Creek stream restoration proposals much earlier in the process, but balked after the applicants not announced—publicly and prematurely—that they had already been granted NRD funds.²¹⁴

Regular public reporting requirements could, paradoxically, help to curb these biases. While the Council is required to make certain records publicly accessible and to respond to public comments, the current MOU and restoration plan do not obligate the Council to issue regular expenditure or performance reports. Reporting requirements would not eliminate the natural pressure trustees face to cast their restoration efforts in the best light possible. However, they could increase trustees’ incentives to make steady, tangible progress on restoration and to justify their funding choices by reference to standard criteria. Those incentives, in turn, might encourage trustees to set aside their biases and to think harder about funding nearer term restoration efforts.

In any event, the NRD program at Iron Mountain is still too new to be branded a failure. There are indications that the funding process and attendant restoration efforts will

ramp up soon.²¹⁵ Also, given the sheer size of NRD recovery, even a delayed and arguably inefficient implementation should yield considerable environmental benefits. However, the issues raised above are serious enough that the Council should consider restructuring its approach. As it happens, the Cantara Loop NRD site—located roughly 45 miles north of Iron Mountain Mine and overseen by two of the same trustee agencies—could serve as a model for that effort.

B. Cantara Loop Chemical Spill

On the night of July 14, 1991, a Southern Pacific Railroad Company freight train entered a sharp curve of track known as the Cantara Loop, just south of Mount Shasta and immediately north of the town of Dunsuir.²¹⁶ The train derailed, spilling several cars—including a tanker carrying a concentrated solution of metam sodium herbicide—off a bridge and into the Sacramento River.²¹⁷ The tanker ruptured, releasing 19,000 gallons of herbicide. Over the next two and one-half days, a toxic plume crept south toward Shasta Lake, killing all aquatic life and devastating riparian life along 36 miles of river.²¹⁸ In 1995, the FWS, CDFG, and other federal, state, and local agencies obtained a \$38 million settlement for the accident, the worst inland ecological disaster in California state history.²¹⁹ Approximately \$14 million was earmarked for NRD restoration, to be overseen by a trustee council consisting of voting representatives from the FWS, CDFG, and the Central Valley Region of the California Water Quality Control Board, as well as two non-voting representatives appointed by environmental groups who had intervened in the NRD litigation.²²⁰

There is no single restoration document for the Cantara spill site. Instead, the Cantara Trustee Council (Cantara Council)—building on a 1993 NRD assessment²²¹ and a 1995 joint memorandum of agreement (MOA) among all settling parties²²²—has developed an expenditure plan,²²³

209. See Iron Mountain MOU, *supra* note 163, at 5.

210. Telephone Interviews with undisclosed Trustee Council member (Apr. 23, 2004 and Sept. 1, 2005).

211. Telephone Interview with undisclosed Trustee Council member (Mar. 30, 2004).

212. E-mail from Council member to Council (sent Aug. 20, 2002 and forwarded Aug. 23, 2002).

213. Telephone Interview with undisclosed Trustee Council member (Mar. 30, 2004).

214. *Id.*

215. For instance, the Council is expected to fund its first stream restoration project within weeks. Telephone Interview with undisclosed Trustee Council member (Apr. 23, 2004).

216. State of California, the Resources Agency, and the California Department of Fish and Game, Final Natural Resource Damage Assessment Plan, Sacramento River: Cantara Spill 1 (Oct. 1993) (on file with author).

217. *Id.*

218. *Id.* at 2; CANTARA SPILL OVERVIEW, CANTARA TRUSTEE COUNCIL, at <http://www.cantaratrusters.org/spill.htm> (last visited Oct. 12, 2005); 1996 ANNUAL REPORT OF THE CANTARA TRUSTEE COUNCIL, available at <http://www.cantaratrusters.org/reports/1996/96reportdw.html> (last visited Oct. 12, 2005).

219. U.S. FISH AND WILDLIFE SERVICE, RESTORING OUR RESOURCES: CALIFORNIA’S UPPER SACRAMENTO RIVER, CANTARA LOOP (2002), at http://contaminants.fws.gov/Documents/cantara_web.pdf (last visited Oct. 12, 2005); CANTARA SPILL OVERVIEW, CANTARA TRUSTEE COUNCIL, at <http://www.cantaratrusters.org/spill.htm> (last visited Oct. 12, 2005). For a list of settling parties, see CANTARA SETTLEMENT MEMORANDUM OF AGREEMENT 1 (1995) (on file with author) [hereinafter CANTARA MOA].

220. See *The Cantara Trustee Council*, at <http://www.cantaratrusters.org/index.htm> (last visited May 22, 2004); see also Welsh E-mail, *supra* note 166. The intervenor representatives were active in early restoration planning and project review. *Id.*

221. See *supra* note 216.

222. CANTARA MOA, *supra* note 219.

223. CANTARA TRUSTEE COUNCIL, EXPENDITURE PLAN FOR THE UPPER SACRAMENTO RIVER ACCOUNT, CANTARA TRUSTEE COUN-

strategic plan,²²⁴ and targeted plans covering resource protection,²²⁵ public relations and education,²²⁶ aquatic and fishery management,²²⁷ and water quality.²²⁸ The Cantara Council has also developed original screening criteria for both outside projects and (ultimately) its own internal initiatives. Finally, it has released annual reports and other, more tailored public documents for each year of its operation. While current restoration activity is overseen by the state and federal agency trustees, the Cantara Council's two non-voting third-party representatives made important contributions early in the restoration process.²²⁹

By late spring 2004, roughly nine years into its term, the Cantara Council had all but finished disbursing its NRD settlement funds.²³⁰ It has taken considerably longer than expected to implement its restoration.²³¹ Nevertheless, the Cantara program is—by all recent accounts—a success. The Cantara Council was willing to adjust its funding strategy over time in order to accelerate the pace of restoration, while retaining a consistent, balanced approach to disbursement of NRD funds. Its guidance and reporting documents provide a sophisticated, detailed framework for restoration work. The Cantara Council also seems to have done a good job of managing conflicts of interest and promoting public transparency. Certain aspects of its restoration strategy do raise concerns, but these concerns seem less pervasive and pressing than those at Iron Mountain. These findings are discussed below.

1. Strategic Flexibility and Balanced Spending

Like the Iron Mountain Trustee Council, the Cantara Trustee Council initially relied on a grant program to disburse NRD settlement funds. However, the Cantara Council reconsidered this strategy once it realized that outside grants were not generating a sufficient number of qualified pro-

jects.²³² In 1997, the Cantara Council began supplementing the grant program with a trustee council initiatives program.²³³ Council staff design and develop in-house restoration, monitoring, and public education proposals for the initiatives program.²³⁴ To ensure consistency in funding decisions, the same screening criteria are applied to in-house and external grant proposals.²³⁵ This approach has helped to streamline administration of the restoration program, while mitigating conflicts of interest in funding decisions. It has also helped to accelerate overall restoration in the spill area. Finally, by increasing the number and variety of spending proposals, the trustee initiatives have likely helped to balance and diversify the Cantara Council's spending across program types and geographic areas. The Cantara Council has funded an impressive array of projects—disbursing 10 to 20 separate grants in each year from 1996 to 2002.²³⁶

On the other hand, the trustee initiatives have undoubtedly increased the Cantara NRD program's administrative expenses. While representatives to the Cantara Council are supported by their respective agency budgets under the terms of the MOA,²³⁷ staff for the trustee initiatives are paid out of NRD settlement funds. Between 1997 and 2002, these staff costs ranged from \$500,000 to \$1 million per year.²³⁸ The Cantara Council's original expenditure plan estimated that staff expenses would run 10% to 12% of annual expenditures, or approximately \$1.5 million over the projected life of the program.²³⁹ By comparison, the Cantara Council's actual staff expenses from the years 1997 to 2002 alone have exceeded \$3.8 million—dwarfing the \$350,000 in administrative costs accrued during the first several years of NRD work at Iron Mountain.

CIL (1996), available at <http://www.cantaratrusters.org/plans/expenditureplan.htm> (last visited Oct. 12, 2005) [hereinafter CANTARA EXPENDITURE PLAN].

224. CANTARA TRUSTEE COUNCIL, STRATEGIC PLAN, CANTARA SPILL RESTORATION PROGRAM (1997), available at <http://www.cantaratrusters.org/plans/stratpln.htm> (last visited Oct. 12, 2005) [hereinafter CANTARA STRATEGIC PLAN].
225. CANTARA TRUSTEE COUNCIL, UPPER SACRAMENTO RIVER RESOURCE PROTECTION PLAN (1999), available at <http://www.cantaratrusters.org/plans/resortplan.htm> (last visited Oct. 12, 2005) [hereinafter CANTARA RESOURCE PROTECTION PLAN].
226. PUBLIC RELATIONS AND EDUCATION OPERATIONAL PLAN FOR THE CANTARA TRUSTEE COUNCIL (approved Dec. 3, 1997, revised Aug. 12, 1998), available at <http://www.cantaratrusters.org/plans/ctcpr.htm> (last visited Oct. 12, 2005) [hereinafter CANTARA PUBLIC RELATIONS AND EDUCATION PLAN].
227. AQUATIC AND FISHERY MANAGEMENT OPERATIONAL STUDY PLAN FOR THE CANTARA TRUSTEE COUNCIL (1997), available at <http://www.cantaratrusters.org/plans/ctcfmsp.htm> (last visited Oct. 12, 2005) [hereinafter CANTARA AQUATIC STUDY PLAN].
228. UPPER SACRAMENTO RIVER WATER QUALITY MANAGEMENT OPERATIONAL PLAN FOR THE CANTARA TRUSTEE COUNCIL (1997), available at <http://www.cantaratrusters.org/plans/waterpln.htm> (last visited Oct. 12, 2005) [hereinafter CANTARA WATER QUALITY PLAN].
229. Welsh E-mail, *supra* note 166.
230. Telephone Interview with Craig Martz, Council member and Senior Environmental Scientist, CDFG (Apr. 27, 2004) [hereinafter Martz Interview]. The Cantara Council now plans to complete its work and issue a final report next summer (June 2005). *Id.*
231. *Id.*; see also discussion *infra* Part IV.B.1.

232. 1997 ANNUAL REPORT OF THE CANTARA TRUSTEE COUNCIL 1 (1998), available at <http://www.cantaratrusters.org/reports/1997/97reportdw.html> (last visited Oct. 13, 2005) [hereinafter 1997 CANTARA ANNUAL REPORT]; Martz Interview, *supra* note 230. In 1997, the Cantara Council also decided to streamline its existing migrant program and refine its strategic planning process. 1997 CANTARA ANNUAL REPORT 1.
233. 1997 CANTARA ANNUAL REPORT, *supra* note 232, at 1, 7-9, and 13. Although 1997 marked the first year funds were disbursed for Trustee Initiatives, the Cantara Council's original expenditure plan had provided for these initiatives. See CANTARA EXPENDITURE PLAN, *supra* note 223, at 1 (describing Direct Council Action).
234. For a sample of initiatives, see 1997 CANTARA ANNUAL REPORT, *supra* note 232, at 7-9.
235. See CANTARA STRATEGIC PLAN, *supra* note 224, at 7; Martz Interview, *supra* note 230.
236. See FINANCIAL SUMMARIES TO THE 1996-2000 CANTARA TRUSTEE COUNCIL ANNUAL REPORTS (2001), available at <http://www.cantaratrusters.org/subannual.htm> (last visited Oct. 13, 2005) [hereinafter 1996-2000 CANTARA FINANCIAL SUMMARIES] and FINANCIAL SUMMARIES TO THE 2001 AND 2002 CANTARA TRUSTEE COUNCIL ANNUAL REPORTS (on file with author) [hereinafter 2001 AND 2002 CANTARA FINANCIAL SUMMARIES] (listing annual expenditures for Cantara program staff and (in some years) wardens and geographic information systems (GIS) modeling). The total number of funded projects is smaller than the total number of grants, because some grants have funded portions of larger projects, or projects that span multiple years.
237. See CANTARA MOA, *supra* note 219, at 10 (providing that all Council members "shall pay their own costs for participation on the Council," including "travel, per diem, and other expenses associated with attendance at meetings.").
238. See 1996-2000 CANTARA FINANCIAL SUMMARIES and 2001 AND 2002 CANTARA FINANCIAL SUMMARIES, *supra* note 236.
239. Estimate based on 11% of \$14 million.

2. Strong, Specific Restoration Guidelines

The Cantara Council's guidance documents provide a detailed, robust framework for both general planning and funding of individual projects. Like the Iron Mountain MOU, the Cantara MOA outlines the trustees' authorities and obligations under the terms of the NRD settlement.²⁴⁰ However, the Cantara MOA is more detailed in several important respects. It establishes general guidelines for ranking restoration projects—providing for a wide variety of projects, but requiring geographically and ecologically remote projects to be ranked lower than closer and ecologically “in-kind” projects.²⁴¹ It also outlines some substantive restoration priorities, such as improvement of spawning access for salmon and acquisition of conservation buffers along affected waterways.²⁴²

The Cantara Council's more recent plans evince a similar precision. An expenditure plan mandated by the MOA includes annual spending projections for four major project categories: (1) restoration and enhancement; (2) habitat acquisition and protection; (3) study and research; and (4) public information and education.²⁴³ The strategic plan complements the MOA's project ranking criteria with a list of themes, goals, and strategies designed to provide an overarching vision and approach for the Cantara Council.²⁴⁴ The resource protection plan introduces seven conservation goals to guide the Cantara Council's own restoration initiatives, and a specific methodology—using geographic information systems (GIS) modeling—for evaluating individual projects or land acquisitions against these criteria.²⁴⁵ Finally, the Cantara Council's “decision support system” provides a standard, quantitative scoring system for both restoration initiatives developed by the Cantara Council and outside projects funded through its grant process.²⁴⁶ The system lists evaluation parameters (such as adequacy of project staffing) for various types of projects, then weights these parameters by assigning different maximum point values to each.²⁴⁷ The system also provides instructions for

scoring projects against each parameter. For example, to determine how many of the maximum of points to allocate to the project staffing criterion, evaluators are directed to assess project managers' credentials, field experience, and availability, as well as plans for division of labor and reporting requirements among key staff.²⁴⁸

The Cantara plans also establish a firm timeline for the entire restoration effort.²⁴⁹ The Cantara Council initially aimed to disburse its NRD funds over five years as it received settlement installments, then move into long-term monitoring.²⁵⁰ Unfortunately, it was later forced to extend its implementation schedule.²⁵¹ As at Iron Mountain, the delays have proven costly. At least one current member of the Cantara Council acknowledges that the trustees might have invested the settlement funds differently if they had realized restoration would take so long.²⁵²

Another potential problem at Cantara is its council's generous allocation of NRD funds to public information and education projects. The 1996 Cantara expenditure plan allocated nearly \$2 million to these efforts over the life of the restoration.²⁵³ Actual council spending on public education, information, and promotional initiatives has already exceeded that arguably aggressive target, reaching approximately \$2.4 million by fall 2002.²⁵⁴ By comparison, the Cantara Council disbursed \$3.8 million in grants to outside restoration, rehabilitation, and enhancement projects (excluding trustee council initiatives) over the same period.²⁵⁵

The Cantara Council justifies such expenditures as a critical counterpart to its core restoration activities. It cites the creation of a “stewardship ethic” for injured natural resources as a primary goal of its public outreach.²⁵⁶ The Cantara Council also claims a basic moral obligation to educate a wide variety of audiences—from local residents and special interest groups to environmental academics and

240. The Cantara MOA also addresses disbursement of funds to the other, non-trustee settling parties. See CANTARA MOA, *supra* note 219, at 1-9.

241. See CANTARA MOA, *supra* note 219, at 10-11. In-kind projects address “montane riparian terrestrial habitats and cold-water lotic aquatic habitats and the species closely associated with those ecosystem types.” See *id.* at 2. On-site projects are those in the “the Sacramento River from the mouth of Campbell Creek upstream to Box [C]anyon [D]am, tributaries which have their confluence within this reach, and watersheds of the tributaries that have their confluences within this reach,” but excluding “Lake Siskyou, its tributaries, and their watersheds.” See *id.* at 3.

242. See CANTARA MOA, *supra* note 219, attach. A, at 2-3 (referring to stream enhancement zones (SEZs)).

243. See generally CANTARA EXPENDITURE PLAN, *supra* note 223.

244. See CANTARA STRATEGIC PLAN, *supra* note 224, at 1; see also themes, goals, and strategies at 2-7.

245. See CANTARA RESOURCE PROTECTION PLAN, *supra* note 225, at 4-11.

246. The decision support model is published in the Cantara Council's annual grant applications. See, e.g., CANTARA TRUSTEE PROGRAM, 1999 GRANT PROGRAM GRANT APPLICATION INSTRUCTIONS FOR PROJECTS TO BE FUNDED BY THE UPPER SACRAMENTO RIVER ACCOUNT 5-24, and 58-116 (1999) (on file with author). The decision support system classifies projects into one of three major types, each with its own evaluation criteria: Restoration, Rehabilitation and Enhancement; Acquisition and Resource Protection; and Public Information and Education. See *id.* at 6.

247. See, e.g., *id.* at 7-8.

248. See *id.* at 10-11.

249. There are also timelines for certain projects. See, e.g., CANTARA WATER QUALITY PLAN, *supra* note 228, at 3 (five-year term); CANTARA AQUATIC STUDY PLAN, *supra* note 227, at 6-7 (establishing budgets for the years 1997 to 2000).

250. See CANTARA EXPENDITURE PLAN, *supra* note 223, at 1; Martz Interview, *supra* note 230; see also CANTARA MOA, *supra* note 219, at 9 (payment schedule dividing NRD settlement into five annual installments).

251. Martz Interview, *supra* note 230.

252. *Id.* The Cantara NRD funds are invested in a deposit account with a six-month variable interest rate. *Id.*

253. See CANTARA EXPENDITURE PLAN, *supra* note 223 (projecting 12.7% of \$14 million over life of the restoration).

254. Author's calculation of total expenditures on outside public information and education project grants, plus publicity costs for web development, brochures, special events, and the Upper Sacramento River Exchange project (which supports interpretive field trips, meetings, cleanups, and an annual festival), from 1996 through 2002. The estimate excludes costs for annual reports and the Cantara Council's final report, since these reports are mandated by the MOA. See 1996-2000 CANTARA FINANCIAL SUMMARIES and 2001 AND 2002 CANTARA FINANCIAL SUMMARIES, *supra* note 236.

255. Author's calculation of total expenditures on outside recreation, rehabilitation and enhancement projects, as reported by the Cantara Council, from 1996 through 2002. See FINANCIAL SUMMARIES TO THE 1996-2000 CANTARA TRUSTEE COUNCIL ANNUAL REPORTS (2001), available at <http://www.cantaratrusters.org/subannual.htm> (last visited Oct. 13, 2005), and FINANCIAL SUMMARIES TO THE 2001 AND 2002 CANTARA TRUSTEE COUNCIL ANNUAL REPORTS (2003) (on file with author).

256. CANTARA STRATEGIC PLAN, *supra* note 224, at 5.

CERCLA NRD agencies—about the restoration.²⁵⁷ While the Cantara Council undoubtedly has a duty to inform the public about its restoration efforts, a few of its educational projects could be viewed mainly as efforts to promote its own work. For instance, in fiscal year (FY) 2002, the Cantara Council spent over \$50,000 on a broadcast-quality documentary about the spill.²⁵⁸ In FY 1997, the Cantara Council donated \$75,000 to a regional visitor center in Anderson, California, 60 miles north of Dunsmuir on Interstate 5.²⁵⁹ Even less obvious promotional efforts could, arguably, violate the Cantara MOA's limitation of expenditures to "resource protection; restoration; rehabilitation; enhancement; acquisition; study and or research; and program and administrative support for these activities."²⁶⁰ At the very least, trustees must be able to explain how such large expenditures on education and information support core restoration objectives.

3. Conflict Management and Public Transparency

The Cantara Council, like the Iron Mountain Council, has no formal recusal process for review of grant proposals from trustee agencies.²⁶¹ Agency representatives on the Cantara Council may voluntarily abstain from discussions, and some representatives have reportedly done so.²⁶² In any event, as members of both the Cantara and Iron Mountain councils have argued, recusal is probably a less important check on agency favoritism than the consistent application of screening criteria.²⁶³ A more serious problem could be the implicit pressure—already noted in the Iron Mountain case study—to emphasize popular, highly visible recreation and education projects over more obscure, but environmentally valuable restoration work. It is hard to tell how much this pressure has influenced the Cantara Council. The Cantara Council has funded a number of high-profile public recreation projects over the years.²⁶⁴ However,

many of these recreational projects serve dual objectives such as habitat protection, and they are typically balanced by a large number of traditional restoration, rehabilitation, and enhancement projects.²⁶⁵

On a more positive note, the Cantara Council has clearly done a stellar job of communicating with the public. The Cantara MOA requires the Cantara Council to publish annual reports summarizing its activities and expenditures, and to treat its expenditure records as public documents according to standard public agency practice.²⁶⁶ For the most part, the Cantara Council has exceeded its mandatory reporting requirements. Besides releasing annual reports for the years 1996 to 2002,²⁶⁷ the Cantara Council has issued periodic newsletters and recreational brochures. It has also published all of these documents on its public website.²⁶⁸ By comparison, the Iron Mountain MOU simply requires its council to maintain an administrative record of spending resolutions and budgets and proposals for individual funded projects.²⁶⁹ The MOU does not establish any general transparency standards,²⁷⁰ or impose any affirmative public reporting obligations on the Council beyond release of the final restoration plan.²⁷¹

4. Lingering Concerns

The Cantara NRD program is far from perfect. It has taken the Cantara trustees nearly one decade, double their original timeline, to implement their restoration plan for the spill area. The current blended strategy of blending in-house initiatives and outside grants, while it has helped to accelerate restoration, diverts a considerable percentage of NRD settlement funds to staff and administrative costs. The Cantara Council's project screening criteria are more tailored and arguably more sophisticated than those employed at Iron Mountain. But even Cantara's criteria, are unlikely to eliminate all trustee biases—particularly public-image biases—in project selection. And while the Cantara Council's funded work is impressively varied, the sheer number and range of funded projects could also complicate long-term monitoring and dilute the ultimate environmental benefits of NRD spending.

In closing, it is important to emphasize that there are critical contrasts between the Cantara and Iron Mountain NRD sites that complicate any comparison of their respective restorations. From a logistical and technical perspective, the Cantara spill site is probably simpler to restore than the Iron

257. CANTARA PUBLIC RELATIONS AND EDUCATION PLAN, *supra* note 226, at 1-2.

258. See 2002 ANNUAL REPORT OF THE CANTARA TRUSTEE COUNCIL 10-11 (2003) (on file with author).

259. See 1997 CANTARA ANNUAL REPORT, *supra* note 232, at 9 and 13 (indicating \$75,000 for the California Welcome Center). Welcome Centers are official California state visitor centers, typically located along major interstates. For more information, see <http://81.93.139.50/cwc/Region/Default.aspx> (last visited Oct. 13, 2005).

260. CANTARA MOA, *supra* note 219, at 10.

261. Martz Interview, *supra* note 230.

262. *Id.*

263. *Id.* and Welsh E-mail, *supra* note 166. The Cantara Council member emphasized the consensus model mandated by the Cantara MOA—suggesting that because "all decisions shall be unanimous consensus," it would be hard for any one representative to decisively influence spending decisions. See CANTARA MOA, *supra* note 219, at 12. However, the Iron Mountain Council also requires unanimous approval for most decisions. See Iron Mountain MOU, *supra* note 163, at 2, 5. Moreover, Iron Mountain relies on external entities (CALFED and BLM) for its initial screening, while the Cantara screens are applied by technical staff who ultimately report to the Council. Welsh E-mail, *id.*

264. For instance, the Cantara Council spent \$372,000 in FY 2000 to construct a concrete and pedestrian walkway along the railroad bridge at the spill site, in order to "improve public safety and enhance angler access." See 2000 ANNUAL REPORT OF THE CANTARA TRUSTEE COUNCIL 12-13 (2001), available at <http://www.cantaratrusters.org/reports/2000/initiat.htm> (last visited Oct. 13, 2005). In 1999, the Cantara Council spent \$315,000 to expand the Dunsmuir City Park. See 1999 ANNUAL REPORT OF THE CANTARA TRUSTEE COUNCIL

12-13 (2000), available at <http://www.cantaratrusters.org/reports/1999/99report.html> (last visited Oct. 13, 2005).

265. The sheer number of different council grants and initiatives could suggest that the Cantara Council is spreading its NRD dollars as thinly as possible in order to maximize its public exposure. Again, though, this is difficult to confirm.

266. See CANTARA MOA, *supra* note 219, at 12.

267. With expenditures winding down, the Cantara Council has not published an annual report for 2003. It intends to produce a final summary report in June 2005. Martz Interview, *supra* note 230.

268. See <http://www.cantaratrusters.org> (last visited Oct. 13, 2005).

269. See IRON MOUNTAIN MOU, *supra* note 163, at 5.

270. The Iron Mountain MOU does state, in its section on confidentiality, that "[p]ublic sharing of scientific data, wherever possible, will be the general policy of the Trustees." However, it also cautions that "certain written and oral communications may be privileged." IRON MOUNTAIN MOU, *supra* note 163, at 6.

271. See *id.* at 4.

Mountain site, where hazardous releases are ongoing and were only recently contained.²⁷² The Cantara NRD settlement was also larger than the Iron Mountain NRD settlement, giving the Cantara trustees more flexibility to incur administrative costs while funding a variety of projects. Finally, the Cantara trustees have had a long lead time on the Iron Mountain trustees. The Council, just over three years into its tenure, has plenty of time to adjust its approach. Moreover, because only a small share of the Iron Mountain NRD funds had been formally committed as of this writing, it is too early to predict the ultimate success of the Council's restoration strategy. Iron Mountain's current problems may amount to little more than growing pains.

VI. Revisiting NRD Restoration: Is the Process Broken?

The Iron Mountain and Cantara accounts suggest that while some extant criticisms of the NRD restoration process are valid, others are probably overstated or unfounded. Moreover, certain prominent trustee agencies are pursuing internal reforms that could obviate the need for statutory or other external adjustments. This section reevaluates the salient NRD critiques and reform proposals in light of the case studies, and highlights reform efforts already underway.

A. Review of Existing Criticisms

The Iron Mountain and Cantara case studies, taken together, generally confirm allegations that trustees enjoy considerable spending discretion. They also strongly suggest that certain structural problems—particularly conflicts of interest and transaction costs—can undermine productive use of NRD funds. However, neither case study suggests that NRD trustees routinely and egregiously violate the NRD provisions or otherwise abuse public duties in their administration of damage claims. A few remaining critiques of the NRD process were impossible to either confirm or deny on the basis of the case findings.

1. Discretionary Spending

The case studies confirm that NRD spending is, in practice, highly discretionary. A few of the projects funded at Iron Mountain and Cantara—like ORV access improvements and documentary films—seem, at best, tangential to actual restoration or replacement of injured resources. The Cantara Council has allocated a potentially disproportionate share of total damages to education and outreach. The significance of this peripheral spending, however, can vary considerably depending on one's vantage point on the NRD provisions. These outlays do not seem to violate norms at other restoration sites discussed in NRD literature, and are probably dwarfed by documented excesses at sites like the *Exxon*

Valdez spill. Nevertheless, the CERCLA NRD provisions could easily be construed to exclude such expenditures. From a strict compliance perspective, the case studies are problematic because they indicate that NRD trustees may regularly and deliberately stretch the statutory definitions of restoration and replacement. From a broader restoration perspective, however, the picture is more nuanced. For instance, the Cantara experience suggests that carefully crafted outreach can inculcate conservation ethics that complement and reinforce physical restoration. Problems arise not when trustees set out to educate, but when their education strategies cross the fuzzy line into self-promotion.

In any event, the case studies do indicate that a majority of disbursed NRD funds have gone for resource restoration and replacement. Moreover, even non-restoration spending has been largely limited to the vicinity of the sites. This is a particularly important observation with respect to the Cantara trustees, who were criticized for conditionally approving—in their 1995 MOA—grant disbursements throughout the state of California. One law review article from the late 1990s cites Cantara as an illustration of how excessive spending discretion can breed abuse.²⁷³ Its author apparently did not anticipate that the assignment of low priority rankings to off-site projects (as codified in the MOA) would concentrate NRD spending around the spill site unless no suitable local projects could be found.²⁷⁴ The reality is that after nine years of operation, the Cantara trustees have yet to fund even a single project outside Shasta and Siskiyou counties.²⁷⁵

2. Conflicts of Interest

The case studies also confirm that trustee conflicts of interest may influence NRD spending. Trustee agencies frequently apply for NRD grants, yet neither the Iron Mountain nor the Cantara Council has a mandatory recusal policy for project selection and oversight. Additionally, while there is no indication that either trustee group has deferred excessively (if at all) to PRPs or other private interests, both seem very concerned about general public perceptions of their work. This excessive deference to public image can seem, superficially, benign. But the early evidence from Iron Mountain suggests how it can undermine restoration efforts by discouraging investment in worthwhile but obscure projects. It is hard to gauge the ultimate significance of these biases from the case studies alone. That said, the case studies do suggest that some basic process safeguards—such as adoption and consistent application of detailed, objective, and standardized funding criteria—can help to curb the effects of any potential biases.²⁷⁶

3. Transaction Costs

The case studies also confirm that there can be substantial transaction costs in restoration work. The current imple-

272. EPA just completed a 20-year engineering remediation project expected to contain all but 5% of the historic acid mine drainage at Iron Mountain. See, e.g., Chris Bowman, *Dam Completes System for Huge Cleanup at Mine*, SACRAMENTO BEE, May 7, 2004, at A1. However, the NRD trustees have long recognized that recovery of the streams closest to the site would be seriously constrained by ongoing releases. Welsh E-mail, *supra* note 166. Therefore, several years' gap between the NRD recovery and restoration plan adoption and completion of the remedial project has not appreciably slowed restoration. *Id.*

273. See Rowley, *supra* note 25, at 581-82.

274. See discussion *supra* Part V.B.2.

275. Martz Interview, *supra* note 230.

276. The CALFED screening process used at Iron Mountain Mine was adopted in part to manage conflicts, by isolating basic solicitation and technical analysis of proposals from trustee funding decisions. Welsh E-mail, *supra* note 166. While the CALFED checks are more external than the Cantara checks, they may serve a similar function.

mentation delays at Iron Mountain seem partially attributable to priority and scheduling conflicts between representatives of different trustee agencies. Also, because both trustee councils deposited their NRD recoveries in low-interest accounts in anticipation of quicker draw-downs, the real monetary value of the Iron Mountain and Cantara NRD settlements has probably diminished slightly over time. However, greater delay in NRD spending does not always engender greater waste of NRD funds. Rather, the Cantara experience suggests that moderate delays can facilitate the development of more balanced, considered investment strategies that result in more productive use of settlement funds.

4. Other Common Concerns

There is no evidence that the Iron Mountain or Cantara trustees faced any pressure to settle their NRD claims prematurely in order to limit their financial or legal exposure. Similarly, there is no indication that NRD litigation at either site precluded any private damage claims that might otherwise have been brought. However, this may be a function of the size and complexity of the Iron Mountain and Cantara litigation. Both NRD claims were brought by multiple federal and state trustees, both were consolidated with cost recovery claims for remediation or emergency response, and one set of claims (the Cantara claims) did attract private-party intervenors. Single trustees with NRD-only cases may be considerably more likely to undersettle their claims or compete directly with private-party claimants.

5. Trustee Duties

Finally, and most importantly, there is little indication that trustees' missteps rise to the level of breaches of public trust. This statement is unavoidably equivocal, because it is unclear what behavior would constitute breach under the NRD provisions. Nevertheless, it seems clear that—at least for relatively large, complex NRD sites like Iron Mountain and Cantara—public resource agencies are generally well-equipped to manage NRD recoveries. Restoration work is unavoidably complex. The Cantara experience demonstrates how even highly motivated trustees with clear goals for their restoration work may be forced to adjust their strategies mid-course. The Iron Mountain experience indicates how that trustees with less vision or flexibility can work for years with few tangible results. Even Iron Mountain, though, suggests that trustees are rarely negligent—let alone deliberately wasteful or dishonest, as some have intimated—in their handling of NRD claims.

Restoration scenarios like Iron Mountain's are obviously far from ideal. However, from a policy perspective, the operative question is whether any of the proposed NRD reforms would meaningfully improve outcomes at problem sites, without worsening outcomes at other sites.

B. Review of Recommended Reforms

A handful of the NRD reforms discussed earlier merit further consideration in light of the case studies. However, the Iron Mountain and Cantara experiences suggest that many other so-called reforms would not do much to promote—and might actually impede—effective restorations.

The following section focuses on the best of the current proposals and includes a few ideas for how they might be implemented.

1. Restricted Trustee Discretion

It is difficult to determine, from the case studies alone, whether more statutory restrictions on NRD spending might affect the relative efficiency of trustees' spending decisions nationwide. However, it seems unlikely that adjustments to the statutory scheme would make much of a difference in isolation. Trustees (as environmental agencies) are generally oriented toward environmental work, and the current regulations already afford them a fair amount of flexibility in choosing among environmental projects. If trustee agencies were not required to spend their recoveries directly restoring or replacing injured resources, they might be tempted to reallocate NRDs to other, higher-priority environmental projects. But the Iron Mountain and Cantara experiences suggest that even if the *legal* restrictions on remote spending were relaxed, trustees would face considerable *public* pressure to use NRD recoveries in the vicinity of actual releases.

On balance, tighter NRD rules seem unnecessary and potentially counterproductive. The case studies do strongly suggest that trustees need a certain amount of flexibility to be effective. The Cantara Council obviously benefitted from its adoption of clear, detailed restoration plans. Nevertheless, the real key to the Cantara Council's success seems to have been its willingness and ability to adjust its restoration strategy. This research suggests that reforms that increase trustees' flexibility—for instance, by lowering the cost of midcourse corrections like the Cantara Council's adoption of a new grant system—could do more to improve the quality of restorations than reforms that seek to simply cabin trustees' discretion. An NRD trust fund, discussed below, could help.

2. Creation of an NRD Trust Fund

An NRD trust fund is probably not viable in the current political and economic climate,²⁷⁷ but the fund concept deserves mention because it has long-term promise. Existing proponents have focused largely on the potential benefits of a fund in instances where trustees lack the capital to undertake effective damage assessments or restorations.²⁷⁸ However, a cleverly designed fund could also support the work of well-capitalized trustee groups like the Iron Mountain and Cantara Councils. The case studies indicate that even successful trustees with multimillion dollar recoveries can be hamstrung by limited investment options. They must trade liquidity against return, sacrificing long-term investment growth for the assurance that funds will be available on demand as they are needed for restoration. A revolving NRD fund would allow trustees from across the nation to bundle their recoveries into a consolidated fund. That fund (due to its considerably larger volume) could then be largely invested in a portfolio of higher yielding investments, which could be liquidated over time to generate cash for individual restorations. Trustees would be guaranteed access to the full

277. See *supra* note 140 (on the decline of CERCLA's long-established Superfund remediation trust fund).

278. See discussion *supra* Part IV.B.2.

balance of their original NRD recoveries, but would also have the assurance that any unneeded cash was being productively invested. This would decrease the monetary opportunity costs of delay and encourage trustees to plan their restorations wisely.

A modest alternative to a trust fund would be to relax the statutory provisions requiring trustees to channel each individual NRD recovery to restoration work at the affected site, so that trustees could pool multiple recoveries for broader-based projects.²⁷⁹ This reform would not alter the essential financing of CERCLA restoration, which would still come from NRD settlements, but it would improve liquidity by giving agencies more flexibility in the timing and allocation of expenditures.

3. Heightened Public and Judicial Scrutiny of NRD Trustees

The existing proposals for heightened scrutiny of NRD trustees are so vague that it is hard to respond to them in much depth. The case studies do indicate that *public* scrutiny of the NRD restoration process probably should be increased. Iron Mountain's relative insularity and Cantara's relative transparency cannot be traced to any single contrast in approach. However, the Iron Mountain case suggests that when trustees do not have regular reporting requirements, they may find it easier to insulate themselves from public criticism and resist legitimate calls for adjustments in restoration strategy. By comparison, the annual plan requirement embedded in the Cantara MOA may have imposed a measure of market discipline on the Cantara Council, by increasing trustee incentives to deliver tangible results. The participation of nongovernmental intervenor parties in the early years of the Cantara restoration may also have encouraged openness on the part of the Cantara Council.

The case studies thus suggest that increased public scrutiny could—in addition to its other, broadly democratic virtues—actually improve the quality of physical restorations. However, the current NRD system leaves decisions about transparency largely in the hands of individual trustees. Beyond adoption of the final restoration plan,²⁸⁰ the only reporting requirements for NRD trustees are those that flow from their own governance documents and (except in the case of tribal trustees) from their status as public agencies. CERCLA (or, more likely the DOI's NRD regulations) could be amended to establish certain minimum reporting requirements for the entire restoration process. These requirements could be set through a system of negative defaults, to preserve the flexibility and site-specificity that are so essential to good restoration work. Under a default system, trustees would still have the option of adopting customized reporting requirements at the start of the resto-

ration process and codifying these in an MOU or other document. Trustees who chose not to design their own rules would be automatically subject to standard reporting rules. These standard rules would be relatively stringent to provide new trustees an incentive to consider customizing their approaches.

Unlike heightened public scrutiny, heightened *judicial* scrutiny of NRD restoration seems both infeasible and undesirable.²⁸¹ Restoration work is invariably complex and site-specific. The case studies demonstrate that it can be extremely difficult to predict—before implementation—which restoration strategies will be most effective at any given site. It is hard to see how courts could provide much clarity at this stage, even assuming that judges were willing and qualified to make detailed inquiries into trustee plans and practices.²⁸²

4. Establishment of Public Duty Standards and Appointment of Private Trustees

The case studies suggest that there is no pressing need to adopt explicit duty standards for NRD trustees, let alone replace the current system of (mostly) public trustees with a network of private, appointed trustees. Both strategies would be most attractive in a scenario where NRD trustee agencies routinely and deliberately abused their statutory and public mandates. The Iron Mountain and Cantara experiences suggest that most trustees are considerably more conscientious, despite the presence of some unmitigated conflicts of interest. Even assuming trustee abuse were rampant, it is unclear that formal duty standards would do much to curb it. These standards would presumably have to be enforced by courts, and—as just discussed—judicial oversight of NRD restorations is limited. Appointment of private trustees might reduce both conflicts and reliance on judicial oversight (post-appointment), but it would have serious countervailing weaknesses. Restoration is not bankruptcy. Public resource agencies bring diversified scientific expertise to the restoration process. They are often intimately familiar with local conditions and constraints that may bear on restoration strategy—particularly when, as at both Iron Mountain and Cantara, state or local agencies serve along with federal trustees. The case studies suggest that these characteristics are crucial, but it is hard to imagine any private party duplicating them on the scale of a federal or state agency.

5. Other Reforms

The case studies do not shed much light on the remaining reform proposals. Integrating the NRD provisions with CERCLA's remediation provisions could presumably reduce coordination costs at sites undergoing both remediation and restoration. However, the gains from this integration could vary considerably from site to site. At Iron Mountain, for instance, it seems unlikely that joint oversight

279. George E-mail Comments, *supra* note 77.

280. Nonfederal NRD trustees who do not follow the DOI's procedures may not even be forced to publish their restoration plans. Standard federal agency practice, by contrast, is to release a restoration plan at the same time as the consent decree adopting a formal settlement goes out for public comment. George Comments, *supra* note 83. Federal agencies are also generally required to publish details of their restoration planning through the operation of the National Environmental Policy Act (NEPA), which requires agencies to prepare formal evaluations of the environmental effects major federal projects "significantly affecting the quality of the human environment." See NEPA, 42 U.S.C. §§4321-4370d, 4331(C), ELR STAT. NEPA §§2-209, 102(C).

281. Because the Iron Mountain and Cantara case studies are focused on the NRD restoration process, they do not shed much light on calls for heightened scrutiny of trustees' NRD recoveries or pre-recovery activities (such as damage assessments).

282. In fact, at least one experienced NRD practitioner has argued that judges are—for the most part—uninterested in and/or poorly qualified for these inquiries. George Interview, *supra* note 5.

would significantly alter the pace or geographic scope of the NRD restoration. The Iron Mountain trustees did choose to focus their restoration efforts on the mainstem Sacramento River and its healthier tributaries, rather than on the creeks draining the mine site. But they did so because restoration of the proximate creeks would be futile due to the presence of dams blocking salmonid migration and the lingering effects of acid mine drainage not because of any inherent difficulties communicating or working with EPA.²⁸³

C. Trustee Reform Efforts

Trustee agencies are not insensitive to calls for NRD reform, and some are already experimenting with new internal approaches. In May 2004, NOAA's Chief of Damage Assessment, Bill Conner, publicly endorsed a "cooperative" model that would largely merge the traditional damage assessment and restoration planning phases.²⁸⁴ Under this approach, which is modeled on the restoration provisions of the Oil Pollution Act (OPA), the damages CERCLA NRD trustees seek through litigation would be calculated in terms of actual restoration costs, rather than the estimated dollar value of underlying lost resources and resource services.²⁸⁵ Conner argues that this result-oriented approach would save time and money by eliminating the need to convert dollar damages to restoration budgets after the fact, while enhancing understanding of funding plans and priorities among trustees, potentially responsible entities, environmental and community groups, and the greater public.²⁸⁶ The cooperative model would also emphasize voluntary collaboration and joint funding of (and access to) restoration studies from the inception of any NRD dispute, without requiring perfect alignment of party interests.²⁸⁷ NOAA has begun promoting the model through a new initiative known as the cooperative assessment process (CAP).²⁸⁸ CAP is designed to better engage environmental and industry groups in, and improve the general transparency and flexibility of, NRD and other restoration efforts.²⁸⁹

It is important to note that because individual restorations can last decades, trustees seeking NRD reform cannot limit their focus to new NRD sites. Rather, they must actively re-evaluate and adjust the strategies underway at existing sites. In doing so, they may confront incredibly difficult choices. One recent example involves federal efforts to restore bald eagle populations on Santa Catalina Island, off the coast of metropolitan Los Angeles. Since the 1940s, contamination from a large undersea deposit of the pesticide dichlorodiphenyltrichloroethane (DDT) at what is now known as the Montrose Superfund site has passed up the marine food chain to the fish-eating eagles, causing fatal eggshell thin-

ning.²⁹⁰ In the 1990s, a coalition of federal and state trustee agencies recovered \$140 million in NRD—the largest sum since the *Exxon Valdez* spill—from Montrose defendants and began channeling some of the funds into eagle restoration efforts that began in the 1980s.²⁹¹ One-quarter century later, the Catalina eagles' reproductive success has been so limited that trustees have reluctantly concluded that remaining funds would be better spent attempting to restore eagle populations on the Channel Islands, farther from the DDT deposit.²⁹² If this recommendation is adopted, the trustees will abandon a restoration program that has already cost an estimated \$2 million in NRD funds.²⁹³ Worse, they will do so knowing that—unless alternative fundraising for the Catalina program proves wildly successful—the nascent eagle population they have worked so hard to sustain there will simply vanish.²⁹⁴

The Montrose saga is a striking example of how even the best-laid restoration plans may not survive the tests of time and experience. It is also an important reminder that much of the alleged waste in NRD restoration may owe to underlying scientific uncertainties rather than flaws in the overlying regulatory structure. To the extent that new NRD sites remain both ecologically complex and ecologically unique from their predecessors, these uncertainties will not disappear as the program matures. NRD reforms should therefore focus on enabling trustees to recognize and adjust to new scientific information as quickly and efficiently as possible. Additional trustee oversight, to the extent it hampers this flexibility, may ultimately do more harm than good to the public interest in restoration.

VII. Conclusion

The restoration process is not broken. My research suggests that there are serious problems at some NRD sites, but also that trustees are doing stellar work at others. It also illustrates that it is extremely difficult to forecast the success of individual restoration efforts from a simple prospective analysis of the CERCLA statute and NRD regulations. It is especially telling that the Cantara site, once held out as an example of how flexible spending rules can foster trustee abuse, has since emerged as a model of what careful NRD stewardship can achieve.

There are undoubtedly certain factors that—over time, and across a large number of sites—could help predict the success of individual restorations. The problem is that all of the current NRD critiques are either entirely abstract or (like this Article) based on experiences at a small sample of sites. This information shortage is understandable, given how few restorations have taken place under the CERCLA NRD provisions and how little data on these restorations has been aggregated. It does suggest, however, that all calls for radical NRD reform are premature. This is particularly true given that the most studied NRD sites are probably not even roughly representative of the universe of sites. As one analyst notes, "[h]uge spills like the [*Exxon Valdez*] are not the

283. See *supra* note 170 and accompanying text; see also Welsh E-mail, *supra* note 166.

284. See Bill Conner & Ron Gouget, *Getting to Restoration*, ENVTL. F., May/June 2004, at 19, 22-24.

285. See *id.* at 22-24.

286. See *id.* at 24.

287. See *id.* at 24-27.

288. See NOAA, *Cooperative Assessment Process* fact sheet, at <http://www.darp.noaa.gov/partner/cap/index.html> (last visited Oct. 13, 2005).

289. See *id.*

290. See Marla Cone, *DDT May Outlast Eagles*, L.A. TIMES, May 22, 2005, at B1.

291. See *id.*

292. See *id.*

293. See *id.*

294. See *id.*

norm, obviously, and speak little to whether our current procedures are adequate or fair.”²⁹⁵ In fact, the limited existing evidence suggests that restoration typically proceeds more quickly at smaller sites.²⁹⁶ This faster pace may well reflect fewer trustee conflicts or lower transaction costs, although we currently lack the information to establish this.

While it is too early to condemn the NRD process, some limited regulatory reforms may be in order. But the difficult question remains: which reforms will do most to curb fail-

ures at some sites, without destroying the conditions that have fostered success at others? As the juxtaposition of the Cantara and Iron Mountain cases demonstrates, the NRD rules’ flexibility can be cast as either a blessing or a curse. It is also critical to step back from the rules. This research strongly suggests that regulations are not the only—or even, necessarily, the single most important—force shaping trustee behavior. Critics of the NRD process must acknowledge that responses to natural resource injuries, like the resources themselves, are necessarily unique and site-specific. Perfect regulations cannot ensure perfect restorations.

Ultimately, the most important environmental legacy of the CERCLA NRD program may be its spirit, not its design. Even in their current, flawed incarnation, the NRD provisions offer a new paradigm for government environmental response. The brightest restoration experiences presage a world where environmental agencies strive not only to erase the scars of pollution from our natural landscapes, but to actively improve and safeguard the long-term health of those landscapes. If this is the character of the heralded new wave of NRD activity, we should welcome its approach.

295. Gordon J. Johnson, *Paying the Piper: Comments on Natural Resource Liability for Natural Resource Injury: Beyond Tort*, 6 ALB. L.J. SCI. & TECH. 265, 276-77 (1996) (emphasis added).

296. For instance, when the GAO surveyed the five largest federal NRD sites for its *Superfund Outlook*, it found that 40% of settlement funds had been collected, 11% of collections had been disbursed, and no restoration had been undertaken as of July 1995. See GAO SUPERFUND OUTLOOK, *supra* note 5, at 6. When the GAO was asked to survey the remaining 62 federal NRD sites with monetary damages, one year later, it found that 80% of settlement funds had already been collected and 19% had been allocated. See U.S. GAO, STATUS OF SELECTED FEDERAL NATURAL RESOURCE DAMAGE SETTLEMENTS 1 (1996) (GAO/RCED-97-10), available at <http://www.gao.gov> (last visited Oct. 13, 2005).